An Assessment of the Intermediate Public Transport (IPT) Sector in India

Abstract

The improvements in infrastructure coupled with the growth in population has created tremendous demand for transportation services. The city buses and other mass transit systems often fall short in meeting this demand, resulting in people relying on alternative modes like autorickshaws, taxis, etc. for their transit needs. These alternate modes serve as intermediate public transport (IPT) or para-transit, providing first and last mile connectivity, while also bridging the gap in the existing public transport systems. This paper looks at the importance of IPTs in the transport sector of India in terms of their role, benefits, issues, present status and legislative provisions. Legalising and integrating IPTs as a part and parcel of the system is integral in meeting urban India's growing demand for transportation.

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Abbreviations

BRTS	- Bus Rapid Transit System
CMP	- Comprehensive Mobility Plan
CNG	- Compressed Natural Gas
CPPR	- Centre for Public Policy Research
GPS	- Global Positioning System
IPT	- Intermediate Public Transport
JnNURM	- Jawaharlal Nehru National Urban Renewal Mission
LPG	- Liquefied Petroleum Gas
MoHUA	- Ministry of Housing and Urban Affairs
MoRTH	- Ministry of Road Transport and Highways
MRT	- Mass Rapid Transit
MVA	- Motor Vehicles Act
NUTP	- National Urban Transport Policy
STU	- State Transport Undertaking
UMTA	- Unified Metropolitan Transport Authority

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Executive Summary

Intermediate Public Transport (IPT) comprises informal modes of transport that facilitate connectivity of different areas with the major public transport systems such as buses, railways, metros, ferries, etc. They support and complement the public transport system while playing a significant role in meeting the daily commute needs of the people. They offer flexibility and convenience in connecting the city to its citizens and form an integral part of the transportation system in our cities.

The IPT sector is a means of income and livelihood for a majority of people belonging to the poor and lower middle class sections of society. With the high demand for their services combined with the restriction in the number of permits granted by the authorities, many IPT vehicles resorted to illegal operations to meet their expenses. The IPT sector still remains largely neglected in spite of rising demand in the cities.

The legislative framework in India did not recognise IPTs until 2006 with the passing of the National Urban Transport Policy (NUTP) which acknowledged the role played by IPTs in the overall transport system. IPTs are often regarded as occasional service providers performing supportive functions, but this is far from the truth. This paper examines the background, role, and barriers faced by the IPT sector in India and explores the need to recognise, organise and regulate the sector. This calls for legalising some of the informal aspects of IPTs, acknowledging their services and integrating them with the overall transportation system, thereby moving towards a future of sustainable urban transportation.

1. Introduction

Intermediate Public Transport (IPT), also known as para-transit or feeder service, refers to vehicles that work as a supplement to the public transport system by providing first and last mile connectivity to commuters. In urban and suburban areas, they commonly take the form of autorickshaws, cycle rickshaws, taxis, mini buses and more recently e-rickshaws. Jeeps, *chakdas* and *kadukas* (usually tractor or jeep chassis fitted with a trailer) provide feeder services in rural areas, connecting villages to the nearest towns. If the public transport system forms the skeleton of the framework, feeder services are its veins and capillaries.

With the growing population and the rising demand for transport and mobility, many cities are looking into multimodal transport systems as a solution. The issue at hand is not a particular mode of transport, but that the transport planning in itself is fragmented, fractious and mostly ad hoc when it comes to IPT systems.

IPT plays the vital role of covering the gaps in the public transport system and making up for its deficiencies and shortfalls. It caters to the excess demand for transportation services in areas as and when required, and plays the role of the sole saviour in areas where public transport is non-existent.

In this context, it is quite surprising that the feeder services have been consistently left out of the policy paradigm for more than seven decades since independence. The sector still exists in a largely unorganized state, neglected by the central government and highly regulated by the state governments, for fear of competition with the state owned public transport systems.

1.1. Background

In the pre-independence era, before World War I and II, people commuted by walking, bullock cart, horse drawn cart and palanquin. In cities like Bombay (Mumbai) and Calcutta (Kolkata), shared horse drawn carriages were prevalent. Motorised vehicles entered the scene in the 1880s with the introduction of motorised trams.

A major change came along after the two great wars, with used vehicles from these wars flooding the Indian market, such as motor bikes, three wheeled scooters and four wheeled scooters, and four wheelers. These used vehicles served as raw materials for the development of vehicles such as *tuk tuks* and other four wheelers which were then utilized for transit purposes. With the Motor Vehicles Act, 1939, public transport buses were seen as the main carriers of people across cities.

