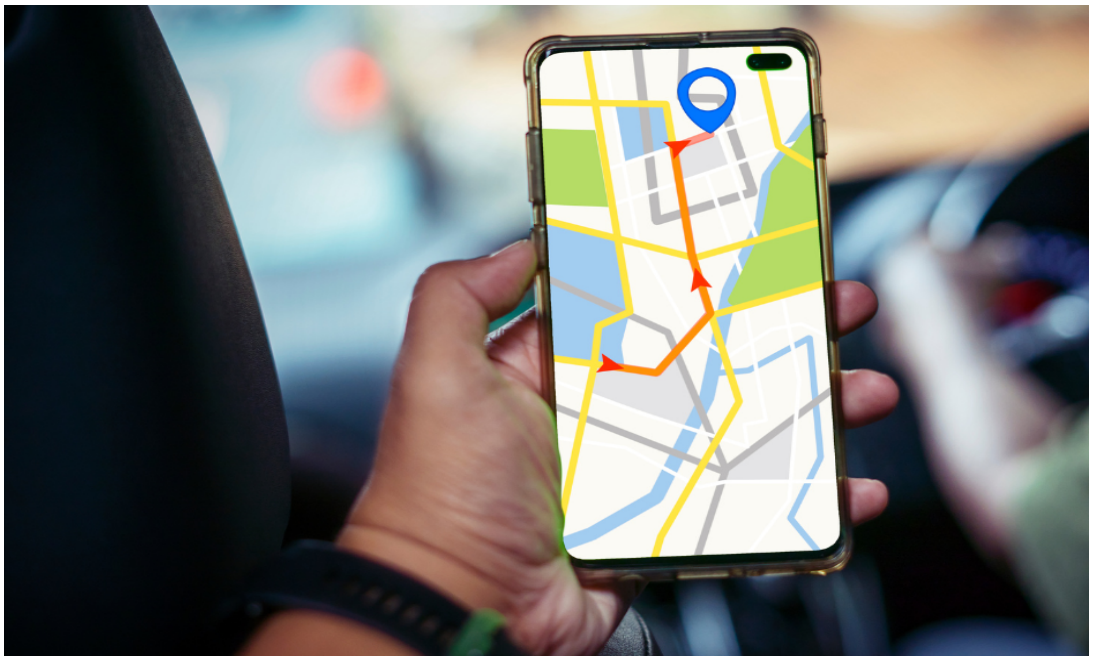
CAG
Citizen consumer and civic Action Group



Navigating Uncharted Territories

Accessing Public Transport Information in Chennai

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About CAG

CAG is a 37-year-old non-profit and non-political organisation that works towards protecting citizens' rights in consumer, civic and environmental issues and promoting good governance processes including transparency, accountability and participatory decision-making.

Executive summary

Urbanisation and economic prosperity combined with human aspirations in a consumerist society are causing a rapid shift in modal share of transit from public to private transport. The inverse relationship of increased private transport to compromised air quality, health, safety, equity, and justice are well known. So cities across the world have begun to rethink their approach to urban mobility with policies, plans, and schemes being developed to support walk/cycle/public transit.

In India, the focus of such efforts has been on infrastructure - cycle lanes, footpaths, common mobility cards, and interlinking of transit modes. These are crucial big ticket items but lost in the din of infrastructure construction is how public transit commuters access and use information on the transit network. Anecdotal evidence shows that navigating public transit in India is a community effort, requiring the commuter to actively engage with transit operators, fellow passengers, and even the general citizenry. This is because useful, accurate information on routes, fares, service frequencies, etc is not readily available in an uniform, widely understood manner.

To understand how commuters access and use public transit information systems, 506 commuters across transit systems in Chennai (suburban and elevated train, Metro, bus) were interviewed. A review of each of these transit modes' information systems, including grievance redressal and participatory decision making mechanisms, was also conducted.

The study found that the majority of commuters rely on word of mouth information - from friends/family members and fellow commuters. Less than a quarter of respondents (125) used the internet to find information on public transit and only 21 people (of 506) used a mobile-based application (app). While the majority used a smartphone, the level of familiarity/comfort with a smartphone was directly proportional to education and inversely proportional to age. Commuters clearly articulated that while on familiar routes they do not need information, navigating new routes is tough especially if taking a bus.

The information (on websites, apps or at bus stops/stations/ bus depots etc) is piecemeal and inadequate to plan a journey and requires a working knowledge of the transit network. The information accessibility (in terms of language diversity, accessibility for people with disabilities) is also poor and of uneven quality.

317 respondents (of 504) said they would not switch to private transport due to cost considerations. Of the 143 who said they have considered switching, 41 people said they often think about it when faced with poor public transport service (i.e long wait for the bus or crowded buses/trains). The 102 respondents who are actively considering private transport were largely in the below 30 age category.

One-fifth (103) of commuters were aware of grievance redressal mechanisms (i.e complaint number) but only 7 of them had ever attempted to use it though they do not know if action was taken. More than one-fifth of respondents said they would be willing to engage in a constructive dialogue with public transit operators to improve the transit system.

If Chennai is to retain its existing public transport commuters *and* bring in new ones, information systems need to be strengthened. The study recommends public transit operators use **multiple modes of communication -** websites, apps, signboards, announcements - all in multiple languages; provide **real time information & updates**; develop **an integrated information system across all transit modes**; put in place **robust systems for regular feedback from commuters;** and provide **periodic training for staff**.

Background

Since 1901, the urban population of India has increased from 10.84% to 31.16% in 2011. While clearly more and more people are living in urban areas, there is also a debate on how urban areas are defined[1], how migration affects urbanisation etc.

Urban agglomeration accelerated with the economic reforms of the 1990s that opened up the country's market and boosted economic activity around urban areas. India's 4th most urbanised state, with 48% of the population in urban areas i.e Tamil Nadu, has seen a lopsided shift in population. About half the increase in population has been concentrated in just four cities – Chennai, Madurai, Coimbatore, and Tiruchirapalli. Chennai leads the way with a quarter of the state's urban population.

