

KEEPING IT FARE: HOW TO MAKE PUBLIC TRANSPORT FARES AFFORDABLE

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INTRODUCTION

Given the essential role that public transport services play as an enabler for improved quality of life of its citizens and environmental sustainability in our cities, the affordability and financial sustainability of our public transport services is a key priority for cities and regional governments. UITP's recent *Global Economic Outlook 2024 report*¹ shows average reported farebox coverage ratios² of 31-40% or 41-50%, depending on the region. It also shows households generally spend 10-20% of their disposable income on mobility. While interest in fare-free public transport has grown in some cities in the United States and Europe since the COVID pandemic, as public transport services are not free of cost to operate, maintain, and improve, the

foregone farebox revenue would have to be replaced by other revenue sources, i.e. taxes (government compensation) or third party funding (e.g. additional commercial revenue or congestion charging). This policy brief builds on UITP's work on free fares in public transport,³ examining affordable fares and the deployment of innovative fare products that cater to the needs of different – and, in some cases, vulnerable commuter groups.

This policy brief focuses on the practical application of fare affordability considerations to ensure access for all passengers, while simultaneously safeguarding the system's financial sustainability. The main emphasis is on passenger affordability, however public transport must also remain affordable for the operators and authorities who operate and fund it.

The issue of fares is the main focus here, i.e. the compensation for the service offering related to the passenger's specific situation. While the range of activities and interconnectedness with new technologies, modes, and policies is extremely broad, this paper will exclusively focus on the overview and development of affordable schemes and their integration for identified segments of the population. The integration of new technologies can present a unique opportunity to enhance public transport services while ensuring



1 UITP. (2024). *Global Economic Outlook 2024. Taking the pulse of the Public Transport Sector*, Statistics Brief

2 The farebox coverage ratio is usually defined as the fare revenue divided by the total costs of a given public transport system.

3 UITP. (2020). *Full Free Fare Public Transport: Objectives and Alternatives*, Policy Brief.

affordability, operating alongside shared mobility services through bundles or subscriptions. These can include innovations such as mobile payment systems, mobility as a service (MaaS) and real-time tracking, among others. Such innovations can significantly improve the user experience.

However, it should be noted that topics related to ticketing and technologies used to identify passengers in ticketing schemes will not be addressed in this paper, although they can have an impact on fare prices and increase operational efficiency. We hope that this policy brief will provide inspiration for future initiatives and developments in the field of fare affordability in sustainable urban mobility.



WHY SHOULD PUBLIC TRANSPORT BE AFFORDABLE?

THE VALUE OF PUBLIC TRANSPORT

The purpose and value generated from public transport has social, economic and environmental benefits to the local territory, justifying public contribution. Cities can create a more cohesive and efficient mobility network that benefits everyone by actively supporting public transport systems, especially in integration with other modes of transport — e.g. on-demand mobility, biking, and walking. It is reflected as a balance between the overall fare revenue collected from users and public compensation received from governmental entities, whether at the local, regional or national level. These income sources may be used to cover operational expenses, with the latter potentially covering revenue shortfall due to setting fare levels below actual costs. Most cities worldwide have some sort of concessionary or reduced fare programme for specific user groups; the key question is whether or how operators are compensated for the service provided.

INTRODUCTION OF PUBLIC COMPENSATION IN BRAZIL

The compensation of public transport fares in Brazil has evolved over time, with different cities implementing programmes at different points. The fare compensation mechanism in Brazil operates differently across cities but is usually based on public policies aimed at making public transport more accessible to specific groups. Initially, such programmes targeted vulnerable groups such as students, the elderly, and people with disabilities and provided support through discounts or fare-free tickets, with measures dating back to the 1980s and 1990s.

Over time, commuting conditions in big cities have become more complex, so concessionary fare programmes have been expanded to include other groups, such as low-income workers. In Rio de Janeiro, the state government offers the Tarifa Social, a programme that benefits people with monthly incomes below 630 USD through lower fares.

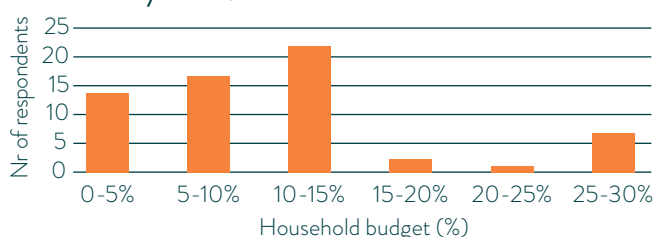
The social fare programmes are funded through various sources, including the public budget and tax revenue. One example is the Bilhete Unico in São Paulo, implemented in 2004, which partially compensates fares for students and the elderly. Such fare programmes generally provide 50% discounts to students and are integrated with the education system, requiring proof of registration. Moreover, the federal programme Passe Livre para Idosos guarantees the right to free urban public transport for people aged 65 or above. This benefit is valid throughout the country and allows the elderly to use public transport free of charge on presentation of an identity document. In São Paulo, Bilhete Único do Idoso extends the benefit to low-income people aged 60 and above.