The post-independence era saw the introduction of rules and regulations, a licensing system, and division of authority between the local, state and central

government in policy making, licensing, and registration, among others. The Road Transport Corporations Act, 1950, was passed and various states took competitively running private buses under their wing and created State Transport Undertakings (STU) with the objective of guaranteeing an essential service while also making profits.

As the road infrastructure across the country improved over time, accompanied by economic growth, the demand for transport systems also increased. While the bus systems provided essential services between towns and cities, these buses were undersupplied, creating a large void in transit services, as there were no robust feeder systems in place to cater to the first and last mile connectivity needs of the commuters. This demand for feeder systems was largely met by tongas, bullock carts, hand and cycle rickshaws and taxis, which catered to areas where the public transport systems were lacking. In the year 1959, Bajaj Auto Limited launched the autorickshaw in India.

The Motor Vehicles Act, 1988, lays the groundwork by defining the nature of IPTs in India. As per the Act, transport vehicles meant for the carriage of passengers can be categorized as either Contract Carriages or Stage Carriages.

1.2. Features of IPT

IPT comprises autorickshaws, share autos, cycle rickshaws and other four wheeler passenger vehicles. These feeder services complement the existing transport systems and also act as an alternative when needed. In general, IPTs provide the following services;

- **First and last mile connectivity:** IPTs provide connectivity to passengers to and from the major public transport systems like buses, metros, railways, ferries, etc. by ensuring that all parts of the city have easy access to public transport stations.
- **Door- to- door service:** IPTs offer door to door services to passengers on demand such as occasional trips to the airport or emergency trips for healthcare, without having to rely on private vehicles or public transport.
- **Flexibility:** IPTs serves the mobility needs of the lower and middle classes, while allowing the passengers the convenience of boarding and alighting anywhere along the trip.

1.3. Types of IPT

IPT modes can be broadly classified into two types- Contract Carriages and Informal Public Transport. Contract carriages are demand based services where the origin, destination and routes are flexible. Informal public transport refers to shared

fixed route services with multiple stops in between the origin and destination, which also includes stage carriers.

Contract carriage services primarily comprise autorickshaws which are a common and preferred mode of transport as

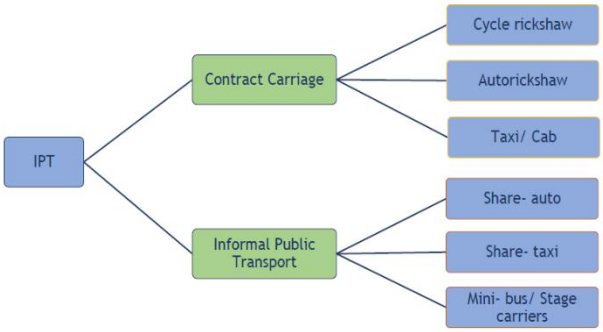

Figure 2: Types of IPTs

they are easily available, provide door to door connectivity, and convenience over public transport services. They also play the role of feeder systems to mass transit systems.

The Motor Vehicles Act, 1988, categorises transport vehicles into three categories of which the category 'Public service vehicle' comprises contract carriages and stage carriages (refer figure below), which comprises IPTs.

Contract carriages act like a standard taxi, where the client is taken from a boarding point to the destination without any stops in between to take in additional passengers.

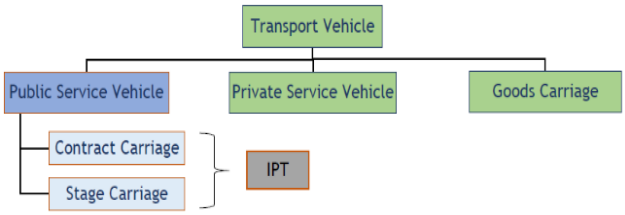

Figure 3: Types of Transport Vehicles as per MVA

More than one contract cannot be executed at a time.

Stage carriages act like buses, ferrying more than six passengers between two designated places on a designated route, stopping in between to take in additional passengers and charging them for the distance travelled.

1.4. Advantages of IPT

In addition to meeting the daily commute needs of the people, IPTs provide a plethora of benefits to the passengers in terms of;

- Comfort and convenience
- Low fuel consumption compared to passenger cars
- Greater manoeuvrability in congested streets
- Point to point and door to door service capacity
- Lower cost as compared to other modes
- Provision of jobs and a means of livelihood for the weaker sections of society

IPTs provide much needed point to point mobility to passengers to reach commercial, educational, recreational, residential and other destinations. During non-peak hours and night, when most bus operations have reduced or ceased, people are dependent on IPTs as the only means of transport. The various modes of IPT in cities today offer consumers wider options for mobility in terms of travel time savings and

guaranteed seats in return for premium fares.