This urban population spurt, of course, is tied to economic growth that has been driven by focussed policies to build industrial clusters across the state. At the same time, cities across Tamil Nadu have struggled to provide civic amenities (water, sanitation, electricity, and transport) to their burgeoning population in spite of multiple schemes aimed at urban renewal. This imbalance looks to only get exacerbated as more people are drawn to urban areas.

Urban Mobility and Sustainability

In the document Agenda 21[2], an outcome of the 1992 Rio Conference, the United Nations recognised that transportation is a major driver of energy demand. Twenty years later, this has come true with transportation being the largest end-use of energy in developing nations. The Sustainable Development Goals (SDGs) highlight the importance of transport in ensuring liveable cities. Recognising the contribution of transportation to urban air pollution; its link to health; equity; access to education, livelihood, and healthcare; and road safety, Target 11.2 (under SDG 11) calls for cities to, 'By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons'.

Urban planners globally recognise that prioritising private vehicles (cars, two wheelers) over public transit makes for inequitable cities with only a minority of people able to afford personal transport. Additionally, studies note that cities in India are among the most polluted in the world. The World Air Quality Report 2021[3] found that India was home to 11 of 15 most polluted cities in Central and South Asia, with New Delhi ranking first in terms of PM2.5, for the fourth consecutive year, among 107 capital cities. Burning of fossil fuels is recognised as one of the important contributors of PM2.5. Burning fossil fuels contributed to 1 million deaths worldwide; 800,000 of these in South and SouthEast Asia, says a study by the independent, non-profit research institute, Health Effects Institute (HEI). The study, *Global Burden of Disease from Major Air Pollution Sources: A Global*

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[1] As per the current Census definition 3 criteria must be met – population of over 5000; minimum population density of 400 sq km; and at least 75% of the male working population engaged in non-agricultural work

[2] Agenda 21 of the United Nations' Rio Conference

[3] 2021 World Air Quality Report

Approach puts India's death toll due to PM2.5 at 867,000 (in 2017), the second-highest after China.[4] Prioritising private vehicles is only going to make these numbers worse.

With mobility being crucial for education, livelihood, accessing healthcare, or even recreational opportunities, good public transport is a vital public service that helps counter inequalities and bring a measure of social justice. A modal shift to public transport would also lead to fewer vehicles on the road, and therefore less traffic congestion as well as fewer and less severe road crashes as buses have lower fatality rates.[5]

Regulatory framework and implementation

The National Urban Transport Policies of 2006 and 2014 recognized the need for public transport. The Centre also introduced projects aimed at renewal of urban amenities including public transport such as the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) which morphed into the Atal Mission for Rejuvenation and Urban Transformation (AMRUT), and the Smart Cities Mission.

Several cities like Chennai have developed non motorised transport (NMT) policies and mobility plans and are implementing a variety of projects to improve pedestrian and cycling infrastructure (such as Chennai's Mega Streets). After years of prioritising infrastructure for private vehicles this is a welcome move although the dialling down on private transport facilities is poor. At the same time public transport improvement has been patchy.

Rationale

Till the 2000s, Chennai's public transport consisted of the bus service, Metropolitan Transport Corporation (MTC) formerly known as Pallavan Transport Corporation and the suburban rail lines running North to South West. This was bolstered by an elevated railway line (MRTS) that interconnects with the suburban line at the northern end and runs almost due South. In 2015, Chennai got its first Metro line which is now slowly expanding. Simultaneously, the MTC fleet size has been shrinking. Fleet strength in 2014-15 was 3794 and in 2021-22 it is 3454 with some ups and downs in between. In this time period, the maximum fleet strength was in 2015-16 with 3987. The average age of the fleet has varied between 6 and 9 years. Clearly, it is an ageing fleet. Passengers per day in 2014-15 was 50 lakhs, and in 2021-22 it has dropped to 28.70 lakhs. Even pre-pandemic, in 2019-20, it had decreased to 30.86 lakhs.[6] Even if the years 2020 and 2021 are ignored as abnormal years due to the pandemic, MTC's data shows the neglect of its bus fleet. The neglect goes beyond just the buses themselves; the bus shelters, and bus termini are poorly maintained, hard to navigate, and often unsafe. The suburban and MRTS trains show similar signs of neglect in terms of stations and facilities. The only redeeming feature is that the frequency is much better and the trains are usually on time, give or take a few minutes. Unfortunately, information on passengers/day, occupancy, trips, etc for the rail networks are not available in the public domain.

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[4] McDuffe et al (2021)
[5] Macroscopic road safety impacts of public transport: A case study of Melbourne, Australia
[6] Metropolitan Transport Corporation (MTC)

In recent years the focus has been on the Chennai Metro, mooted as the solution to the transport travails of the city. Chennai Metro began in June 2015 with a ridership of 31.9 lakhs in 2015-16 which has gone up to 336.53 lakhs in 2019-20. Of course, the COVID19 pandemic meant a drop in ridership to 93.51 lakhs in 2020-21.[7] While the Metro's network is slowly growing and therefore ridership is not impressive, the reality of the Metro has not matched with what was projected when the Metro was first mooted[8].

In addition, there is an imbalance in cost and time taken to build between Metro and other public transport modes.[9] The cost of building a kilometre of Metro infrastructure is estimated to be around Rs 200 crores compared to Rs 10 crore for a Bus Rapid Transit (BRT) of the same distance, and the cost of a low floor bus is around Rs 50 lakhs. Yet the Metro is the focus of much investment.

