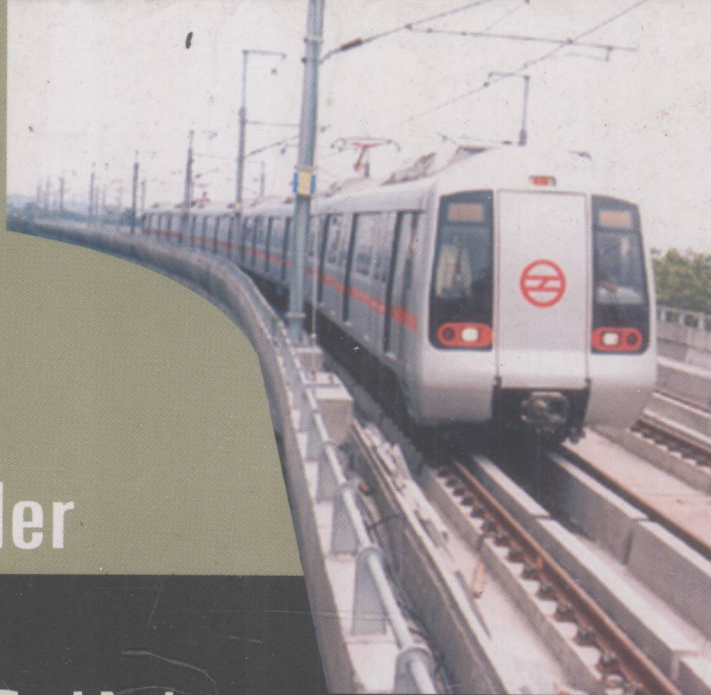


Dilip Halder

# STUDIES IN URBAN TRANSPORT

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# **STUDIES IN URBAN TRANSPORT**

**Dilip Halder**



**National Institute for Transport and Urban  
Environmental Studies (NITUS), Kolkata**



**BOOKWELL**

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# **STUDIES IN URBAN TRANSPORT**

TO  
PROFESSOR D.R. GADGIL  
(1901-1971)  
MY TEACHER

## PREFACE

In this volume sixteen papers, already published in different journals and edited books, have been put together. These papers, authored by me, singly and jointly with my Ph.D students, contain results of the studies on various problems of operation, finance and management of dominant urban transport modes. The basic purpose of these studies was to discover the reasons behind the inefficiency of operation and financial malady of the modes owned and operated by the private and public undertakings in a crisis ridden city like Calcutta and to suggest remedial measures. During these studies several questions, theoretical and empirical, were encountered. The theoretical questions like, what should be the objectives of private and public undertakings in urban transport, consistent with the interest of the commuters and ultimate benefit of the society, and, following from that, the question of fixing the criteria for evaluation of their performance occurred. In addition, the questions, like what should be the pricing policy of urban transport services and would it differ from that of private transport agencies, came up, while addressing the financial problem of the undertakings. What should be the role of Government, would Government completely withdraw or exert control, were the questions to be addressed while justifying the subsidies and administering the prices of the public undertakings. Whether competition or coordination should be encouraged was also a question, which became relevant while considering the overall performance of urban transport sector.

The common place observation that private bus operators run their system efficiently and the State transport undertakings do not, because they run at a loss, might not exactly tally with the ground reality and the results of empirical investigations might prove otherwise, rendering this observation an over simplification and misleading. To make such observation meaningful for all practical purposes, not only itemwise comparison of revenue and cost structures, but, a comparison of operational characteristics and social costs and benefits, is also necessary. If the theoretical justification of running the public undertakings is seriously considered, the financial performance and the criterion of efficiency built thereon might get compromised, though in case of private undertakings it might not. In such a situation a comparison between the performance of private and public undertakings may not be useful. If at all it is made, its scope would be limited to specified items or separate criteria should be set for private and public undertakings. The first three papers (1,2,& 3) in this volume have been devoted to address similar problems of private and public buses, though at different points of time. The difference of time does not make much of a difference in the nature of the problems though the intensity differs.