IPT serves as a source of employment for thousands of unskilled people in India, generating a considerable number of employment opportunities. They have become a means of livelihood for the poorer sections of society. Commuters often opt for their services as they provide easy connectivity and act as feeders from origin to destination by connecting commuters to and from the major public transport systems, thereby complementing public transport systems.

IPTs take you on demand from your origin to destination, thereby offering door to door service along with comfort and convenience. Therefore, they are an efficient and cost effective means of transport for commuters.[1]

2. Present Scenario

Last mile connectivity remains a major backlog for public transportation. The IPT sector is presently at a crossroads with the traditional modes of transport (rickshaws and hail taxis) intermingling with the more technologically superior modes (app based taxis and e-rickshaws). The emergence of these newer and advanced forms of IPTs can be partly attributed to stringent regulations in the IPT sector. This disparity in regulations has left the traditional sector at a disadvantage, but the new surge of competition has resulted in the various stakeholders waking up and taking action. The arrival of Ola and Uber led to several thousand taxi drivers signing up with these new companies. Autorickshaw drivers soon followed suit while newer apps tried to further organize them into fleets.

The rigidity of the regulatory structure was observed when app based taxis and e-rickshaws were briefly banned in several cities with the authorities citing that they did not come under the ambit of current laws. The government has slowly come to realize that the existing laws need to be amended and new ones created to bring these new modes under the regulatory body.

The explosion of e-rickshaws in the market was a result of nonexistence of any central laws for their regulation. They were legalised only in 2015 with the passing of the Motor Vehicles (Amendment) Bill, 2015- a big step by the government. Aggregator companies like Uber and Ola did not need to get permits or licenses from the transport authorities to run their businesses as they claimed to be offering only a technological platform to unite transport providers with commuters and hence, would only come under the IT Services Act. The Motor Vehicles (Amendment) Bill, 2017,

[1] *"Assessing the benefits of Public Transport"*, UITP, 2009

which has been passed by the Lok Sabha and is presently pending review at the Rajya Sabha, addresses the lack of regulations on the aggregator companies and tries to bring them under the regulations.

Another modern trend has been the enthusiastic switch towards shared mobility by both providers and commuters. Sharing autorickshaws and pooling cabs has enabled commuters to commute at a fraction of the cost while increasing earnings for the providers. Since all cabs and autorickshaws are given contract carriage permits, it makes it illegal for normal autorickshaws to ply as share autos. App based cab sharing services of Ola Share cabs and Uber Pool cabs are also illegal as per the existing laws. While Ola and Uber have not faced a lot of heat from the government mainly due to their market power and benevolent image, auto drivers encounter constant flak, leading to court orders asking them to stop ride sharing until they are given stage carriage permits.

Startups like ZipGo and Shuttl which aimed to provide cheap AC bus shuttle services in Bangalore and Gurugram were shut down for the same reason along with Ola's shuttle service. The illegal plying of interstate private buses which are given contract carriage permits, but run as stage carriages, taking in passengers with stops in between, is a similar issue. The prevalence of such buses all around India shows that they are run competitively and are highly profitable. They are occasionally seized when under government or legal scrutiny, but they hit the road soon after they are released.

The state governments have the authority to fine tune the regulations required for IPT modes in their respective states. This is largely done by means of restricting permits for autorickshaws and taxis, and fixing their routes and fares in coordination with autorickshaw and taxi unions. The problem is exaggerated by the regulatory system which operates in a way that seems vindictive towards the operators, by making the whole process unnecessarily complicated and expensive. The antiquated laws and fragmented authority in the hands of the local governments, Regional Transport Officers and traffic policemen leads to uncertainty when facing grey areas such as these. The usual approach is to blindly come down on operators and ban services without considering their costs and benefits to society.

3. Legislative provisions for IPT

In 1914, the Indian Motor Vehicles Act was passed and the sudden explosion of motor vehicles led to the formation of the Motor Vehicles Act, 1939. It was later replaced by The Motor Vehicles Act, 1988. The Central Motor Vehicles Rules, 1989, was passed to exercise the legislative provisions of the Act of 1988.

