

# **PUBLIC TRANSPORT INTERVENTIONS AND TRANSPORT JUSTICE IN SOUTH AFRICA: A LITERATURE AND POLICY REVIEW**

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## **ABSTRACT**

Although transportation is a field of government intervention in which consideration of justice traditionally has played only a marginal role (Martens & Golub, 2011), there is a rapidly growing body of international literature on transport justice or equity – a more fair, equitable distribution of the benefits and disadvantages of transportation interventions. There is also an increasing interest in transport justice in South Africa, articulated largely as policies or interventions that reduce the consequences of transport disadvantage: improved accessibility and the reduction of poverty and transport-related social exclusion. This interest has to some extent been catalysed by the introduction of Bus Rapid Transport (BRT) systems and the hopes these have raised for improved and equitable mobility.

The paper begins with an overview of the major discourses around transportation justice or equity, then considers the policies and public transport interventions proposed in South Africa through an equity ‘lens’. Data includes only peer-reviewed, published literature and public policy; not included in the review are anecdote, media release, and marketing materials. Key words used to source the literature include social equity, social justice, transportation poverty, social impacts, accessibility, transportation disadvantage, sustainable livelihoods, poverty alleviation, and more recently social exclusion/inclusion.

This paper forms part of a body of work commissioned by WWF Low-Carbon Transport Project, to contribute to a discussion regarding the way in which public transport interventions are planned, prioritised and evaluated. Although the peer-reviewed literature suggests that South Africa’s new public transport systems have failed to achieve a significant impact on poverty or transport disadvantage, this paper proposes that alternative evaluation approaches – in both the planning and the impact assessment phases – might lead to a more nuanced understanding of any benefits achieved.

## **1. INTRODUCTION**

Although transportation is a field of government intervention in which consideration of justice has traditionally played only a marginal role (Martens & Golub, 2011), there is a rapidly growing body of international literature on transport justice or equity – a more fair, equitable distribution of the benefits and disadvantages of transportation interventions. There is also an increasing interest in transport justice in South Africa, articulated largely as policies or interventions that reduce the consequences of transport disadvantage: improved ‘accessibility’ and the reduction of poverty and transport-related social exclusion. Although longitudinal (intergenerational) equity, and exclusion in terms of participation in planning and decision-making, have significant relevance to the discussion, this paper focuses on poverty-related access and exclusion.

This paper first presents an overview of the major discourses around transportation justice (section 2): if the purpose of transport equity is the fair distribution of transport benefits, what, precisely, are those benefits, and how should they be measured or evaluated? Section 3 notes the consequences of transport disadvantage (the inequitable distribution of transport benefits), and sections 4 and 5 consider the policies and public transport interventions proposed in South Africa as the primary means of overcoming transportation disadvantage. The three major interventions considered are the post-2010 Bus Rapid Transport (BRT) systems of Rea Vaya (City of Johannesburg) and MyCiTi (Cape Town), and briefly, the Gautrain Rapid Rail Link (Johannesburg-Pretoria, Gauteng Province). The purpose of the paper is not to look at what transport interventions could have been implemented instead of BRT or rapid rail, but to consider any peer-reviewed evaluations of these interventions within the context of South Africa’s stated transport equity-related goals. Section 6 offers alternative forms of transport project evaluation methods, while Section 7 contemplates whether, had alternative evaluation methods been applied to South Africa’s new transport interventions, a literature review might have encountered a different understanding of the transport and ‘non-transport’ benefits.

## **2. MOBILITY, ACCESS AND TRANSPORT JUSTICE**

Transportation equity or justice usually refers to the fairness with which the impacts of transportation (benefits and costs) are distributed (Litman, 2014). Horizontal equity (also called fairness and egalitarianism) is concerned with the distribution of impacts between individuals and groups considered equal in ability and need; vertical equity is concerned with the distribution of impacts between individuals and groups that differ in abilities and needs, for example by income or social class (also called social justice, environmental justice and social inclusion) or in transportation ability and need (known as universal design). By this definition, ‘transport policies are equitable if they favour economically, socially or mobility disadvantaged groups, therefore compensating for overall inequities. Policies favouring disadvantaged groups are called progressive, while those that excessively burden disadvantaged people are called regressive’ (Litman, 2014).