The competitiveness of the public transport system compared to private car use has long been an area of contention, even though the real cost of owning and using a private car is significantly higher than the cost of an annual public transport pass. The comparison changes when considering the marginal cost of using an owned private car for an additional trip. In this case, the marginal cost may appear lower than that of a single public transport ticket, especially to occasional public transport users.

WHAT IS FARE AFFORDABILITY AND HOW CAN YOU MEASURE IT?

Mobility affordability refers to a household's ability to pay for basic mobility within their budget and to access essential activities such as education, work, shopping, leisure and healthcare without having to curtail other essential activities because of the cost of transport.⁴ It is linked to certain factors such as employment, income, geography and transport quality. Fare affordability is measured as the proportion of household income spent on public transport.

Figure 1: Overview of mobility budget expenses over total household expenses, sample 103 (UITP Social Fares Survey 2022)



UITP's Economic Outlook 2024 survey indicated that average household mobility expenditure equals around 10-20% of total household income, which aligns with data from other studies.⁵ The average total transport expenditure per metropolitan household in California in the United States is 14% of the total household budget; in Spain, the figure is 13%, and similar figures were seen across Europe.⁶ However, it should be noted that more than 10% of respondents reported spending over 30% of household income on mobility. Such findings may be used to evaluate the state of fare affordability or the extent of transport poverty.

THE CONCEPT OF TRANSPORT POVERTY IN EU LAW

Access to good quality transport is considered a right in the *European Pillar of Social Rights Action Plan*. In 2023, transport poverty was defined in European Union (EU) legislation establishing the Social Climate Fund (SCF). One of the aims of the fund is to address vulnerabilities linked to increasing energy prices in transport, especially due to the integration of the road transport sector into the EU emission trading system (ETS II). Both the SCF and ETS II are part of the fit-for-55 package, which aims to provide the framework to enable the EU's climate objectives ensuring a just, socially fair, and inclusive transition.

The SCF provides dedicated financial support to governments' measures in the field of transport, addressing social impacts on vulnerable households, micro-enterprises, and transport users. These measures will be set out by Member States in Social Climate Plans and submitted to the European Commission for approval. In this context, transport poverty generally describes the lack of adequate transport services needed to access work and essential socio-economic services like education or healthcare or the inability to pay for these transport services. Individuals or households can be affected by transport poverty due to low income, high fuel expenditure, and/or a lack of affordable or accessible private or public transport. These factors can also be linked to spatial and national circumstances. The EU and its Member States are trying to address transport poverty, as it could become a more severe issue in the transition to climate neutrality.

The elaboration of indexes may be used to evaluate the state of fare affordability by providing insights or comparisons on the burden of mobility costs on individuals or an average household. Generally, income and mobility expenditure data are obtained from household expenditure surveys and are updated periodically, depending on the country. The methodology and data can vary greatly, making comparisons difficult. The chosen method significantly influences the analysis, with each offering its own strengths and limitations. Such approaches can include focusing on the following: individual commuters, households, fixed distances (i.e. USD per km), fare per passenger-kilometre and minutes of work required at minimum and average wage levels to cover transport costs.⁷ Transport authorities or competent entities can better address social needs and transport poverty if they collect data on household expenditure on transport in general and public transport in particular. They should monitor these data over time.

SINGAPORE'S FARE AFFORDABILITY APPROACH

In Singapore, the Public Transport Council (PTC) monitors the monthly public transport expenditure as a proportion of monthly household income for the second quintile of household income (representing the average public transport commuter group) and second decile of household income (representing the lower-income commuter group) to ensure fare affordability.

4 Kouris, S. (2022). Study on the social dimension of the future EU transport system regarding users and passengers. Final report. Directorate-General for Mobility and Transport (European Commission & Steer).

5 Litman, T. (2021). Transportation Affordability: Evaluation and improvement Strategies.

6 Eurostat. (2023). Household consumption by purpose: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=household_consumption_by_purpose&stable=1#analysis_of_eu_aggregates

7 NineSquared. (2024). 2024 Fares Benchmarking Report.

Over the past decade, public transport fare affordability has improved. The Public Transport Affordability Indicator (PTAI) monitors such trends, showing that, on average, households in the second decile and second quintile income groups now spend a lower share of their income on public transport compared to 10 years ago. The share of monthly household income spent ranges from 2.4% to 3.1% for the second income decile and 1.7% to 2.2% for the second income quintile over the past 10 years. Even as the public transport system has undergone significant improvements over the years, Singapore has kept public transport fares affordable. This was possible through productivity improvements and public financial support. In a 2022 survey, 72% of commuters felt their daily expenditure on public transport was affordable.