The link between urban mobility and pollution, congestion, road safety, health hazards, and resource consumption are well-known and widely recognised. Governments have, for years, been talking of sustainable mobility - an integrated, seamless network of public transport and non-motorised transport systems that will reduce our dependence on private motorised vehicles. Legislation, policies have been framed and schemes developed. As part of reforms tied to World Bank loans, the city created an unified authority for transport – Chennai Unified Metropolitan Transport Authority. Although the Act to create CUMTA was passed in 2010, it was only in 2022 that operationalisation of the body began. During this period, talk of inter-modal connectivity, last mile connectivity solving (mini bus), GPS tracking etc were brought up repeatedly, but except for the minibuses nothing fructified. A lot of this requires technological interventions and has been brought under the ambit of the Smart Cities Mission. Yet on ground change is poor to non-existent.

Irrespective of which mode of public transport one uses, a key feature of ensuring accessibility to transport, is ensuring commuters can readily find and use information on the public transport – routes, fares, timings, wait times, and potential for switching modes. Discussions on public transport tend to focus on fleet strength, coverage of the city, frequency, and fares, but rarely look at passenger information systems. If it does look at information dissemination, then the focus is on 'smart' solutions without looking to understand the challenges commuters face.

CAG has, for several years, attended quarterly grievance redressal meetings at MTC. MTC invites several consumer groups to attend and issues are raised. These meetings were held regularly until 2020. At the meetings, a recurring complaint has been the lack of information for passengers. To this the stock reply would be the information is on the website, and later that MTC was developing an app that would solve all problems.

Anecdotal and observational evidence suggests that the majority of MTC passengers are unlikely to be familiar with the Internet of Things. The question, therefore, arose, how do public transit users in Chennai access and use information on transit; is the information accurate, adequate, and easy to use? And do the service providers have a robust feedback/grievance redressal mechanism that goes beyond complaints and seeks to make decision making more participatory?

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[7] Annual Report of Chennai Metro 2021-22
[8] Chennai Metro Rail's average daily ridership touches 2.2 lakhs during the past week
[9] Executive Summary of Project Brief

Objectives

In an effort to understand commuters' perspectives on transport information, CAG undertook a study with the following objectives:

- How do commuters find and use information on public transport?
- What is the quality of information given by public transport operators?
- How do public transport operators engage with commuters in terms of grievance redressal and participatory decision making?

Methodology

Mapping existing passenger information

An observational survey of the varied sources of information available for the commuter in each type of public transport (MTC, Metro, MRTS, and suburban rail) was conducted by visiting 100 stations/bus stops across the city and travelling in each mode of transport (50 in bus, 10 times in each rail system). The websites and official apps, if any, were also perused to assess the quality and type of information available for the commuter.

The official websites and mobile applications (apps), if any, of the service providers were perused and the information rated on quality of information provided, and ease of use and navigation of interface. The accuracy of all information could not be checked and so a random selection of information was checked on ground for accuracy.

Commuter perspectives

A survey of 506 public transport users was conducted to understand how they access public transport information, how useful they find the information, the grievances they have regarding public transport, and level of awareness/engagement with grievance redressal mechanisms and participatory decision making mechanisms available. Care was taken to ensure the interviewees' informed consent was taken and that the sample covered the range of age groups, genders, and socio-economic parameters.

Share autos, as Intermediate Para Transit, were not included in the study as they are in the informal sector and function very differently from the formal public transport.

Results

Sources of information

To have a hassle-free journey via public transport, a commuter would need to know which route to take, the start and end stops relevant to her needs, fares and ticketing options, timings, and advance warning of when to get off the bus or train. All this information must be in an easily understandable format and language known to the user. Users of public transport in Chennai have several sources of information - websites, apps, fellow passengers, staff at ticket counters and on the bus.

Online modes

The MTC website[10] has a search button with a drop down for bus timings, route-wise, and stage-wise information. Choosing *Bus Timings* gives the user the option of choosing a route (Eg. 29C, 102M). In addition the timing given is only for the start location. The route-wise information option also requires the user to know the bus route number of interest. Thereafter it lists the major areas through which the bus passes. The stage-wise information allows the user to choose start and end points from dropdown menus. The results are a list of bus routes but do not provide any other information. The commuter can also search which bus runs between two stages (via drop down menus) and then MTC lists the bus routes that connect these two. The stage-wise fare structure for each type of service - ordinary, deluxe, etc, is provided. The fare page notes the fare structure is based on a government notification of 2018. The concession fare details are simple to read and understand. It provides the documents needed, the cost, the process to be followed, terms & conditions, and locations where the pass can be issued.

In May 2022, MTC launched its app, Chennai Bus. It was developed by the same company that developed the third party, multi city app, *Chalo*. Chennai Bus requires the device location to be turned on manually. It then opens to a map with a list of nearby bus stops. The user has to choose one bus stop to see a list of routes and choose one to see a list of stops. If live tracking functionality is installed in that route, one can see when the next bus is expected. A little bus icon moves between the stops indicating the current location of buses. However this does not seem to be installed in many routes. In some locations, Adyar Depot for example, there are 3-4 bus stops of the same name in the app and the bus routes through that stop are divided across these buttons so it takes some effort to figure out the details for the route that the user requires.

A drop down menu of bus routes is also available, or the user can use the trip planner option to search between locations.The details of the route including walking distance can be shared via email, WhatsApp, etc. Fares are not given. Ticketing cannot be done via the app.

The app can be viewed and used in English or Tamil. The app also has a tendency to hang and close quite frequently.

In terms of grievance registration, an email ID is provided on the website. In addition, phone numbers for the corporate office along with the physical address is provided.

Suburban Rail and the Mass Rapid Transit System (MRTS), run by Southern Railways, do not have dedicated websites. The Southern Railways website[11] does, however, have a section, *passenger services,* that claims to provide the time table for the suburban services. Clicking on the link, however, takes the user nowhere.[12]

There does not appear to be an official app except the UTS (Unreserved Ticketing System) app which can be used across India. This, however, is solely a ticket booking app and does not provide

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[10] Metropolitan Transport Corporation
[11] https://sr.indianrailways.gov.in/index.jsp
[12] https://sr.indianrailways.gov.in/view_section.jsp?lang=0&id=0,2,1429

other information on routes, timetables, etc. The FAQ section is quite comprehensive and clear. The app can be viewed in Hindi or English.

