



Mobility in the public transport: A conceptual study with reference to the urban poor

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Abstract

The Public Utility Transport still remains a major source of commutation for the people in the cities. People across sections depend on the Public Transport for the commutation for various purposes. The dependence is largely due to the affordability and convenience. The city development authorities from time to time have taken care of introducing the alternate modes of Public transport. This has made a difference in the share of people switching to the Public modes for travelling. The modal share of Public Transport from the economically and socially weaker sections of the society is more making it a necessity for them. The issues of economy, safety and service quality must be met with due care to make this efficient from the point of view of these vulnerable sections of the society. The present study throws light on these aspects of the Public Transport System as a mobility option.

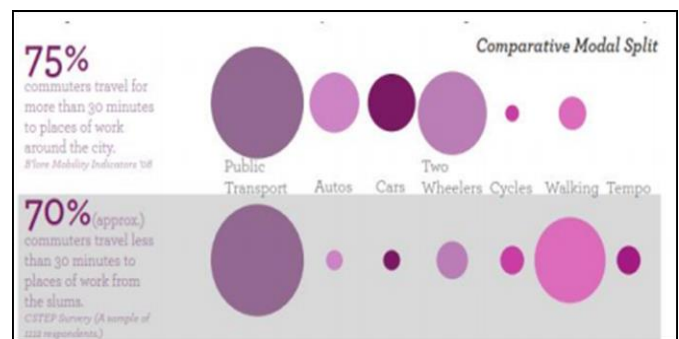
Keywords: public transport, social status, modal split

1. Introduction: Mobility and Urban Poor ^[1]

The poor constitute a significant share of the urban population. As per the Census of India, 2011, nearly 17% of the urban population resides in slums. A study by the Center for Study of Science Technology and Policy (CSTEP) on Bangalore slums reveals a vast difference in the travel mode choice of people in the slums compared to those in the rest of the city, as given in the Figure 1 below. While in the rest of the city, on an average, 75% of the commuters travel more than 30 minutes to work, analysis of 36 slums in Bangalore indicates that majority of the slum dwellers travel less than 30 minutes. While both groups use public transport, a large share of the slum population resorts to walking and cycling compared to the rest. Although riding a bus, walking and cycling constitute the main modes of transport for the urban poor, these modes do not receive adequate attention in mobility planning. For example, when it comes to improving bus services, the focus is more on improving the quality, often resulting in higher costs. However, the CSTEP study found that fares were too high and unaffordable for 73% of the people surveyed.

It is also found that low frequency, absence of shelters; travel time, inadequate seat reservation and harassment were some of the major concerns in using public transport. Pedestrians and cyclists on the other hand, considered inadequate street lighting, absence of cycle parking, poor roads, hygiene, road

repairs, walker-unfriendly footpaths, unsegregated traffic and unsafe crossings to be matters of prime importance.



Source: Urban Poverty Study, Internal paper, 2012, CSTEP

Fig 1: Comparative Model Split

Transport strategies, budgets and plans do not adequately address these needs. Instead investments in high cost public transport, signal free road corridors, car parking facilities, premium buses, etc. seem to dominate.

2. Travel Behavior of Urban Poor

Urban poor commuters mostly walk/cycle or use affordable Public Transport; lack of affordable options and poor infrastructure makes commuting tough

Table 1

	<i>Extreme Poor (Below Poverty Line)</i>	<i>Low Income</i>
Travel Behavior in cities with no affordable public transport modes	Irrespective of the affordability of public transport, the majority of the poor who fall below the poverty line walk or cycle to access goods and employment opportunities.	In cities with no affordable public transport modes the low income commuters either walk or cycle and live in informal settlements
Travel Behavior in cities with affordable public transport modes	As they cannot afford transportation they live in informal settlements close to their employment opportunities by compromising on proper housing, sanitation etc.	In cities with affordable public transport modes some low income commuting use public transport by staying in formal settlements far away from their work place. Others live in informal settlements and hence walk/ cycle

Source: Intellcap 2011

3. Performance Measures ^[2]

3.1 Mobility Indicators

The Mobility Indicators formulated to measure the performance of the transportation system are listed below:

- Road Safety Index
- Congestion Index
- Travel Time Index
- Slow Moving Vehicle Index
- City Bus Supply Index
- Para transit Index
- Cycling Index
- Walkability Index
- On-street parking interference Index
- Vehicle kilometers Traveled
- Passenger kilometers Traveled
- Total Delay (vehicle-hours and person-hours)
- Public Transport Accessibility Index
- Service Accessibility Index