The question of comparability occurs not only due to difference in ownership but due to size, clientele, and service commitment also. Thus separate treatment of bus, minibus and chartered bus was necessary. Two papers (4 & 5) have been devoted to minibus. Minibus is smaller in size but with greater maneuverability and increasing popularity. The chartered buses, though generally comparable with ordinary buses with respect to size, have different service commitments and operational characteristics. It is also gaining popularity and sharing increasingly larger proportion of regular commuters. One paper (6) has been contributed on chartered bus. Tram, the earliest mechanised mode of transport, is different in all respects from these modes - in size, operational characteristics and motive force. It is significantly different with respect to social cost-benefit and clientele. The problem faced by this mode is also qualitatively different from other modes. In that sense it stands distinct. One paper (7) has been devoted to cover its genesis, present crisis, social relevance and future prospects. Hand pulled rickshaws, an intermediate public transport (IPT) or para transit mode, is facing the problem of extinction as the Government policy is going against it. It has raised controversy which has been dealt with in a paper (8) in this volume.

The Metro Rail in Calcutta, the first of its kind in South Asia, is already a part and parcel of transport system of the city. It might be interesting to remember the compulsion under which it was found to be the right solution and the estimated cost of construction within a timeframe, and also the potential environmental impact that was envisaged at the initial stage of planning. These aspects were covered in two published papers (9 & 10).

The services offered by the modes will not be useful to the commuters if they cannot afford it. Therefore, empirical investigations were embarked upon to know what the traffic will bear; commuters' preference for modes in the given situation and in changed situation; and the present expenditure behaviour of the commuters and the revenue prospects of the mode. The results of this investigation were published in three papers (11, 12 & 13) and they have been put in this volume.

Fare structure has an important role to play in determining financial viability of a mode, run commercially. If the fare structure is not market determined the task of fixing fare falls on the Government. In determining and administering a fare structure the government as a matter of policy should ensure 'distributive justice' by upholding the norm of 'equity'. In doing that the Government must give relief as much as possible to the commuting working class and the poorer sections of the society by lowering the fare of the mode that they generally use i.e. mass transit modes. Therefore, to identify the target group on the basis of suitable criteria an appropriate methodology has been developed and tested for application. This exercise was reported in a paper (14) already published, and it has been incorporated in this volume.



The fare structures of the IPT modes like cycle and auto rickshaws are not administered by the Government. As a result, suspectedly, no scientific method exists to determine this fare, which is universally applicable. As a matter of fact, there is no organised thought available to vouch for the method they apply. For analysis and suggestion for improvement, relevant facts have to be surveyed out from the field and then used for research. This exercise was done on cycle and auto rickshaws and published in a paper (15), which may be found in this collection.

For smooth and efficient running of a multimodal urban transport system co-ordination of modes is a crucial factor. Not only co-ordination of modes, co-ordination of other activities performed on the cityscape, having bearing on transport modes and infrastructure, are also important. This aspect has been developed in a paper (16) and published in a proceeding of a National Seminar organised by the Centre for Transport Studies, Jadavpur University, Calcutta, which is to be found at last in this volume.

In the sequence of arrangement of the papers the problems of efficiency of performance of State and private buses, in relative and absolute sense, have been taken up first, followed by the problems of minibus and chartered bus. Thereafter, the oldest mechanised mode – tram – running on rail on the city surface and the underground rail system, namely, metro rail, yet to be commissioned at the time paper was written has been discussed. While dealing with the fare structures of modes the theoretical issues of pricing of the public and private undertakings including IPT modes like cycle and auto rickshaws have been dealt with. At last the problem of coordination of modes and urban activities have also been discussed.

At this moment, while publishing this volume, the name that prominently appears in memory line is that of Professor D.R.Gadgil, my teacher at the Gokhale Institute of Politics and Economies, Poona, who inspired me to work in the area of urban transport, way back in 1963, when I was a Research Fellow.