The app, however, does not work inside and within 500m of a station so as to ensure ticketless travellers cannot sidestep checking inspectors by buying a ticket. Users also mentioned that the app takes time so the commuter per-force has to plan when to start booking a ticket while approaching a station. Since the app requires GPS to be turned on and then shows only the nearest station, a commuter can book the ticket till they get near to the station they wish to board at but too near the station, the app will not function either. The ticket also disappears from the records an hour after booking (as tickets are valid only for an hour). They have also had situations where the money was debited but the ticket did not get issued and because the grievance redressal system for this is not obvious, they do not bother (ticket costs are below Rs 10 typically). Often due to the app being slow, payment will go through and then the ticket processing symbol will show for a long time. This is usually a sign that the ticket will not be coming through, commuters told us. A lot of these issues and tricks to navigate the obstacles are learnt, they said, over time with experience.

In terms of grievance redressal, there seems to be a mechanism for commuters' representatives to meet Southern Railways officials on a regular basis. An article in The Hindu[13] highlights a recently conducted meeting and the demands presented. However, as with MTC, this information is not readily available in the public domain - information on such mechanisms existing and how to be part of the mechanism.

Chennai Metro has the most extensive website.[14] The homepage has a clear header titled 'passenger info'. The drop down menu provides fares, rules, facilities available for parking, time table, feeder service details, facilities for women and persons with disabilities to name a few. The time table link opens a pdf listing the routes (blue line, green line etc) with first and last service timings and frequency. The route is noted by listing a few of the major stops on the route. Sunday and holiday timings are also similarly listed. The homepage also has a map showing the routes and stations. There is also a *plan your journey* section that lets the user choose start and destination stations. The result is shown pictorially on the map. The fare and distance in kilometres is also given. The line to be taken is not indicated (i.e blue line, green line, purple line). The user has to go back to the home page and visually map the results on the network map in the homepage for this. Also every time a search is done, two pop ups have to be closed. This also happens on landing on the homepage.

The fare tab also opens a pdf which is a tad intimidating to navigate. There is no clear information on the various cards available and their advantages. There are 2 tabs titled store value card and tourist card. The user has to open the pdf to know the details. A quick comparison across cards is not available.

A separate link titled travel card recharge indicates there is something called a Trip Card and that the recharge function is only for a Store Value Card. Efficacy of the online renewal of cards could not be tested as we did not have a metro card.

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[13] Stops, subways, bridges: a train of commuter demands
[14] https://chennaimetrorail.org/

The feeder services are clearly listed for each station. These include MTC small bus, bike shares, and free bicycles.

The website can be accessed in English or Tamil. A simple online complaint form and an email ID for general grievances to be emailed is also available.

Offline modes

📷 *Bus stop providing stop name and bus routes that ply there | Image: CAG*

The 387 kms of roads which are designated as bus route roads, on which MTC buses ply, are maintained by the Greater Chennai Corporation (GCC). The GCC also maintains the city's 1416 bus shelters.[15] These typically have the bus routes listed (Eg: 47D, 29C) but do not provide information on the origin, destination, or the route. Frequency, details on the next bus expected are also lacking. Sometimes, the bus stop may shift permanently but the old bus shelter is left intact. A commuter divines the functioning or non-functioning of a bus shelter from the presence/absence of commuters and level of dilapidation of the shelter. In the case of temporary changes in route (these may extend from a few hours to a few years), there is no mechanism in MTC or GCC to put out timely information for commuters. Again observation, and asking people at bus stops or on the bus are the only options. Bus conductors can usually be relied upon for good information on their route and other routes as well. When requested, or sometimes of their own volition, they will call out the next stop.

[15] https://chennaicorporation.gov.in/gcc/department/road/

📷 *Bus with route display board (bilingual) and a notice indicating the fare is 'ordinary' which is the lowest rate option. The pink colour indicates that women can travel for free. | Image: CAG*

At bus termini, there is usually an information desk that may or may not be manned. This is often accompanied with limited information (usually a list of bus routes that come to the terminus). In some, periodic announcements in Tamil are made to call attention to the next bus departing for such and such location and providing some information on its route. Commuters can be seen asking bus drivers, conductors or the MTC staff at the terminus.

📷*Train timetable, fare information, concessions, and details of mobile ticketing apps at a suburban train station | Image: CAG*

At suburban and MRTS stations, the timetable is usually posted outside the ticketing counter. In a few, the fares are also explained. The staff at the counter can usually be relied upon for information. Some stations also have announcements in English, Tamil, and Hindi and LED display boards on platforms (multi-lingual). Similar LED boards and announcements that inform commuters of the next stop, may be functional onboard the trains as well. Some stations have ticket vending machines which are manned. Several stations have notices near the counter advertising the UTS app for booking tickets online. However, none of them advertise the monthly pass available.

📷 *Metro route maps at Teynampet station | Image: CAG*

Chennai Metro stations are consistent in using all of the above methods - signages (route maps, directions to facilities, platforms etc; exit boards for landmarks); announcements (English and Tamil) on next trains; display boards at the platforms. Ticketing options include vending machines and counters whose staff also answer queries. Onboard as well, route maps are provided (English and Tamil), announcements made on next stops and to disembark for specific landmarks or to interchange lines. The same information is also scrolled on a display board in English and Tamil.

To understand how commuters access and use information on public transport and their awareness of grievance mechanisms, CAG also interviewed 506 public transport users across transport types, age, gender, and socio-economic background.

Preferred mode of information access

Survey participants were asked what their go to method to access information on public transport in the city was.

Correlating the preferred mode of information gathering with age, it was found that asking friends and family was a favourite. Online modes (Google search and/or apps) equally scored with 21 to 30 year olds (who considered themselves adept with smartphones) but saw a sharp decline with age, with people 60+ hardly registering the internet as an option. Unsurprisingly, the senior citizens, by and large, did not have smartphones or were not very comfortable using them. Interestingly, asking other transit users (i.e fellow passengers) was popular with the older cohort while asking the service provider (at the ticket counter or on the bus) scored quite poorly across the entire group. A handful of people said they did not ask for information as they had been using the same routes for years.