The main challenge to meeting transport needs in an equitable manner lies in how that need is defined or justified (Vasconcellos, 2012). Having defined a need, the

second challenge, notes Vasconcellos, is to 'decide whether this need should be catered for or provided using public resources. In all instances, it is clear that the definition of a 'need' should be arrived at collectively and be politically and economically supported' (Vasconcellos, 2012). Karel Martens and Aaron Golub (2011 & 2012) argue that what is 'needed' is not a basic level of mobility, but a basic level of access. Their search is for a clear understanding of the distributive question in transportation. In other words, what is it that should be distributed in a fair way? What constitutes a fair distribution? And how do we measure this?

Mobility can be defined as the speed and distance or extent of the transport network; accessibility as how well the transport network connects with activity patterns (Lucas 2002). Traditional cost-benefit analysis prioritises efficiency over equity: a conflict between the objectives of equity and those of the efficient use of economic resources. Martens and Golub dismiss efficiency-, infrastructure- or distance-based evaluation measures (traffic flow, roadway level-of-service, or quantity of new road/sidewalk, for example). Instead, they develop a theory following Walzer's *Spheres of Justice* and Rawls' *A Theory of Justice* (Rawls, 1971); here they focus on access as the prime benefit distributed through transport, and argue that a fair distribution of the benefits of transportation improvements would be one in which the maximum gap between the lowest and highest accessibility, both by mode and in space, be limited, while average access is maximised. Transportation planning authorities should focus on the analysis of access levels: 'this would be a most just approach, considering the importance of access in determining life chances.'

Finally, and even more difficult to assign a monetary value to, are the quality of life benefits that accrue from the introduction of new transport services, such as reduced isolation, or feelings of security and increased confidence; in some instances, although usually only with major infrastructure projects, there can be secondary neighbourhood effects, such as reduced incidence of crime, regeneration of the urban fabric and increased economic activity (Lucas, 2009).

### **3. CONSEQUENCES OF TRANSPORT DISADVANTAGE**

Transportation disadvantage or poverty, also referred to as mobility-related disadvantage or exclusion, is regarded as a consequence of the inequitable distribution of transportation benefits and impacts – and in South Africa in particular, transport disadvantage is increased by both apartheid's spatial legacy and subsequent low-income housing patterns, which mean that the distance between home and work is significant.

Transport disadvantage has been associated with an inability to access the goods and services necessary to live one's daily life, and the consequences are many: from ill-health, maternal mortality, high infant mortality rates; unemployment, poverty or inability to earn a living wage; time spent away from home, exposure to crime, noise, pollutants, poor education achievement; poor access to healthy, affordable food, scholar fatigue, casualties and injury; to social segregation, high crime rates, and social alienation and disengagement ... (Allen, 2005; Martens & Golub, 2011; Lucas, 2011; Litman, 2014; Pirie, 2009; Vasconcellos, 2012, Lucas & Jones, 2012, Kane, 2006).

In South Africa, transport disadvantage affects a significant number of people. Almost 50% of urban households spend more than 20% of their declared income on public transport, while almost 80% of rural households spend more than 20% of their income on public transport (NDoT, 2005). Access to transport – and thus economic opportunities, health-care, education, and social amenities – decreases with decreasing income (Kane 2006). Further, in 2005, 75% low-income households had no access to a train station, while 40% of low-income households had no access to a bus service (NDoT, 2005). Low-income households have low access to private transport.

#### **4. PLANNING FOR TRANSPORT USER NEEDS? ENVISIONING TRANSFORMATION**

Before 1994, little attention in general was paid to transport planning in South African policy and legislation; instead, the emphasis was on regulating those who wished to provide public passenger transport services, particularly the transport of labour, through Acts such as the Black Services Levy Act (No. 64) of 1952 and the Black Transport Services Act (No. 53) of 1957 (Behrens & Wilkinson, 2001; Browning & Jennings, 2014).