It should be acknowledged at this stage that the papers presented in this collection are revised versions of the papers published earlier in *Indian Management* (Journal of Management Association), *Nagarloka* (Urban Affairs Quarterly of Indian Institute of Public Administration (IIPA)), *The Sunday Statesman*, *Indian Journal of Transport Management*, Central Institute of Road Transport, *Economic Studies* (Jadavpur University), *Indian Journal of Regional Science* (IIT, Kharagpur), *Decision* (the journal of IIM, Calcutta), *Transport Planning and Co-ordination* (Centre for Transport Studies, Jadavpur University).

I am indebted to Dr. Sudakhina Gupta for going through the manuscript and pointing out some mistakes, and also to Dr. Prabir De.



I should thankfully acknowledge the willingness expressed by Mr. M. S. Khurana of BOOKWELL to publish this volume.

**Dilip Halder**

## FOREWORD

Cities especially in different parts of the developing world are growing rapidly and with this rapid growth have come increased concentration, specialization and agglomeration but also greater congestion. At the same time, the provision of public infrastructural services is declining in many countries much to the detriment of the city economy, its environment and the welfare of its inhabitants especially its poorer ones. This set of papers focuses precisely on this decline of public services especially transport services. When I was approached by Prof. Halder to write this foreword, I declined to do so for the reason that I was not capable of writing the piece which would mean commenting on his papers. To do so would not be easy given Prof. Halder's extensive and very good work in the area especially in terms of empirical analysis and their implications for policy. I agreed to do so after much persuasion for the reason that such work is rare and needs to be better known to policy makers so as to get the attention that it really deserves. If this objective is achieved even to a limited extent, my own commitment to the area is reinforced.

The first 6 Chapters of the book focused on bus transport. The analysis that is attempted aims to understand the role of the private sector and public sector in provision of bus services. Obviously, the major public sector operator, namely, the Calcutta State Transport Corporation comes under scrutiny. In a number of ways, the author gets to examine the efficiency of this undertaking – using standard norms as well as developing some new norms which are required to help in making comparisons with private provision. On all accounts, the public sector agency has failed to make use of its strengths in providing basic services at reasonable fares while at the same time enabling it to provide for expansion. But then the private sector has also not come in for praise since it has used all the loopholes in the system to avoid being within the organised sector so as not to come under the purview of the various rules and regulations. But the question remains: why did not the government insist on a regulatory framework which would be a neutral agency but would necessarily work to establish order so as to bring about some semblance of discipline in regard to the private sector. In a business which can be highly competitive, all that was required was a proper regulatory framework. However, it must be recognized that this is not happening even today even in midst of talk of more private sector participation activity especially in sectors where private sector investment is ready to flow. Even where it has happened, the scope of these activities (more so in transport) has not been encompassed by the organised sector as a result of which services are provided but which are of poor quality. The analysis of operations of the chartered bus is an excellent one and I am tempted to follow the lines of this paper to take up a similar study in Mumbai which has also gone into this mode of movement in a significant way in recent years – all because conventional modes were not adequate to satisfy requirements.

There are some interesting results on the trams which make the authors argue that this mode has a place even in a fast moving world today. After all, it provides for some choice in terms of a slower mode which is well suited to certain types of movements and by certain categories of trip makers. No wonder trams have reappeared on the scene in many urban areas of the United States and Europe where they cater to substantial movements which are short ones. For example, in a new urban area such as New Mumbai, it would be useful to have these services to take care of intra-urban movements. Given that there is still scope for establishing these systems, the authorities would do well to encourage the private sector to get involved in a significant way. This could relieve areas within the cities to get rid of individual vehicles. Though the Kolkata experience has been a mixed one, the fact that trams have never been laid off speaks enormously for the emotional attachment of the people to the mode despite its non performance.

