

Urban transport  
externalities and  
fiscal tools  
environmental  
sciences essay



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Introduction This chapter briefly presents the background and justification of the research, identification of the research problem and defining the research objectives. The latter part of this chapter also talks about the research methodology adopted to answer the research questions and the scope of study.

## **Background**

In case of India, urban transport scenario is headed in the wrong direction. All categories of road users are facing problems in commuting. Reduction in patronage for public transport due to problems like long waiting periods, uncertainty in travel time, safety issues and difficult conditions of travel. Private vehicles as mode of transport have increased many folds and are slowed down by congestion and face significant delays at traffic signals and road junctions. Road users get restless leading to road rage, rash driving and accidents. Use of low-capacity and unsustainable modes, i. e. personal car and 2-wheelers is rising, causing decline in use of public transport and NMT mode usage. These modes are uneconomic and socially wasteful in the use of road space and are polluting. During The resulting imbalance in the use of road space is leading to increasing negative externalities for the society e. g. road congestion, reduction in travel speed, increase in demand of Fuel requirement, increasing air and noise pollution and reducing road safety. Fuel, of which a large part is imported, is wasted despite the fact the import prices of petroleum products persist at a level high enough that hurt Indian economy. GHG emissions are also a global concern. There is a general degradation in the quality of life, city efficiency and its economic potential. It makes things worse for transport authority to cop-up with the demand,

creating clear gap between demand and supply. Indian cities cannot afford to cater only to private cars and two-wheelers and there has to be a general recognition that policy should be designed in such a way that it reduces the need to travel by personalized modes and boosts public transport system. This requires both an increase in quantity as well as quality of public transport and effective use of demand as well as supply-side management measures. At the same time, people should be encouraged to walk and cycle and government should support investments that make cycling and walking safer. As initiative in this response, GOI formulated National Urban Transport Policy in 2006, which provides guidelines for improve the transportation system. In order to improve transport sector performance, huge investment needs are envisaged to improve Indian transport systems. As per experts recommendations for 12th FYP, investment requirements for Roads infrastructure is 1, 67, 218 crores and for Public transport and other supporting infrastructure are in tune of 2, 21, 090 crores for Indian cities. In developed countries, TDM measures have been adopted by transport authorities to address the issues of urban transport. Experts argue that such measures are also required for improving the efficiency of transport system in developing countries. There are many different TDM strategies with a variety of impacts. Some improve the transportation options available to consumers. Some provide incentives to change trip scheduling, route, mode or destination. Others reduce the need for physical travel through more efficient land use, or transportation substitutes. Although most individual TDM strategies only affect a small portion of total travel, the cumulative impacts of a comprehensive TDM program can be significant.

## **Need for study**

Urban transport plays an essential role in economic development of the city.

Rapid urbanization is one of the problem for raising uncertainties and demand supply gap for urban transport system. Complex structure and involvement of various agencies in administration of transportation services at city level makes it more vulnerable to address the issue. An efficient equilibrium[1]in urban transport is the need of the hour. Most important negative externalities from road transport include accidents, road damage, environmental damage, congestion and oil dependence (Maibach et al., 2008; Newbery 1990; Parry, Walls, & Harrington, 2007; Small & Verhoef, 2007).

Effective urban transport system is required to balance the benefits of rising urbanization and at the same time to internalise the externalities of transportation. Also, the commuter using private mode of transportation has more out of the pocket expenses compared to the commuter using public transport. Though private mode of transport is preferred for safety and comfort, but excess of private vehicles on road created externalities like accidents, congestion, etc. which contradicting the objective with which the commuter is using the private mode of transportation. Urban transport sector is full of uncertainties; and same give rise to externalities which needs to be addressed by means of travel demand measures (fiscal tools) or incentive or disincentive approaches. Given the many social, environmental, and economic problems caused by private motor vehicles, it would make sense to place most of the financial burden of new transport expenditures on motorists and not on public transport riders. Increases in petrol and diesel taxes, vehicle registration and import taxes, and the assessment of higher and more widespread roadway tolls (especially on bridges and congested

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arterial roads) would generate much needed additional revenue for transport investments (same it also recommended in NUTP 2006). There could be various barriers for the implementation of fiscal tools by ULBs/urban transport undertaking authorities as there will be problems like political intervention, socio-economic feasibility and acceptance which also need to be addressed. So, one has to think of new fiscal tools as TDM measures that can help increase revenues for urban local body to reduce their dependency on state and central for subsidies and also, help in better management of the transport sector and making it efficient and sustainable in longer run.