Subsequent to the first democratic elections in April 1994, transport needs in South Africa (that which needs to be equitably distributed) have been identified variously – in traditionally measurable categories – as safety, shorter travel times, affordable fares, less overcrowding, reduced walking distances, and improved access to facilities (NDoT, 2005). National, provincial and local policies and strategies reflect this understanding of user needs. The concepts of social sustainability and justice or equity have begun to appear in transport visions, policies and speeches. The basis for public participation – asking public transport users what they need – is outlined in key legislation and policy such as the Development Facilitation Act (1995), the Municipal Systems Act (2000), and the Draft National Framework for Public Participation (2005). The preparation of Integrated Transport Plans (ITPs) and new transport interventions such as BRT services require stakeholder engagement, and passenger or commuter forums (for rail and bus services) offer further opportunities for consultation regarding matters such as proposed fare increases and service cancellations (as well as passenger complaints such as leaking windows and a lack of passenger information). However, this shift in practice is taking time to become established, and in practice stakeholder engagement is not prioritised (both in terms of time and budget allocation).

The 1994 Reconstruction and Development Programme (RDP) stated in its key programme Meeting Basic Needs: ‘A future transport policy must promote coordinated, safe, affordable transport as a social service.’ (RDP, 1994 [R2.9.3]) This transport policy was set out in the 1996 White Paper on National Land Transport Policy, which recognised transport as one of its five main priority areas for socio-economic development, and envisioned new transportation systems that support ‘government strategies for economic and social development whilst being environmentally and economically sustainable...’ The White Paper also paid attention to meeting customer needs; addressing land use and spatial development in support of land passenger transport; improving the safety, security, reliability,

quality, and speed of transporting goods and people; and economic and environmental sustainability (Browning, 2013)

The White Paper formed the basis for the National Land Transport Transition Act (LTTA) in 2000, and remains essentially the policy document on which the NLTA 2009 was based. Transport interventions were now required to align with national transport goals, and public transport was to 'reduce the total cost of travel' and 'assist currently marginalised users and those who have poor access to social and economic activity' (NLTTA, 2000).

The Public Transport Strategy, published by the Department of Transport in 2007, envisions that 'by 2020, urban customers will be able to participate fully in the various activities of city life by using a public transport network that provides as much city-wide coverage as possible, and which is affordable, safe, secure, fast and frequent.' The Strategy remains the policy document on which present public transport developments are based. It has two key components: Accelerated Modal Upgrading; and Integrated Rapid Public Transport Networks (IRPTNs).

The IRPTNs are the focal point of South Africa's attempts to address transport disadvantage and improve accessibility. It is upon these systems that South Africa has pinned its transport hopes and dreams, writes Lucas (2011). 'Integrated rapid public transport service networks are the mobility wave of the future and are the only viable option that can ensure sustainable, equitable and uncongested mobility in liveable cities and districts' (Public Transport Strategy, 2007); the essence of the Strategy was based on BRT corridors (Browning & Jennings, 2014).

While it is too early to draw long-term conclusions about the impact of BRT and South Africa's other transport mega-project, Gautrain, there are a number of officials and researchers who are asking questions about their impact on the quantifiable measure of poverty, and the less easily evaluated concerns of social equity, and social inclusion. For example, in the words of Jeremy Cronin, then Deputy (national) Minister of Transport (South Africa), in his budget debate of April 2012: 'We won't overcome all of these [transportation] challenges just through delivery of more RDP houses to the same faraway localities, or more bus subsidies for the same daily migratory haul. There has to be a determined effort to tackle the root causes of ongoing exclusion. We need integrated public transport systems, mixed-use, mixed-income human settlements, and relatively dense corridor development.' '... But there is a danger ... that we will continue to allocate our energies and our scarce resources into [large infrastructure] projects that reinforce dysfunctional patterns, like urban sprawl, that we have inherited from the past. And that is what has to be changed.'