A detailed look at the hand rickshaws is a unique feature of this collection. I have not gone through such an analysis which is fairly analytical in terms of its usefulness in satisfying the needs. It was only recently that the West Bengal Government decided to go ahead with the implementation of a decision to ban this mode which does not really find a play anywhere in the country. In most places, the hand rickshaw has been replaced by a more superior alternative- the cycle rickshaw. However, the debate has arisen as to the role of these non-motorised modes in the context of an overwhelming motorized transport scenario. With acute congestion due to individual vehicles in the urban areas, many urban areas have seen the adoption of non-motorised vehicle areas in these areas. As a result, only the public transport system is permitted and the walk mode being encouraged. Given the needs of the elderly, sick and the young ones, it might perhaps be worthwhile to revive non-motorised modes in a big way so as to take care of very short trips. This would also take care of environmental issue. Moreover, in the Indian context, employment in these modes would be a useful addition to provision of organised employment. The analysis in Chapter 15 further elaborates on the need to use this mode as a useful supplemental mode. However, the usefulness of these non-motorised cities in the context of our cities is something that needs to be studied more carefully and in a more recent context.

Chapters 9 and 10 are very useful additions in the context of a dearth of studies relating to the tube rail (or 'the metro' as is popularly known as). The material contained in these Chapters almost gives a very detailed account of the progress of the first metro experience in India. Prof. Halder is best equipped to do so since he was involved with the project right since its inception at the planning stage. From all points of view, the analysis provides a base to understand and improve on project implementation, financial planning, etc. In other words, the account provides us with a framework for planning and implementation of a very useful project – one which took a direction which one ought not to have pursued. With the clamour for a metro in almost every major city in India and given the success of the facility in Delhi (at least till now implementation has been good

but it is still to be seen if usage is significant), there is no doubt that the metro would occupy a certain place in the context of transport system in our urban areas. But the question arises: whether this mode would be well integrated with other modes – as is the case in other countries- given the experience of development and operations of exclusive modes in our cities? In this context, Chapter 16 provides a basis for such coordinated development. The success of such coordination, it is felt, obviously depends on finding the points of complementarities and substitutability of the modes. Above all, such coordination would be best achieved, it is pointed out emphatically, when it goes hand-in-hand with land use plan and coordination of activity locations which can be expected to yield desirable results.

From a theoretical perspective, Chapters 11 to 14 are useful with a lot of empirical insights following from the analysis. In an attempt to examine the ability of the user to bear a certain fare, it is concluded that a fare level determined in the neighbourhood of estimated expenditure per trip even with a little upward bias may not exceed the ability to pay of commuters. This is interesting especially in the context of enormous subsidies being doled out in the case of public transport. The subsidization is universal without any attempt to understand the extent of the ability and willingness of the user to pay for a service. All this was being achieved by a process of cross-subsidisation. Such a process resulted in perpetual losses which meant the poorer people were hit most as a result of the inability of the system to expand and consolidate. When considering preference patterns of the commuters, standard results are derived. Rising incomes (or higher incomes) give rise to a preference for costlier modes. In a densely populated country like ours, we need to react differently. We need to promote better modes which provide better quality of services at a higher price which can provide some basis for cross-subsidisation. The Chapter which makes an attempt to identify target groups for the purpose of provision of subsidy is indeed useful. We need to adopt the concept of targeted subsidies so as to ensure that subsidies reach the target groups. This experiment has been tried in some cities in Africa with some success. While the administrative requirements are huge, there is no alternative to such a strategy. We could begin with experiments in public transport in our smaller cities and then use that experiment to expand the strategy.