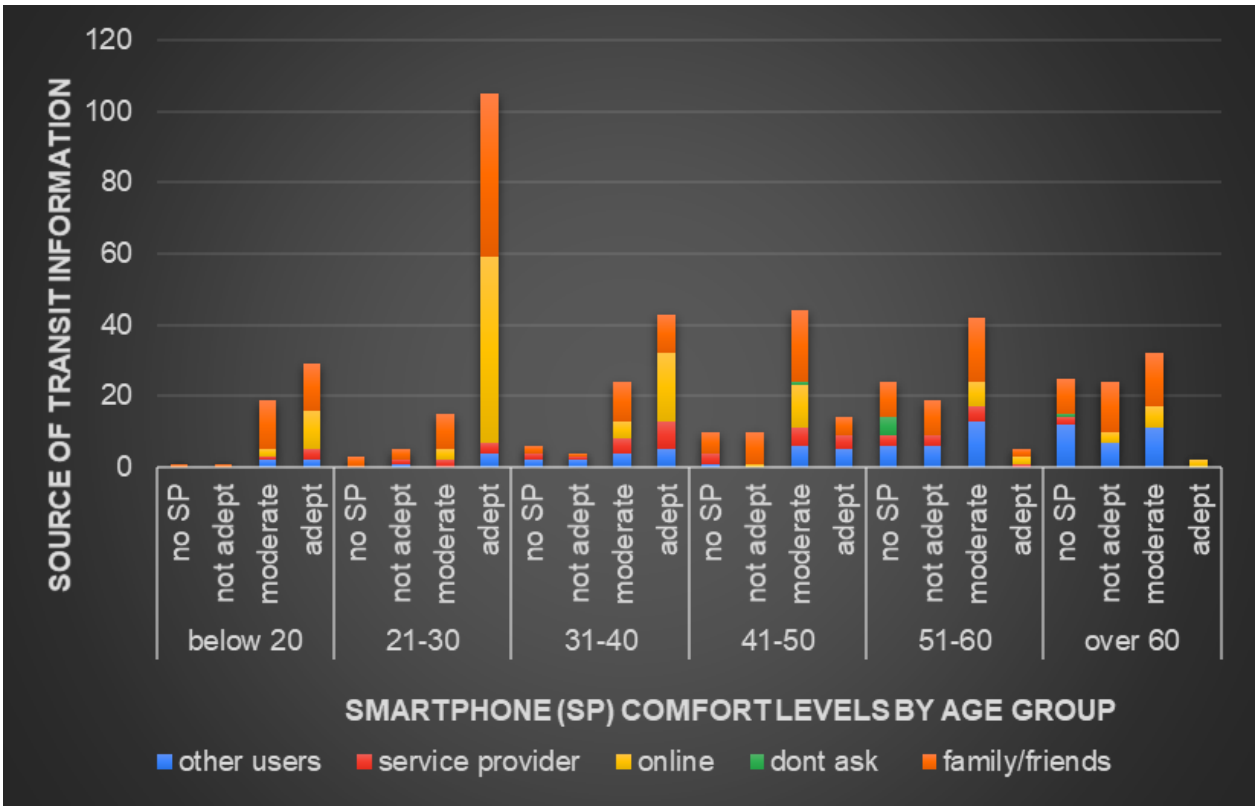

Fig 1: Source of information by age and smartphone usage

Within the online space, a simple Google search was the most common option (104 users) while only 21 commuters said they used an app. *Where is my train* and *Chalo* were the most popular with 20 and 8 users, followed by Chennai Metro official app (the only official app mentioned), Yo Metro, Moovit claiming one user each. Some commuters said they used Google search and an app or two apps. Two users used the travel site, Ixigo. A total of 125 commuters used the Internet for information on routes. This accounts for just under 25 per cent of the commuters surveyed. This data was collected before the launch of MTC's Chennai Bus app.