## **5. KEY PUBLIC TRANSPORT INTERVENTIONS IN PRACTICE**

Lucas, hosting a workshop on public transport and social exclusion in Durban, KwaZulu-Natal, in 2011 (THREDBO, International Conference Series on Competition and Ownership in Land Passenger Transport), raised a concern that South Africa over-emphasises major transport infrastructure projects, 'which are not necessarily appropriate or effective in lifting low-income populations out of poverty'. These mega-projects will only serve a minority of the travel needs of urban populations, and

it is unlikely that they will significantly reduce the transport disadvantages experienced by its low income populations. She recalled the research of Mahapa and Mishiri (2001), which considered the needs of rural transport users, where they noted the preoccupation of transport policymakers with higher technology fixes and efficiency savings rather than the travel needs of local 'beneficiary' communities, which they claimed could have resulted in different, less expensive and more context-specific and gender-sensitive solutions.

BRT investments particularly are intended to be – and in many instances have been – pro-poor investments (Cervero, 2013); systems in Bogota (Colombia), Mexico City (Mexico), Jakarta (Indonesia) and Lagos (Nigeria) have delivered lower-cost, higher-quality mobility options to outlying areas, producing travel-time savings, cost savings and reducing waiting times. Cervero, in comparing various BRT systems internationally, notes that 'in contrast, Johannesburg's 26A km BRT line (Rea Vaya) has failed to improve the livelihoods of the poor due to its pricing scheme and focus on middle-income markets.' In the same year, the World Resources Institute published a series of case studies considering the social, environmental and economic impacts of BRT systems; of Rea Vaya they noted that 'the city's poorest residents are underrepresented in BRT users and therefore are not significant beneficiaries of the project'. The most important distributive benefits, they note, are travel time-savings and road traffic fatalities avoided (Carrigan et al, 2013).

The City of Johannesburg (2003) Integrated Transport Plan 2003-2008 has equity as a stated goal: the transport system must provide equitable basic access and affordability of transport for all. In a paper presented at the Southern African Transport Conference 2012, Venter and Vaz (Venter, 2012) consider the poverty impacts of Rea Vaya in Johannesburg, using data from a small-sample household survey conducted in Soweto. They ask specifically whether Rea Vaya improves travel conditions (including access to transport, travel times, and travel costs) for all users, and whether these benefits accrue specifically to lower-income or poor users. Does Rea Vaya and its associated infrastructure affect the general perception of residents with respect to the urban environment, they ask.

Key findings suggest that 'the main benefits of the first phase of BRT lie in its enhancement of access to a variety of activities, rather than its direct expansion of accessibility to work opportunities.' Both time and cost savings are substantive, in the region of 10 to 20% compared to previous levels, but these benefits accrue largely to medium-income households rather than to the poorest commuters in the area. To the extent that passengers can spend time and fare savings on other goods, Rea Vaya contributes to poverty reduction, they conclude, but note that Rea Vaya is priced higher than the cheapest available public transport alternative, commuter rail, which remains the mode of choice for the poorest commuters. 'Overall, therefore, the direct benefits of Rea Vaya are skewed in favour of middle rather than lower income residents.'

Although the authors make it clear that this is not necessarily a general characteristic of BRT in South African cities, they caution against claims that BRT is *automatically* an effective vehicle for achieving poverty reduction goals.

In earlier research, Chakwisiza (2011) expressed a concern that while public transport interventions in greater Gauteng, such as Gautrain and Rea Vaya, have great potential to address public transport challenges for pro-poor communities, their route transport alignment and spatial configuration reinforce existing operational economic routes and corridor services, which consolidates the inherited geographical spatial accessibility and mobility challenges in urban areas of South Africa. He also noted that because the terminal infrastructure developments were located away from the marginal communities' location, these communities needed to interchange a minimum of two transport modes in order to access and use Gautrain or Rea Vaya BRT routes. Further, he wrote, the BRT routes in Johannesburg and Pretoria run parallel to and have adopted what are traditionally viewed as minibus or taxi routes; taxi associations and commuters argue that the planning should have considered the outlying and underserved routes instead, as a way of improving transport services for marginal transport communities.