3.2 Service Level Benchmarks

Service level performance indicators have been identified for the following areas by the Ministry of Urban Development (MoUD), they include:

a) Public transport facilities

- Presence of organized public transport system in urban area (%)
- Extent of supply availability of public transport
- Service coverage of public transport in the city
- Average waiting time for public transport users (mins)
- Level of comfort in public transport
- % of fleet as per urban bus specification

b) Pedestrian infrastructure facilities

Bangalore Mobility Indicators (2010 – 2011) Study – Draft Final Report 8 Directorate of Urban Land Transport

- Signalized intersection delay (%)
- Street Lighting (Lux)
- % of city covered

c) Non-Motorized Transport (NMT) facilities

- % of network covered
- Encroachment on NMT roads by vehicle parking (%)
- NMT parking facilities at interchanges (%)

d) Level of usage of Intelligent Transport System (ITS) facilities

- Availability of traffic surveillance (%)
- Passenger Information System (PIS) (%)
- Global Positioning System (GPS)/ General Pocket Radio Service (GPRS) (%)
- Signal Synchronization (%)
- Integrated ticketing System (%)

e) Travel speed (Motorized and Mass Transit) along major corridors

- Average travel speed of personal vehicles (Kmph)
- Average travel speed of public transport (Kmph)

f) Availability of parking spaces

- Availability of on street paid public parking spaces (%)
- Ratio of maximum and minimum parking fee in the city

g) Road safety

- Fatality rate per lakhs population
- Fatality rate for pedestrian and NMT (%)

h) Pollution levels

- SO₂
- Oxides of Nitrogen
- SPM
- RSPM (Size less than 10 microns)

i) Integrated Land Use Transport System

- Financial Population Density – Gross (Persons/Developed area in hectare)
- Mixed Land-use on Major Transit Corridors / Network (% area under nonresidential use)
- Intensity of Development – City wide (FSI)
- Intensity of development along transit corridor (FSI transit corridor/FSI)
- Clear Pattern and Completeness of the network
- % of area under Roads
- %age network having exclusive ROW for Transit network

j) Sustainability of public transport

- Extent of Non fare Revenue (%)
- Staff /bus ratio
- Operating Ratio

4. Civic Mobilization and Urban Poor ^[3]

In Bangalore City, basic services and infrastructure are woefully lacking and not accessible to the poor staying in the slums. In fact, slum-dwellers have unconventional approaches to accessing urban services. Reliance upon formal organisations, it is argued, limits what services the poor can access. The slums display a perfect picture of clientele influence on service delivery. Most of the slum-dwellers are illiterate and face the problem of information asymmetry. Consequently, they rely on various “intermediaries” such as government officials, employers, politicians- MLAs, councillors and ward members, even the police, and official service providers. Besides, local leaders by the very virtue of being:

- (a) Residents of the same slum for many years,
- (b) Community leaders,
- (c) Caste leaders, and
- (d) Religious leaders play a significant role in providing organisational linkages to access the services (De WIT 2002: 3939).

Even informal local organisations such as community based organisations and WATSAN committees have been active in representing the voice of slum-dwellers. Similarly, many local organisations such as youth associations, caste-based organisations (B R Ambedkar dalithsanghas) and even microcredit associations (basically micro women’s saving groups) establish patron relations with service providers to access the services. These local organisations undertake maintenance of the area and cater to the day to day needs of the slum community. Collective action among slum-dwellers is not effectively coherent and systematic.

To address the deteriorating services in the city the CIVIC, an NGO has been in the forefront of the efforts to organize “grievance redressalmelas” at the ward level once every three months. These are attended by representatives of the BMP, BMTC, BESCO, BWSSB, BSNL and BDA and the police force. This provides a common platform from which service

providers can directly respond to their complaints. During the past three years, CIVIC has organised between four and six meals in different wards. In this process, traditional political channels were bypassed. To start with, the forum brought together many associations to discuss “urban governance”.

5. Economic Relevance of Public Transport System to the Urban Poor

In 2010, the CSTEP conducted a survey to understand the relationship between mobility, shelter and livelihoods and explore the relationship between slums and the broader city around them in economic and spatial terms. The survey covered 1080 households in a spread of 36 slums. A part of the survey had collected information about the travel behavior of slum dwellers. The respondents were asked to give their concerns about public transport. Figure 2 summarizes the main concerns of the commuters. The walking time to a bus stop is clearly the most significant concern among the respondents.