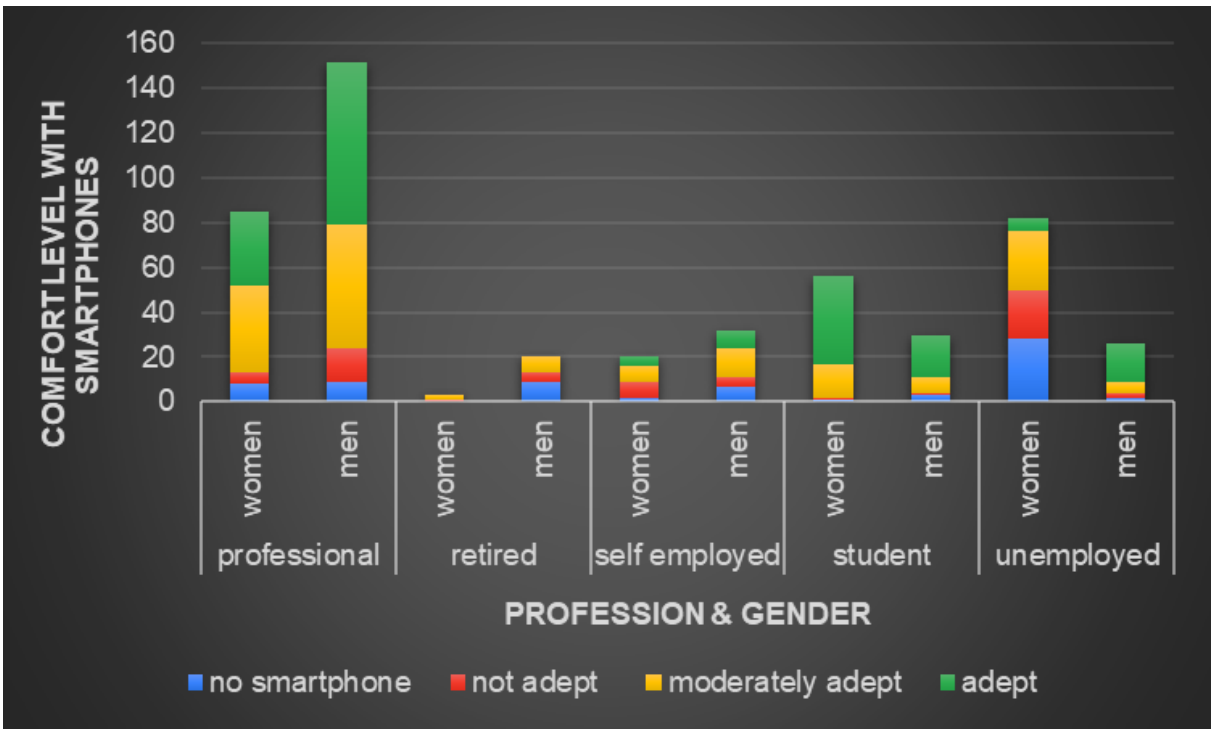

Fig 2: Relationship between smartphone usage and profession, gender

Looking at comfort levels with smartphones, by profession and gender, it is seen that students and working people tend to be adept with smartphones compared to senior citizens but otherwise no particular trend is seen. The only other noteworthy point is that unemployed women (including homemakers) tend not to not have smartphones compared to unemployed men. Income did not impact access to smartphones.

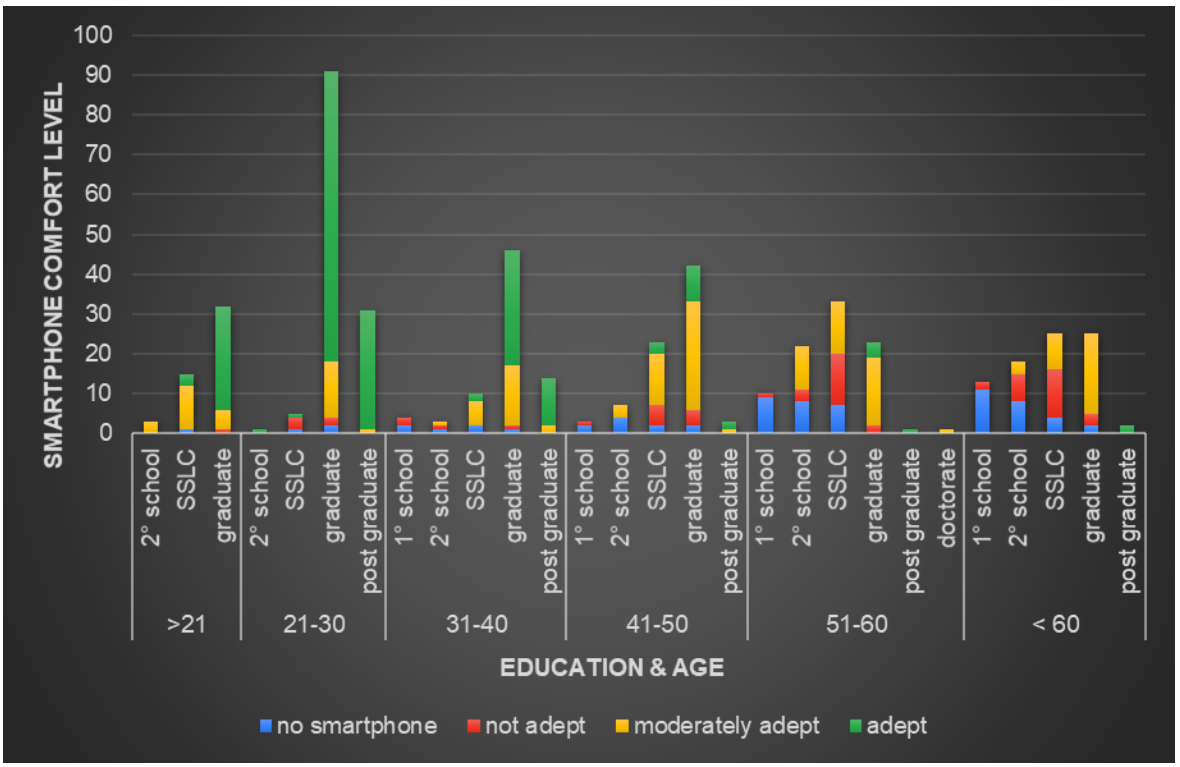

Fig 3: Relationship between smartphone usage and education and age

Age and education, unlike income and employment status, are correlated to comfort in using smartphones. Age is inversely related while education is directly related to adeptness with smartphones.

Ease of travel with available information

Just 19 respondents said the information available to them was inadequate for travelling without hiccups or confusion. The majority of respondents said that travel was easy because they tend to have a well-defined commute route and have been using it for long enough to access and use it with ease. They did note that if they had to travel on a new route it was not easy, especially in MTC. Train systems typically have a system map, are far more limited geographically, and routes are not affected by one-ways or such factors was the consensus.