The Ministry of Road Transport and Highways (MoRTH) is the central authority for motor vehicles in India. As per the Motor Vehicles Act (MVA), 1988, public service vehicles are categorised as contract carriages and stage carriages, which constitute IPT. The act does not formally use the term IPT or para-transit or feeder service and it does not recognise informal public transport such as share autos, share cabs, etc. The recent Motor Vehicles (Amendment) Bill, 2017, recognises aggregators like Uber and Ola and defines them as "a digital intermediary or market place for a passenger to connect with a driver for the purpose of transportation." The Bill has been passed by the Lok Sabha and is presently pending review at the Rajya Sabha. The interesting fact to be noted is that the definition of 'contract carriage' and 'stage carriage' remains more or less unaltered since the introduction of the Act.

The Central Government formulated the National Urban Transport Policy (NUTP) in 2006, which tried to unify the various bodies involved in urban transport by bringing them under the Unified Metro Transport Authorities (UMTAs) in cities. In its memorandum, where it discusses the massive role envisioned for public transport in modern cities, it defines para-transit as one that caters to occasional trips or emergency trips where it is not possible to wait for public transport, and which would not normally be used for regular commute trips except when the quality of public transport deteriorates, which is the reality in many cities at present.

It further states that the role played by IPT has exponentially increased in recent times as a common mode of transportation, and that it is addressing the gaps and shortfalls in state public transport systems and even competing with it. It also says that the public transport systems should be widened in scope and reach so that IPTs can be brought back to serving their original role as 'occasional' providers of transport services.[2] The NUTP laments the poor organizational structure of IPTs but does not lay out any plans or intention to correct the problem, only stating that they can be effectively used as feeder systems in big cities.

The Jawaharlal Nehru National Urban Renewal Mission (JnNURM) introduced in 2006 was a comprehensive plan to provide a boost to the infrastructural outlay and capacity building in the urban transport sector. JnNURM asked the state governments to align their development projects with NUTP objectives to obtain central government funding, which led to road widening plans being replaced by Bus Rapid Transit (BRT) projects. Only 61 cities in the country have formal city bus systems. While 49 cities augmented their bus services through the scheme, 12 cities have

[2] National Urban Transport Policy, 2006

initiated bus services for the first time. Of these cities, 11 have also taken up BRT projects and six have taken up metro systems funded partially or fully by the government.[3] A major reason for the failure of BRT projects in several cities is the lack of providing them with effective IPT support, which would have acted as feeder services and increased the ridership for the BRTs.

A comprehensive urban transport plan requires an active role for IPTs to enable the smooth functioning of public transport systems. Their role cannot be neglected or repressed or taken over by the state. The NUTP could have acted as a guide to incorporate feeder services into the system but it has failed to do so.

The NUTP, 2014, has recognised the role of IPTs at a greater capacity than NUTP, 2006. It provides for road access for vehicles within about three kilometres of the public transport stations/stops and feeder services within five kilometres of the stations or stops.[4]

4. The role of IPT in the transport sector

The definition of public transport often does not include informal transport services like autorickshaws, share autos, taxis, mini buses, etc. These informal transport services serve the cities as IPTs in the absence or shortage of formal public transport systems and play a significant role in the transport sector.

In larger cities with more than one crore population, the major share of transport is served by formal systems like the bus, metro and suburban rail (refer table below). In medium sized cities with population less than one crore, IPT modes like autorickshaws are almost equal to the formal bus system. In smaller cities, with less than 10 lakh population, the share of IPTs is almost three times that of the formal bus system. Note that the two wheeler share is highest in small cities, which indicates the inadequacy of the formal and informal transport systems in these cities.

Table 1: Mode of transport shares in India [5]

Population	Bus	Auto rickshaw	Rail/ Metro	Car	Two-wheeler	Cycle	Walk	Total
> 1 crore	20	3	14	6	9	5	43	100
10 lakh to 1 crore	13	11	2	3	23	13	37	100
< 10 lakh	4	13	0	2	27	6	49	100

* All figures are in percentage

[3] MoHUA 2013
[4] National Urban Transport Policy, 2014

A comparison of the number of IPTs to the number of city buses in various Indian cities per one lakh population shows that the number of IPTs are often much more or equal to the city buses in most of the cities (refer figure below). [5]

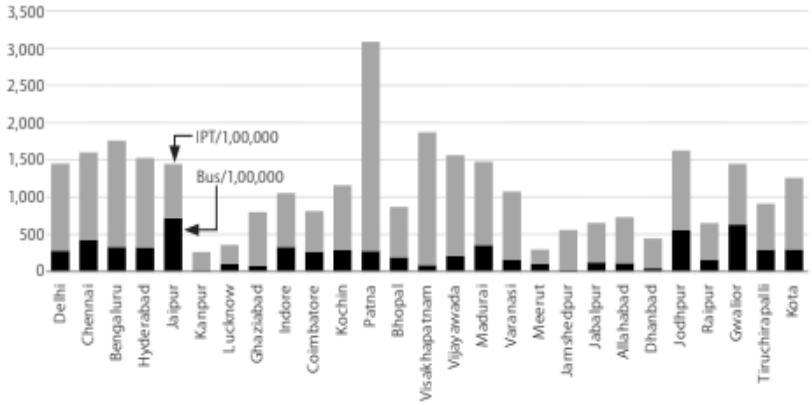

Figure 4: Number of IPTs and city buses [5]

This indicates that the cities are heavily dependent on IPTs for commuting, which proves the inadequacy of the city bus systems. This could be attributed to the fact that IPT vehicles are individually owned and operated and much more demand responsive than city bus systems.