### **Research Concept**

It is clear that transport system has imbalance due to reduced patronage and increasing use of private vehicles. Over the period of time increase in purchase power of individuals leading to increase in private vehicles and public transport authority's budget having financial deficit/debt to take up capital works has posed a serious concern. Although, it is known that TDM measures like fiscal tools are good interventions to be made for urban transport in order to bring equilibrium, why still urban transport or public transport undertakings have not adopted it? Adoption of fiscal tool can also, provide disincentives for use private vehicles and incentives for users of public transportation.

### **Research Question**

Based on the understand of the issues and context of urban transport situation and research concept, research question is as follows;

**" Can measure such as fiscal tools that help generate revenues for Indian cities for better management of the transport sector and making it efficient and sustainable in longer run without being dependent on subsidies?"**

## **Aim & Objectives**

### **Aim**

TDM measures like fiscal tools are best interventions to reduce use of private vehicles and improve the public transport system with making urban transportation sustainable in longer run"

### **Objectives**

The research is oriented towards achieving the following objectives, underlying with different research questions that can fulfill them. To analyse various fiscal tools available for urban transport sector for improving urban transport sector. Which are the various tools available for urban transport? What is their impact on urban transport sector and externalities? Review of case studies where fiscal tolls are adopted as TDM measures? To analyse Role of fiscal tools in case of Ahmedabad. Which are the tools that can be adopted for Ahmedabad? Suggestion of suitable tool based on Ahmedabad's characteristic? To find out opportunities and challenges of implementation of fiscal tools in Ahmedabad? Review of existing agencies in urban transport and their roles? Administrative set-up required to for such intervention.

## **SCOPE & LIMITATIONS**

Scope of the research will be to find out which fiscal tools are best suitable for urban transportation in case of Ahmedabad city, which will reduce the

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usage of private vehicles and generate revenues for improving public transport system. Due to time constraint it will not include the fixation of taxes and deciding of Taxation rules and guiding system. Also, research will not focus in depth analysis of Travel demand management.

## **CONCEPTUAL FRAMEWORK**

## **METHODOLOGY**

Following is the Flow chart explaining the methodology;

## **DISSERTATION STRUCTURE**

### **Chapter-1: Introduction**

This chapter starts with background to problems in urban transport sector. Then it is research design that explains-need for study, aims & objectives, methodology and time frame for dissertation.

### **Chapter-2: Present scenario of urban transport in India**

This chapter focuses on the issues that are faced by urban transport sector due to prevailing uncertainties are discussed. Significance of urban transport in Indian context, the trend of motorization in India, GHG emissions from urban transport, negative externalities and existing transport related policy will be discussed in detail.

### **Chapter-3: Urban transport externalities & fiscal tools**

This chapter provides details of negative externalities present in the urban transport sector and different Fiscal tools available for counterbalance of negative externalities. Chapter also explores various fiscal policy tools that are available for urban transport sector to internalise negative

externalities(Each fiscal tool will be presented with a (I) brief introduction about the measure, (II) case study-the country where it is implemented with its charging or taxation structure, (III) whether that tool is implemented in India or not and its feasibility). To provide more understanding on it all the fiscal tools will be compared on the basis of benefits, drawbacks and requirement.

### **Chapter-4: Introduction to study area and understanding of urban transport sector**

This chapter will give detailed understanding of the study area and of urban transport sector. Also mentioning the public and private transportation that is prevailing in the study area with detailed description of the transport externalities the city faces. Followed by details on existing fiscal policy measures in study area.

### **Chapter-5: Socio-economic survey and analysis**

### **Chapter-6: Conclusion**

This chapter concludes the finding of all the chapters along with a summary regarding the implementation of the fiscal policies measures, the requirements for its application and the roles of the government agencies and other stakeholders pertaining to urban transport sector.

### **Timeline**