Gautrain, intended primarily as a road-congestion intervention, has nonetheless drawn significant criticism in work looking at transportation equity. Thomas, for example (2013), in assessing the potential merits and limitations of Gautrain, suggests that while there are some benefits such as temporary job creation and skills training, and reduced traffic congestion, these must be weighed against the social and political implications. Referencing Donaldson (2006), he proposes that Gautrain is to some extent 'deepening mobility-related exclusion... which the post-apartheid state was ostensibly tasked with alleviating – the post-apartheid challenge was to transform South Africa's 'geographies of exclusion and provide a more equitable and effective public transportation'. It diverts public funding from other public transportation projects, he suggests, going further to write that other options for more integrated public transport systems were insufficiently considered. Citing the Portfolio Committee on Transport (2005,4) he notes that 'the location of the rail lines is remote from most of the major townships in Gauteng, and there has been very little consideration of ensuring connectivity with the major modes of transport used by township dwellers in Gauteng.'

In evaluating Gautrain using what author Van der Westhuizen (2008) refers to as rational, cost-benefit considerations, he concludes that 'political symbolism appears to be a major explanation for [its] construction ... 'the ... most obvious concern relates to the relationship between costs and the targeted market. Gautrain is clearly aimed at the affluent and middle classes, despite the fact that the existing intercity rail network, virtually exclusively used by the poor and working class, is not only often dangerous but also under-utilised and under-capitalised... Massive infrastructure projects are often closely identified with the state and the government in power – hence the notion of these ventures as "legacies" – and ensure considerable visibility and the demonstration of technological prowess.'

Gautrain's own assessment of its impact centres on its role as a vehicle to enhance economic development, growth and job creation and to address past inequalities and imbalances, most notably in socio-economic development. These goals are measured in terms of black equity participation; procurement and sub-contracting; local content; Participation by the black equity participant; participation in management; direct employment; and training (Van der Merwe, C et al, 2012).

Although the City of Cape Town's transport vision makes no explicit reference to equity, the vision of the Western Cape Provincial Government (White Paper on Western Cape Transport Policy, 1997) is to provide an 'integrated, accessible, well-managed and maintained transport system... that is recognised as making efficient use of resources and being socially just, in a way that advances broader developmental aims and objectives. In research conducted at the University of Cape Town, Del Mistro and Maunganidze (2012) assessed the potential role of BRT in improving public transport levels of service, particularly for the urban poor users of public transport in Cape Town. They compared current levels of public transport services versus predicted BRT-based service levels, and results indicated that the new service was not clearly beneficial to the urban poor in terms of service level improvements. 'While the poor commuters may benefit from more accessible, frequent and faster services as well as reduced travel times, ironically, these will be more expensive and in some cases unaffordable to them and therefore of no benefit to them.' They note that one of the critical success factors of the Lagos BRT-Lite System (Africa's first BRT system) was the effort to define a form of BRT that meets local user needs, is appropriate to the context in which it is placed, and is affordable and deliverable in the broadest sense.

## **6. MEASURING EQUITY IMPACTS**

The literature has identified widespread concern about a lack of accurate, reliable tools with which to measure and evaluate the non-transport benefits and non-transport related impacts of transportation initiatives (Shaw, 2005). Lucas, Tyler and Christodoulou (2009), in their work with the UK government's Social Exclusion Unit (SEU), have expressed concern in particular regarding the lack of nuanced, qualitative research evaluating either transport disadvantage or the contribution of new transportation interventions. Recent European research attempted to develop a set of indicators to monitor improvements in accessibility which specifically reduce social exclusion; the research team (Priya, 2012) concluded, however, that these indicators were inadequate in terms of fully measuring the dynamic nature of exclusion, or the level to which transportation disadvantage denied people the opportunity to participate in community or local government decision-making. Fieldwork and case studies have been proposed as perhaps more effective measurement and evaluation mechanisms (Lucas, 2012).