1.5. Case Studies

This section discusses a few case studies from various Indian cities and abroad highlighting the importance and role of IPTs in the overall transport system.

Case Study 1: Visakhapatnam, Andhra Pradesh

Visakhapatnam, the largest city in Andhra Pradesh, is a medium sized city with a significant urban agglomeration. Both city buses and IPTs are extensively used by the commuters. Buses carry 18 per cent of total trips in the city with road access to city bus services at 32 per cent of the road network. IPTs carry 9 per cent of the total trips, with the road access to IPTs being only 15 per cent. All the road links with access to IPT also have access to city buses, which creates a state of competition between the services.

[5] Gadepalli, Ravi. 27 February 2016. Role of Intermediate Public Transport in Indian Cities. Economic and Political Weekly, Vol. 9.

The IPTs in Visakhapatnam comprise three-wheeled autorickshaws with a capacity of three as well as six. They either operate as a taxi serving individual trips on demand or operate as a shuttle service between two places, depending on passenger demand for the type of service. Their operations are neither monitored nor regulated.

The city buses were observed to have a wider coverage and passenger capacity whereas IPTs were more efficient in terms of operations and availability, and were demand responsive and dynamic in nature. This shows that integration between these services is essential to make the transportation system more efficient and convenient for the commuters. [6]

Case Study 2: Delhi

Delhi city has a full-fledged city bus transit system as well as the Delhi metro supported by a variety of para-transit modes varying from rickshaws, autorickshaws, minivans, etc. These modes function as the major feeder services for the high speed metro rail system of the city, and commuters are dependent on these feeder services for first and last mile connectivity. However, due to the lack of focus on efficient last mile connectivity, these feeder services are generally unreliable, uncomfortable, unorganized and often dangerous.

Commuters preferred IPT modes like autorickshaws and feeder buses when the distances to the nearest mass transit system exceeded one kilometre. [7] It was observed that more than 70 per cent of metro users mentioned issues related to last mile connectivity, and the average time spent and cost incurred in commuting the last mile is considerably high (more than 15 minutes).

More than 55 per cent of private vehicle users cite reasons directly or indirectly related to first or last mile connectivity for not utilizing the Delhi metro. About 58 per cent of them are willing to use the metro if sufficient first/ last mile connectivity in the form of efficient feeder services are provided along with park and ride facilities. This clearly indicates the lack of importance given to first and last mile connectivity in the overall functioning of a public transportation system.

Case Study 3: Kolkata, West Bengal

Kolkata was designed as a city based on pedestrian movement and a mass transit system in the form of trams. Cycle rickshaws and hand pulled rickshaws supported the need of the city considering the narrow streets and the required manoeuvrability. Even though Kolkata has had several forms of IPT, only taxis, cycle

[6] Gadepalli, Ravi. 27 February 2016. Role of Intermediate Public Transport in Indian Cities. Economic and Political Weekly, Vol. 9.

[7] Rajput, Navneet, 2016, "*Last Mile Connectivity Analysis for a Public Transport Network"*, Master's Degree Dissertation, IIT Roorkee

rickshaws and LPG autorickshaws have been permitted to ply in the city.

The Comprehensive Mobility Plan of Kolkata Metropolitan Area (CMP), 2008, suggests that autorickshaws played a significant role comprising about 46.5 per cent of all para-transit trips. While the CMP recognises the importance of IPT in the city's overall transport planning, some of its recommendations regarding IPT need revision.

Autorickshaws were formerly operated as contract carriages similar to taxis, with metered fares and flexible routes. In subsequent years, various changes were imposed with amendments in the rules, regarding granting permits for autorickshaws in West Bengal. The rules stated that contract carriage permits will be granted only for specified fixed routes approved by the authority, and the fare will be non-metered and fixed by the state. This resulted in a restriction on the issue of permits, and imposition of restrictions on the operation of autorickshaws in Kolkata.