Switching to private transport

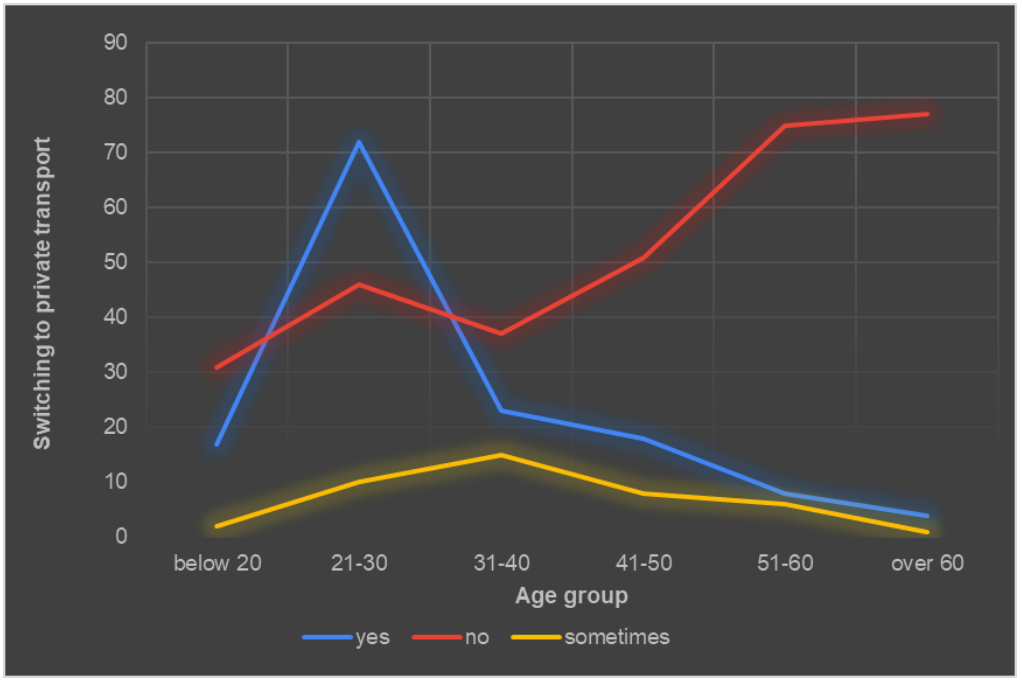

Fig 4: Plans to switch to private transport

Asked if they have or are considering switching to private transport, the majority (317 respondents) said no and pointed to the high cost of fuel, cost of buying/maintaining a vehicle, and noted the advantages of public transport - allows them to catch up on sleep.

143 people said yes and 41 said sometimes; this was largely conditional in the sense, they said when the bus/train is very crowded or they have to wait for long, then they do think about switching to two-wheeler or car.

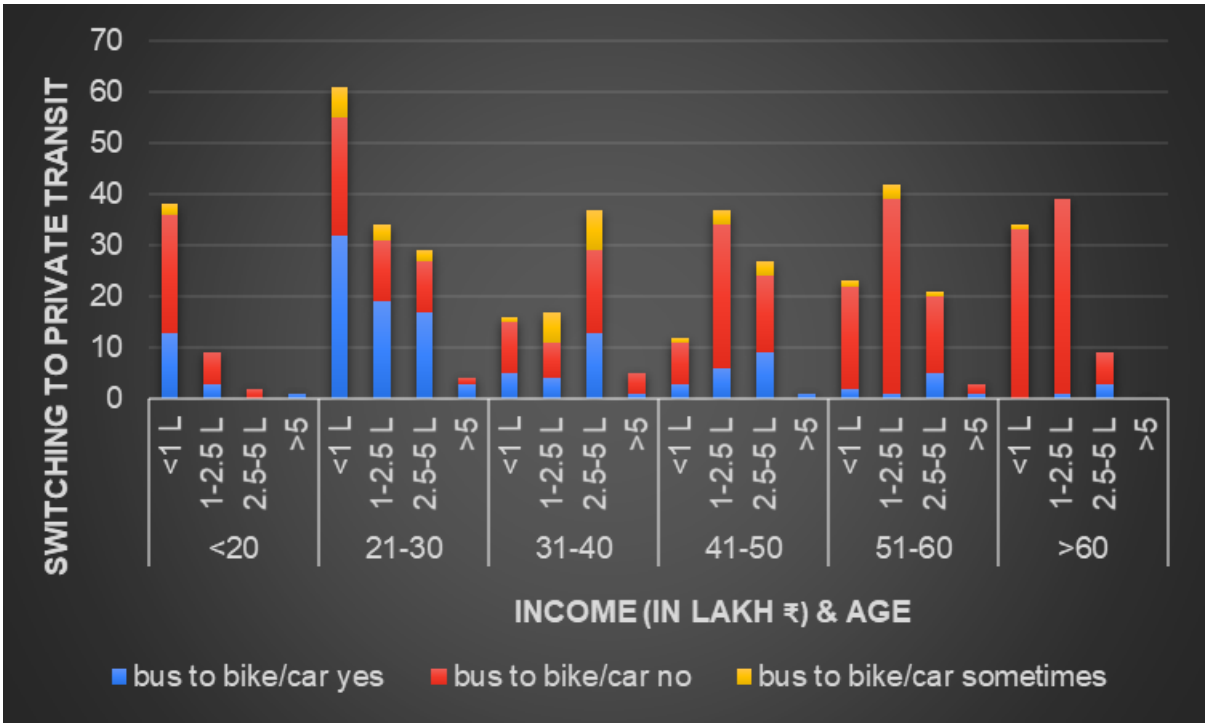

Fig 5: Relationship between switching to private transport and income and age

While there was no correlation with income and gender, it was predominantly those below 30 (across economic groups) that said they would make the switch to private transport.

Medium of communication

Very few commuters said language was a problem for them. The majority were Tamil speakers and had a reasonable grasp of English as well. However, a few people said they had poor proficiency in both languages and so they found navigating public transport difficult.

Safety

Just 81 people expressed safety concerns while using public transport. Of these 50 were women, 40 men, and 1 transgender individual. For men, the main concern was about safety of valuables; women in addition expressed concern over physical safety and that they often feel on edge in late night services. Women also noted that in crowded buses/trains, they sometimes are concerned about inappropriate physical contact.

Engaging with service providers

One-fifth (103) of commuters were aware of grievance redressal mechanisms (i.e complaint number) but only 7 of them had ever attempted to use it. These 7 said the complaint was noted but they do not know if there was any action taken.

When asked if they would be interested to be part of any platform for transport planning so they can directly influence policy and decision making, 127 people said yes, such a platform, if it existed, would be useful and they would be happy to work with the government to improve public transport. A few people were doubtful if they would want to take it up and the rest were clear that they would not be interested for various reasons - lack of time; lack of interest; and disillusionment with the 'system'.