For the daily wage earners, getting to their work on time is

crucial and being late could mean that someone else is hired and they lose their job for that day. Having to walk 2 km to take a bus is obviously not desirable. The second most reported concern is the ticket fare, the fare consumes a large portion of the household income. The waiting time at bus stops is the next most reported concern. Long waiting time can be caused by delay due to congestion etc. or due to insufficient number of buses on a route (scheduled waiting times are sometimes large). Improving the reliability as well of regularity of bus services can benefit the urban poor. Finally the concerns regarding comfort, security, physical accessibility, etc. were also a matter of concern with the commuters. These concerns are not often revealed because of the importance assigned to other concerns which are bus stop location and fare. Indicators for each attribute Table 2 lists the indicators chosen in this study related to the concerns of the slum dwellers expressed in the survey analyzed. The indicators have also been arranged according to the four components of adequate transport, as defined in the World Bank Report on Public Transport and Urban Poverty.

Table 2: Indicators for Concern of the Poor

Category	Concern	Indicator
Affordability	Ticket price is too high	Ratio of total monthly expenditure on transport to total monthly household income
Accessibility	Bus stop is not nearby	Number of slums within in a 400m walking radius from the bus network
	Difficulty in Boarding/alighting	Walking distance to bus stop
Availability	Buses are not on time	Rating of service based on physical accessibility
	Need more buses	Schedule adherence
	Long waiting time	Frequency
	Service hours	Headway
Acceptability	Crowded buses	Total service hours of the service per 24 hours
	Pick pocketing/Harassment	Capacity of buses
		Security

Source: Housing and Urban Development Corporation Limited Theme: Urban Mobility

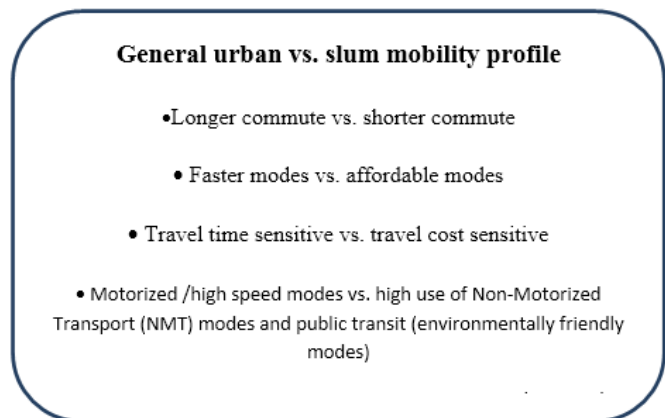


Fig 2: General urban vs. slum mobility profile

6. Conclusion

The Public Transport services carrying majority of the commuters everyday still remains the primary mode of mass transit in the cities. The Public Transport is perceived as safest and cheapest among the prevalent modes of transport in major metros. The present study centers on the commuters belonging to socially and economically weaker sections of the society. The Public Transport still remains a saviour to the majority of the population. The flip side is the efficiency and Efficacy of services. The commuters are at a particular disadvantage as

they have to commute for longer durations for the travel. The Public Transport bus services are of profound significance in cities as they are addressing movement and access of people. The utilitarian consideration is laudable.

7. Suggestions

- Big data can improve the efficiency of transportation industry largely. Transportation industry, involving many aspects of work, need to handle massive amounts of data each day, needs more controlled mode of application and has a great deal of equipment. In the aspect of improving transport efficiency, improving the threshold capacity of the road network, adjusting traffic demands, big data technology has obvious advantages.
- There is a need for a Paradigm Shift from Traffic policing solution to Traffic Management Solution, Supply Management as well as Demand Management, Preponderance of private modes to focus on public transport, Radial route choice to circular route choice and Manual management to technology infusion.
- Improving service quality
- Service quality also plays an important role in incentivizing public transport utilization. Above all, public transport must afford a convenient and pleasant commute — convenience in terms of a fast, seamless journey and pleasant in terms of fleet comfort and interaction with

staff. This requires a high level of integration across transit modes.

- The availability of a wide variety of public transit services is a major element of developing a sustainable transport system. Public transit is more efficient compared to private transport in terms of energy and road space use, user cost and emission production. Most of the urban passenger travel needs can be efficiently provided by public transit services. However, the travel demand of the citizens varies based on their income, trip purpose and the distance they need to travel. Thus, just by having one type of public transit service is not sufficient as it cannot serve the transport needs of everyone and for all purposes.
- A balanced Public Transit system is important to satisfy different types of transport demands. To ensure a balanced public transit, cities can have commuter and other rail-based services to serve people who are travelling long distances, and have a variety of bus and other paratransit services to serve people who are travelling shorter distances, have lower income or have special requirements. The provision of appropriate types, availability and frequency of services by different public transit modes is important to develop a balanced system.

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