Autorickshaws continue to remain a significant player in the IPT space in Kolkata, and also serve as a primary mode of public transit. It is hence necessary to create an enabling regulatory and operational environment to give autorickshaws their rightful space in the transport planning architecture of Kolkata. This would enable the CMP's objectives of reducing congestion and pollution, and increasing usage of public transport.[8]

Case Study 4: Singapore

The public transport system of Singapore city is fast and efficient and offers very good connectivity and convenience to the public. For enhancing the first and last mile experience, promoting safer cycling and sharing of paths, Singapore has introduced more covered walkways within 400 metres of mass rapid transit (MRT) stations, and about 50 overhead bridges with lifts and barrier-free access at MRT stations and bus interchanges.

To provide for pedestrians and cyclists, reforms for development of model walking and cycling towns with more pedestrian and cyclist friendly features, and dedicated cycling networks in every Housing and Development Board town by 2030 have been taken. Safe rider campaign and safe cycling programmes were launched and road spaces were redesigned to facilitate better connectivity for commuters and active mobility users.[9]

Singapore has pioneered innovative urban transport policies in electronic road pricing and vehicle quota system, and has an extensive network of rail and bus based

[8] Arora, Anvita, et. al., 2016, "*Integrating intermediate public transport within transport regulation in a megacity: a Kolkata case study"*, Research Report by CPR

[9] Rajput, Navneet, 2016, "*Last- mile Connectivity Analysis for a Public Transport Network*", Master's Degree Dissertation, IIT Roorkee

public transportation.[10] Despite a good public transport network, Singapore faces a trend of declining public transport share along with an increase in car usage. The MRT share in public transport increased whereas the share of other modes of public transport decreased. It was found that even people in the high income group who own cars preferred MRT due to its speed, comfort, and convenience.

More than 120,000 commuters use feeder buses daily to take a first mile trip from home to MRT station. There is also a large number of first mile trips by private cars. It was also found that there was an increase in use of cars for feeder trips for first and last mile connectivity by more than 50 per cent, which highlighted the inadequacy of the existing feeder services.

Accessibility of MRT stations is a significant factor while analysing its ridership and this is even more evident when assessing the MRT users in terms of their distance of origin from the station. It was found that more than 70 per cent of commuters living within walking distance of transit stations prefer the MRT, but this percentage sharply drops to less than 40 per cent at a distance of 2 km from the MRT, which can be explained by the time taken for the first/last mile and the associated effort and inconvenience.

Singapore addressed these issues by expanding the MRT network and bus networks, and also by investing in improvement of the feeder systems of the city, with the aim to connect the commuters to the public transport systems without having to invest too much time and effort in the first/ last mile trips.

5. Barriers faced by IPTs

The actual number of feeder services, their operations and schedules have not been recorded or documented by any organisation, private or public. Most of these feeder systems are largely registered as contract carriages under the MVA. Stage carriages like public buses and other utility vehicles have the option of multiple stops to pick/ drop passengers along the designated routes. Given the nature of operation of IPTs, they are supposedly intended to cater to those commuters who travel to markets, offices, schools etc. and facilitate first/ last mile connectivity. However, the contract carriage permit restricts their usage, flexibility and operations as a feeder service catering to multiple passengers.

IPTs like autorickshaws which mostly operate under contract carriage permit are not monitored extensively, which results in them illegally operating shuttle services

[10] Kumar, Ashwani, 2015, "A Systems Approach to Assess and Improve the Last-Mile Access to Mass Transits", PhD Thesis, National University of Singapore

between areas as per the passenger demand to earn more income. These autorickshaw drivers mostly belong to the poorer sections of society. When they face a multitude of difficulties in obtaining a permit, they resort to renting the vehicle in order to meet their expenses and often end up in debt.

In addition to this, the government amends the rules with stringent performance and pollution standards, forcing these IPT operators to comply with the standards, which takes another chunk out of their earnings. For example, the Supreme Court passed a ruling in 1998 to scrap older vehicles and a year later the court made it mandatory to shift to an alternative fuel (CNG). The fare meters that have to be installed in autorickshaws have also seen a change from mechanical to electronic to global positioning system (GPS) enabled meters recently. Considering that they cost around Rs 25,000 each, which is nearly the monthly earnings of an autorickshaw driver, every subsequent change would severely affect their finances and ultimately add to their debt. The fact that they often overcharge and are hostile to passengers in that regard can be attributed to their inability to earn a decent living rather than plain greed as is generally believed.