Some South African cities – for example the City of Cape Town – are beginning to include considerations such as equity, transport disadvantage and sustainable communities in their transport planning. Cape Town's 2013 ITP Review includes a chapter titled 'Social Sustainability Framework for Transport in Cape Town', which states that 'focus is seldom placed on social dimensions of transport when it comes to transport related research, policy, planning and practice. Environmental, energy and economic factors tend to feature to a much higher degree. ...The social impacts of transport decision-making are fundamentally undermining quality of life and the social wellbeing of citizens in towns, cities and rural settlements. Conversely, full and transparent consideration of these outcomes can significantly increase the quality, effectiveness and efficiency of both the transport system and a number of other important areas of economic and social policy delivery, including employment, health, education and economic development.' The City of Cape Town therefore



incorporates three social sustainability principles into its planning: quality of life; equity; and social cohesion. These guidelines pay attention to the importance of access, for example access for people with special mobility needs, and access to education, employment, community facilities, and to basic needs. In practice, though, the measurement of these and their inclusion in the decision-making process is not clear.

eThekweni and Johannesburg take into account annual (or occasional) quality of life surveys in their transport planning; these surveys consider socio-economic status, basic services satisfaction, area and community facility satisfaction, social cohesion, safety and other city concerns. Nevertheless, cost-benefit analysis and straightforward quantitative evaluation remains to a large extent at the heart of much of South Africa's transport planning (Kane, 2006, 2011).

## 7. CONCLUDING THOUGHTS

There is no question that transport poverty or disadvantage is associated with social exclusion, health risks, impaired quality of life and urban fabric, poverty and reduced opportunities to participate in the formal or informal economy. Continued transport inequity is also contrary to South Africa's stated goals regarding transformation and poverty alleviation. There's also little doubt that in South Africa, space, resources and impacts are inequitably allocated, divided and used among social groups.

Most of the evaluative literature reviewed for this paper has employed quantitative methodology, considering travel times, travel costs, and level-of-service. This literature review did not encounter peer-reviewed research evaluating the nuances of transport disadvantage. Faced with South Africans' conflicting budgetary needs, transport planners and political champions do tend to favour mega-projects and high-profile interventions, easily measured in distance, passenger numbers, speed and frequency. 'Political success [is] measured by the number of ribbons cut' (Hitge & van Dijk, 2011).

It is possible, then, that the impact of early-phase BRT interventions as well as Gautrain have had a greater or more nuanced impact on transport disadvantage than the literature suggests. Responses to presentations of initial versions of this paper<sup>1</sup>, by policy makers and City officials or elected representatives, have been defensive, querying the literature and assuring the author that each transport intervention has 'made a great difference to people's lives'<sup>2</sup>. Although the peer-reviewed literature suggests that South Africa's new public transport systems have failed to achieve a significant impact on transport disadvantage, this paper proposes that alternative evaluation approaches – in both the planning and the impact

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<sup>1</sup> UATP Conference, Gauteng, October 2012; Catholic Parliamentary Liaison Group (Public Transport as a Social Good), October 2012

<sup>2</sup> In one example, UATP Conference, Gauteng, October 2012: 'Our own experience suggests that Rea Vaya commuters are certainly saving time, though, and we have also had some interesting accounts of property availability and take-up on certain parts of routes and the creation of economic activity,' said the then MMC for Transport, City of Joburg, Cllr Rehana Moosajee.

assessment phases – might lead to a more nuanced understanding of any benefits achieved.

Perhaps an important next step is to return to the questions posed by Maarten & Golub, and Litman, earlier, and begin to answer:

- What should be distributed in a fair way?
- What constitutes a fair distribution?
- And how do we measure this (equity)?

Can we use these answers as a way in which to develop an equity or human-rights decision-making process to complement low-carbon transport-planning, and thereby offer opportunities for transport decision-makers to better negotiate the multiple unmet mobility needs in South Africa's transitional, poorly resourced and new democracy?

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