All in all, it has been a useful experience going through these set of papers. Almost all of them were written nearly two decades back. However, the results would not be any different if one were to take up these issues in today's context. That would mean we do not learn our lessons quickly. It is only when we are driven to the wall that we start examining things in a serious way. I am reminded of the situation on the Indian Railways. During the past two decades, serious work (some of which I have undertaken) has pointed out the need to enhance efficiency and then only would there be a need to think of additional investments. In other words, better utilisation of existing capacity would go a long way in providing the system its revenues while at the same time taking care of emerging requirements. This, it appears, seems to have been taken seriously only during

the past two years or so when attempts have been made to utilize the system better with marginal investments only. The result has been a huge surplus for the railways. This has motivated all the railway men to do better and get into the act of expanding the system in a big way in the next decade or so. Such experiments are being undertaken in bits in pieces in regard to urban areas – the Bangalore experiment being the one that is often cited as a success story. The deregulation of urban transport that is required is not happening at a pace that is required under the existing situation. Consider the Mumbai situation. Two public agencies – the Indian Railways and the BEST (Brihanmumbai Electric Supply and Transport) undertaking- continue to dominate the transport scene. Given the lack of investments in the public sector during the past three decades in a significant way, the modal split is changing slowly in favour of individualized vehicles- a trend being spurred by a spate of public investments on roads, flyovers, etc. and the huge inconvenience of traveling on the rail system. No doubt, a deregulated system would necessitate a regulatory framework to ensure that basic norms are met in the context of a facility that is a public utility. But such a system calls for a paradigm shift in approach that is totally different from that adopted in the past. More specifically, an approach that the papers in this volume call for – namely that takes into account special local needs but in a coordinated way.

Mumbai  
April 19, 2007

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## ABBREVIATIONS

ABP	All Bengal Permit
AC	Air Condition
AES	Additional Employment Scheme
AITP	All India Tourist Permit
BART	Bay Area Rapid Transit
CB	Chartered Bus
CBD	Central Business District
CF	Certificate of Fitness
CG	Centre of Gravity
CITU	Centre of Indian Trade Unions
CMD	Calcutta Metropolitan District
CMDA	Calcutta Metropolitan Development Authority
CMPO	Calcutta Metropolitan Planning Organisation
CP Fund	Contribution to Provident Fund
CPTC	Committee on Transport Policy and Coordination
CSTC	Calcutta State Transport Corporation
CTC	Calcutta Tramways Company
CTP	Calcutta Traffic Police
CUTP	Calcutta Urban Transport Project
DD	Double Decker
FA	Front Axle
GVW	Gross Vehicle Weight
IC	Interference Co-ordinates
ICB	Idle Contract Coach
IDBI	Industrial Development Bank of India
ITDC	India Tourism Development Corporation
IMT	Intermediate Mode of Transport
ITTAC	Indian Tyre Technical Advisory Committee
KMC	Kolkata Municipal Corporation
L	Limited Stop City Service
LCB	Luxury Tourist Carriage
LDF	Long Distance Fare
LDS	Long Distance Service
LFP	Large Fleet Possessor
MB	Mini Bus
MFP	Medium Fleet Possessor
MLA	Member of Legislative
MP	Member of Parliament

MTP	Metropolitan Transport Project
MV Act	Motor Vehicles Act
NAC	Non-Air Conditioned
NTPC	National Transport Policy Committee
OD	Origin Destination Survey
PAM	Public Address cum Music System
PIM	Policy Implementation and Monitoring
PMTM	Personalized Mass Transit Mode
PSV	Public Service Vehicle
PTC	Principal Transit Corridors
PVD	Public Vehicle Department
RBI	Reserve Bank of India
RCB	Route Stage Carriage
R&D	Research and Development
RMTM	Regular Mass Transit Mode
RTA	Regional Transport Authority
RTS	Rapid Transit System
SADD	Articulated Double Decker
SBI	State Bank of India
SBDO	Small Business Development Office
SD	Single Decker
SDF	Short Distance Fare
SFP	Small Fleet Possessor
SLBC	State Level Bankers' Committee
SP	Special City Service
SP	Screen Points
STA	State Transport Authority
STU	State Transport Undertakings
UBI	United Bank of India
UCoBank	United Commercial Bank
USTS	Urban Surface Transport System
WB	Wheel Base
WBSTO	West Bengal State Transport Organisation
WBTDC	West Bengal tourism Development Corporation
WL	With Load



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