There are two types of permit systems in the cities for autorickshaws- closed permits and open permits. The closed permit system caps the number of permits and restricts free entry of autorickshaws into the market, hence attempting to control the supply and traffic congestion on the roads. In reality, this system leads to illegal autorickshaw operations, permit mafias, black marketeering and added costs to procuring an autorickshaw. Closed permits are found to perpetuate systems of illegality, including middlemen, corruption and exploitation of poor. In the open permit system, permits are easily available as there is no cap on the number of permits. This allows free entry of autorickshaws into the market and contributes to pollution and traffic congestion in the cities.[11] These systems vary in different cities across India with both systems having their pros and cons.

Requisite infrastructure facilities like stands, transfer points, parking spaces, workshops, drinking water facilities, gas stations, etc. are not available for IPTs. A lack of institutional support has also affected the operators as they were unable to seek monetary support or avail loans from banks, or procure social benefits like insurance, which directly affected their livelihood. The absence of rules for share autos, share taxis etc. created distortions in

[11] Arora, Anvita, et. al., 2016, "*Integrating intermediate public transport within transport regulation in a megacity: a Kolkata case study"*, Research Report by CPR

the market as it occupied a space which was unauthorised or unidentified by the law.

The privately managed informal nature of IPTs has excluded them from the formal transport planning policies and processes, which has led to the formal and informal systems competing with each other instead of synergising to meet the overall transport demand in the cities. To avoid this competition of IPTs with public transport systems, the authorities have been trying to restrict their numbers. The restriction of permits granted by the authorities lead to permits being sold at a premium which is often 10 to 50 times higher than the cost of the permit. Though this is done to curb congestion in cities, high demand leads to autorickshaws plying with illegal permits or no permit.

Stage carriage permits are given to IPTs very hesitantly so that they do not compete with state transport buses. The important thing to be understood while formulating regulations in this sector is that most IPT operators have minimum education or are even illiterate, and regulations which usually involve a lot of paperwork or technical specifications can prove extremely difficult and daunting to them.

As the economic conditions of the growing middle class improved, more of them started investing in private vehicles to serve their travel needs as public transport systems lacked convenience and dependability. The rise in number of vehicles in the narrow city roads left them congested and overcrowded. Blaming the IPTs for the rising number of vehicles, the state governments continuously hindered them from stabilizing and developing by means of disruptive regulations. The lack of any policy framework encouraging competition or innovation in the IPT sector is evident from the absence of any significant changes in the design and model of IPT modes such as autorickshaws over the past decades.

The transportation system belongs to the concurrent list which is under the purview of central, state and local governments. Urban transport is more or less under the central and state governments, with major decision making and financial capabilities under their control. A multitude of agencies are involved in urban transport in India. They include the transport department, police, urban development department, municipal corporation, revenue department, finance department, public works department, pollution control board, etc., and there exists little coordination among these institutions.

The prevalent legal system forces IPT service providers to operate illegally, as the demand for feeder services is on the rise and this mode of operation is more remunerative. These paradigms have turned IPT operators into unscrupulous elements who bribe and neglect traffic

laws. [12] The policy apparatus of the state failed to respond to the demands of the market given the high acceptance and usage of feeder services. The informal and unregulated environment had a debilitating effect on feeder service operations across the country.

6. Way Forward

After curbing the growth of IPTs for decades, the central and state governments are slowly realizing the need for IPTs in our cities to bring down the rampant increase in usage of private vehicles and the negative impacts of traffic congestion and pollution caused by them. It is remarkable that none of the policies and programmes on urban transportation such as the NUTP (2006 and 2014) and the JnNURM, or the Motor Vehicles Act, 1988, stipulated any guidelines laying out the framework of IPTs.

In recent years, the outlook has changed with the government focusing on transport oriented development and Smart Cities, which lays stress on urban development based on smooth, convenient and multi modal transit modes. Even though not comprehensive in their guidelines regarding IPTs, these recent policies have for the least part accepted them as part of the city's transport network and view their role as integral to developing modern cities which have seamless feeder support to public transport systems and hence reduce the usage of private vehicles to a minimum.

The traditional IPT sector in urban India lacks three essential prerequisites for growth: space, structure and stability. With inadequate spaces created or reserved for their functioning, IPTs have been notorious for illegal parking or crowding in areas. There are no areas earmarked for them in public areas where there is high demand, which leads to them encroaching service lanes or footpaths. The structure of the IPT sector remains largely unorganized, with majority of the vehicles being privately owned or operated. The numerous regulations that have been forced on them over the years, as well as the high informal costs (bribes to police, agents, authorities, etc.), prevented the sector from achieving stability or being secure about their future earnings. A collective approach is to be adopted to address the issues faced by the IPT sector, so as to resolve them for the benefit of commuters, operators and the transportation system as a whole.