Discussion

Information access and quality

The information available on websites, apps, notice boards at bus stops/stations, or on board buses/trains are piecemeal and often not user-friendly. Online modes are usable only if the user already is familiar with the public transit network and the route of interest which defeats the purpose of the website/app. Notice boards do not indicate if the information is valid or not and are often not multilingual. They are also not useful if a user wishes to plan a journey ahead of time. In short, a user would need to consult multiple sources, collate information, analyse it, before planning a trip.

It is no wonder that commuters prefer to ask friends and family or other commuters at the bus stop/station. Another factor contributing to this preference could also be that, in general, Indians appear to trust human interaction over artificial intelligence.

The majority of respondents were clearly regular commuters, familiar with the route who therefore did not need to search for information. While it is heartening to know public transit has its regulars, service providers need to consider how to bring in new commuters. Such new commuters would require an easy to search, intuitive system that factors in issues like of lack of knowledge of area/stop names; a street falling within 2 different localities (eg. Eldams Road is sometimes referred to as being in Teynampet and sometimes in Alwarpet). Another point of confusion can be the fact that places/streets have multiple names. The bus stop on V.M Street is also called Yellow Pages as well as Jammi Buildings by commuters and bus conductors. So a new user searching for these names may be stumped by the app as it provides only one name as designated by MTC.

Safety

By and large safety was not a major concern for commuters which speaks to not just to the trust that commuters repose in the service providers but also to the extent of patronage public transit has at all times of the day and night.

Switching to private transport

The majority of respondents turned out to be regular commuters, who clearly found public transport, in spite of its problems, the best option for them. An important factor in their use of public transport is also familiarity with the system. Other variables such as traffic congestion, cost of fuel also play a role in their decision making. With fuel prices, congestion only looking to grow, it is likely that this loyal group of users will stay the distance. However, public transport needs to recruit new users if Chennai is to make the modal shift to sustainable mobility. For new users, information on routes, stops, fares, timings, etc, are crucial to make sense of the network and use it effectively. Information would also be important to ensure such new commuters stay engaged with public transport; and don't switch to private transit.

Engaging with service providers

The official MTC website's information on routes and fare is poorly conceived and would make sense only for those managing the service. The information is not obviously available in the home page, the user has to click on the search tab and then choose one of 3 options. The information given is piecemeal and is not adequate for a citizen to plan their journey and even the limited information given is on different pages, in different formats, requiring some patient reading and cross checking by the user. For a regular commuter travelling on the same route, none of the given information is of use. It is the new user, or a commuter searching for an unfamiliar route who needs information on which route to take, the frequency of buses, the fares, and location of bus stops. The data should be so structured that the user can search by multiple ways for a bus route. For example, if they do not know the bus stop name or locality name, or sometimes a street might fall under 2 localities. In such cases, an user unfamiliar with the area or city would struggle to find appropriate information.

Third-party websites like MetroCommute[16] do a better job of providing holistic information with a map marking the route, and service frequency as well. However, none of them provide fare information in a useful manner.

The recently launched official app, Chennai Bus, is much more useful when searching for unfamiliar routes though it has glitches that need to be ironed. Again fare information is not provided. Overall the app is far better than the website though it remains to be seen how widely used it is.

The CMRL website and app score much better than that of MTC and are far more intuitive. There are also a plethora of third-party websites and apps which this study did not assess. However, what is striking is that the official websites and apps are not well advertised so while scrolling the Android or IOS Playstore/Appstore, a user cannot readily tell which is an official app. There is also no indication of when the information was last updated.

Online mechanisms are often mooted by govt agencies as the solution but information quality is clearly poor on these. The commuter survey also shows that this approach of looking at the Internet of Things as the answer is flawed as only 25 per cent of commuters surveyed said they used the internet to access information on public transport. And of that, most just did a simple Google search and only 19 people used a specific website or app. This is in spite of the high market penetration of smartphones. Anecdotally we found that Google searches for transit information are not reliable. To get accurate information, a user would need to cross check and verify info on several third party websites. The survey also showed clearly that the internet is not the go to option especially for the elderly.

Recommendations

Multiple modes of communication: Considering the wide variety of users - in terms of age, socio-economics, and communication ability - it is imperative that public transit service providers use multiple modes of communication - websites, apps, signboards, announcements - all in multiple languages will make travel easier for the commuter.

Real time information & updates: Every now and again, bus routes are changed temporarily due to the municipal corporation having to execute infrastructure work. With train systems, occasionally there may be a snag in a section of the track. When such hiccups take place, information on how that will affect routes and the duration of disruption must be put out via websites, apps, signboards, media, and announcements. A process must be put in place to ensure this happens without fail.

Integrated information system: All of these above modes of communication should be integrated so a commuter can find information on all public transit systems and how to interchange between them. So ideally, one website, one app for all public transit which provide information on routes, fares, frequencies, timings, interchange options, as well as paperless ticketing. And these must again be at least bilingual - Tamil and English.

[16] www.mymetrocommute.in

Regular feedback: More robust systems to gather feedback from commuters must be put in place. Currently there are a few fora for the same but they are not well known. Several of the public transit service providers also have customer care numbers and email IDs but again these are not well advertised. Regular surveys of commuters can be considered as well to understand usage patterns and thus ensure better route rationalisation.

Grievance redressal: Grievance redressal mechanisms need to be strengthened. First they need to be uniform and multifold (i.e not just a phone number or email address) across transit systems making it easier for commuters to navigate, and second the details should be well-advertised. Finally, it is crucial that the commuter knows that appropriate action has been taken on a complaint. Towards this proof of complaint being addressed should be shared as commuters noted that the lack of information from the service provider discourages them from using the grievance redress mechanism.

Periodic training of staff: The staff of the various public transit systems should be provided periodic training on interacting with commuters; on ensuring safety of commuters (and themselves); as well as encouraging them to observe and report back on any improvements that can be made to the system.

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