The Motor Vehicles Act needs to be amended to modify the existing definition for contract carriage and stage carriage to include shared services, which it does not recognise at present. Shared mobility can be the most important step forward for the IPT sector. Share autos and pool taxis are

[12] 2014, "Sustainable Transport for Sustainable Cities", A study by Institute of Urban Transport

already a big success in certain cities due to their low cost, high frequency and demand. The ambiguity in the law regarding the stage and contract carriages needs to be amended to make shared mobility legal. The push for shared mobility should be accompanied by removing the restriction on permits.

The increasing number of IPTs should lead more drivers to ply shared services. Their routes can be fixed by the government, capping their lap distance and encouraging them around transit hubs to serve as first and last mile connectors. This will ensure the use of public transport for longer distances while IPTs will be used for shorter distances. This will also provide a legal and decent means of living for IPT operators. The future depends on smart regulation that can balance a legitimate concern for the public good, commuter safety and system efficiency, with the innovations and investment that the private sector can provide.

The restrictions pertaining to the issue of permits to IPTs can be eased by making sure that IPTs serve as efficient and effective feeder services, and not a competition to the public transport system, by permitting them in routes where the public transport system coverage is short or absent. This will consequently reduce the illegal operations of IPTs, the difficulties in obtaining permits, the corresponding informal costs and the associated corruption.

One of the issues pointed out regarding IPT modes is that they do not follow regulations or obey traffic laws and that they encroach the roads and create traffic congestion and overcrowding. Making IPTs inclusive by providing them adequate infrastructural outlay in the form of stands and parking areas in and around major public hotspots or absorbing them in required numbers by facilities that have a high demand for them such as bus stands, metro and train stations, malls and corporate buildings will help organize them and bring accountability and stability to the sector. This will ensure safety, comfort and convenience to the passengers, do away with the problems of congestion, overcrowding, illegal operations, overcharging, hostility towards passengers and infighting and bring about an overall integration of the transportation system at the city level.

The emergence of app based aggregators has made both the government and consumers see the benefits of bringing in organizational structure to taxis and autorickshaws; it has improved the quality of service and put in place a potent redressal system. Many such aggregators are emerging with the aim of integrating various modes of transport. The success of the existing ones only proves that bringing in an organizational system would make people more enthusiastic about using them.

The Motor Vehicles Act needs to bring about clarity regarding the role of aggregators and

differentiating between the two types of aggregators: one where the vehicles are viewed to be run under the aggregator brand name (like Ola, Uber) and the other in which the aggregators are only seen as booking agents (like Redbus, Cleartip, etc). Their separate roles need to be clearly defined with the former category sharing the accountability and the responsibility of providing for safety and quality measures. Moreover, the relationship between the aggregator and the vendor needs to clearly defined. The latter category of aggregators, the booking agents, can be promoted with minimum regulations as they can have a huge positive impact on the transport sector. The Motor Vehicles (Amendment) Bill, 2017 recognises aggregators and tries to bring them under the regulations.

Policy implementation requires coordination among various stakeholders ranging from different Central Government ministries to the local governance agencies, private agencies and NGOs. The institutional and regulatory framework for urban transport in India therefore does not integrate IPT into decision making and investments. As a result, the public transport interventions in the cities have only resulted in providing or augmenting the city bus services and mass transit systems, instead of trying to integrate the public transport system with informal transport systems like IPTs. The fact that the government has not been able to improve the situation even after experimenting with regulations for so long means that these regulations are not viable for the operators to follow and that they find it more economical to regularly pay off policemen, agents and RTO officials. This high informal cost due to inherent corruption plagues the entire system. An integrated approach towards traffic planning and management is the way ahead.

Local governments should be vested with the power to resolve transportation issues and empowered to take decisions within their jurisdiction, which will help in simplifying the issues arising from the existing three tier governance system in the transportation sector. Provisions in the law specifically designed for the IPT sector are required so as to enable them to grow, improve and innovate. This will ensure competition and the entry of new players in the sector, ultimately resulting in the evolution of the IPT sector. Legalising IPTs and integrating them with the formal transport system will assure overall connectivity and convenience, while also safeguarding the interests of the operators by providing them with a legal and decent means of income. This will in turn positively impact their families and livelihood and open avenues for betterment of quality of their life.

The way ahead for the IPT sector in India starts with recognising, legalising and integrating it as part of our transport system. This will enhance first and last mile

connectivity and subsequently improve the ridership in the public transport system, thereby providing an answer to urban India's transportation woes.

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