THE VALUE OF FARE AFFORDABILITY IN PUBLIC TRANSPORT

The issue of fare affordability has gained traction in the public discourse and within political agendas. Not all trends in this domain have followed the same direction or had the same intensity.⁸ Nevertheless, the willingness to use fare policies to achieve broader public policy objectives can be observed worldwide. The use of fare reduction programmes and the deployment of fare-free schemes to address the impact of higher cost of living and inflation has increasingly been reported, with examples such as the Deutschlandticket in Germany and the youth pass for passengers under 25 in Brussels. Depending on the cities' public policy objectives and public transport user profiles, different fare products can be introduced to retain regular users and attract occasional and new users to the system.

While fare structure and policy are crucial, other factors also help promote public transport usage, including availability, reliability, comfort, safety, passenger density, wait time, transport mode and journey time.⁹ To motivate private car users to shift to public transport, concepts such as awareness of journey time are important. In driving apps such as Waze, you see the journey time between A and B, but this does not include the parking and walking time. City congestion charges and parking are also key factors in solo car users' decision to use public transport, especially in high density cities.



Customer Focused

Adopt customer-focused fare policies and systems to position Metro as an attractive choice in a competitive transit market



Simple and Convenient

Make it simple, intuitive, and convenient for customers to purchase fares and take transit



Equitable

Maintain equitable fares and practices that promote broad access to regional mobility



Seamless

Create a seamless customer experience across modes and operators to promote regional mobility



Built to Drive Ridership

Maximise ridership while ensuring adequate revenue and cost efficiency to sustain service

► Figure 1: WMATA fare policy principles guiding fare adjustment and evaluation

The notion of public service is at the core of public transport, which tends to be reflected in the overall fare policy principles (Figure 1). These principles will generally include customer centricity, equity, and cost efficiency as main drivers. To ensure a suitable level of affordability, public transport fares need to be calibrated to local living expenses and expected transport quality levels.¹⁰ In parallel, high levels of engagement and communication are required to ensure that the concerned segment fully benefits from the scheme. The arrangement or agreement on the funding of the shortfall requires clarity and transparency, especially when fares are priced below costs and the coverage ratio is below 1.

FARE OVERVIEW IN PARIS, ÎLE-DE-FRANCE

In Paris, fare revenue accounts for 33% of the public transport budget and is the only revenue stream that can be adjusted by the transport authority itself. In 2015, the region of Paris switched to an all-zone pass, called Navigo, which costs €88.80 per month and is also available as an annual, weekly, or daily pass. The fare income in 2022 totalled €3.4 billion, with passes accounting for €2.3 billion and single tickets, €1 billion.

Navigo Unlimited passes are the main pillar of the fare structure. The change in mobility behaviour since the COVID-19 pandemic has reduced the revenue from Navigo annual and monthly passes, as more users now rely on single-ride tickets.

8 NineSquared. (2022). Benchmarking affordability – insights from eight years of tracking public transport fares. UITP Transport Economics Committee meeting.

9 SGS Economic & Planning. (2022). How people respond to complexity in public transport fares.

10 UITP. (2012). Towards better fare regulation and adjustment, Position Paper.

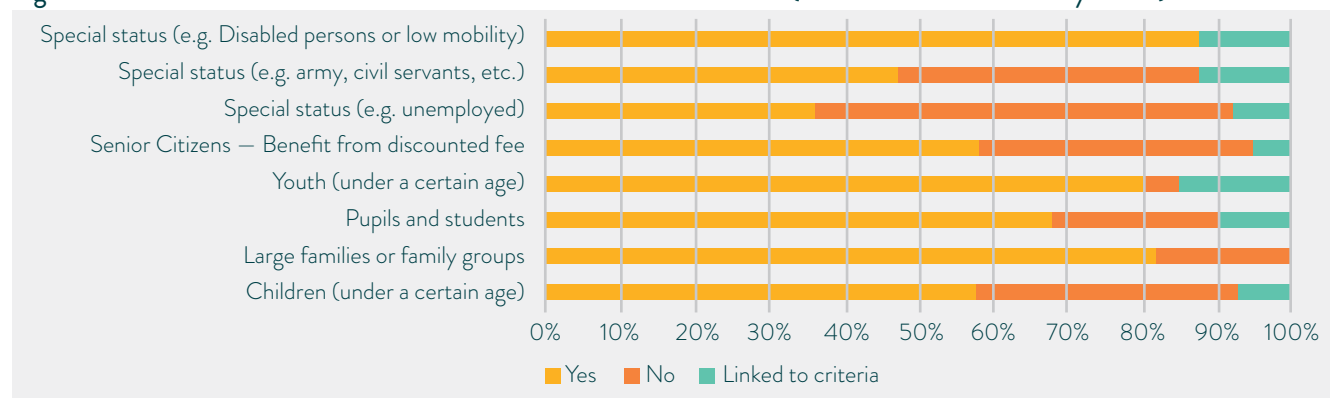
In parallel, there is a variety of tickets and fares to suit different needs:

- Single tickets, also sold in sets of 10 as the Navigo Liberté Pass and Navigo Easy Pass
- For seniors: an annual ticket called Améthyste that provides free travel for seniors, disabled or unemployable adults, veterans, and war widows
- For young people: Imagine R junior (under 11 years), student ticket, Navigo weekend youth fare
- For tourists: Paris Visit ticket, Paris Région Pass
- Social fares: free travel for young people on occupational integration programmes, Navigo Solidarity 75% weekly ticket, Solidarity Free ticket, 50% discount for recipients of AME (State Medical Assistance), Anti-pollution ticket, 50% discount on the Navigo pass for civic service and European voluntary service volunteers
- Forfait Navigo Culture: reduced entry fees for more than 300 cultural institutions on presentation of the Navigo Pass.

The fare structure can be designed in various ways, but there are four main types: flat, distance-based, zone-based, and time-based. In a 2022 UITP survey, 63% of respondents said they preferred a zonal fare structure.¹¹ The use of various types of fare structures simultaneously within the same city was also highlighted. While 60% of respondents only had one type of fare structure, 30% had 2 structures deployed simultaneously (zonal and flat or zonal and distance-based). Additionally, the survey showed a preference for simplicity in terms of the different types of fare products.

Most cities have reported some form of concession or discount scheme available for different passenger groups or categories to ensure accessibility for commuters with less purchasing power. The 2022 UITP survey looked at fare affordability schemes in different types of cities worldwide with data from 2019, ranging from small to very large public transport programmes – i.e. from 63,212 journeys to 2.6 billion journeys annually. This shows the scalability and malleability of fare affordability initiatives worldwide; they can be adapted to each city's needs and context. In the state of Rio de Janeiro, passengers with annual income below USD 14,400 are eligible for fare discounts. Similarly, the city of Los Angeles offers either 20 free rides per month or unlimited rides at \$26/month for riders with an annual household income below \$44,150 (i.e. 83% of riders).¹² The 2024 Outlook UITP survey reported stable to increasing funding for targeted concessionary schemes, unlike fare-free programmes which did not attract significant interest in the fare development domain in 2024.

Figure 2: Distribution of social fares within networks based on status (UITP Social Fares Survey 2022)



The main target of discounted or social fares is generally passengers with special status (e.g. low-mobility or disabled persons), large families, children, youth, students, apprentices or trainees at technical schools and senior citizens. These passengers must prove eligibility through various means, e.g. proof of need based on their social service status or equivalent. For instance, in Brazil, federal law provides support for seniors, people with low mobility, and children under six, which, in turn, is complemented by city policies (Figure 2). In practice, Brazil's fare structure allows for various fare products specific to certain transport modes, but fully integrated social

fares are available for all tickets. For example, the ViaQuatro fare corresponds to Brazilian Real (BRL) 5.00¹³ and the municipal bus system fare corresponds to BRL 4.40 (or USD 0.76). Instead of paying the sum of both fares, the passenger benefits from a 12.8% reduction, resulting in a total fare of BRL 8.20¹⁴. At ViaQuatro, 76% of passengers receive a discount due to mode integration. Thus, all passengers, whether or not they belong to groups with fare rights (students, seniors, etc.), can benefit from integrated social fares. This discount is supported and funded by the local transport authority as a means to enhance public transport access.

11 UITP. (2022). Fares and Fare Policy Survey.

12 LA Metro. (2024). LIFE Programme: <https://www.metro.net/riding/fares/life/>

13 Equivalent to USD 0.86

14 Equivalent to USD 1.36

Figure 3: Fare affordability programmes in Brazilian cities, 2024 (Source: CCR Group)

TRANSPORT SYSTEM	LOCAL AUTHORITY	PASSENGERS PER DAY	GROUPS WITH FARE RIGHTS	TOTAL SHARE OF PASSENGERS	MAJOR GROUPS	FARE REDUCTION	COMPENSATED INTEGRATION TRIPS (%)
Barcas (Ferries)	State gov of Rio de Janeiro	49,000	6	14%	Seniors Residents	75% 18%	34%
VLT Carioca (Tram)	City hall of Rio de Janeiro	90,000	10	13%	Seniors PWD	54% 16%	25%
ViaQuatro (Metro)	State gov of Sao Paolo	688,000	6	20%	Students Seniors	61% 22%	76%
Metro Bahia (Metro)	State gov of Bahia	403,000	5	17%	Students Seniors	57% 29%	75%

According to the 2022 UITP survey results, children were the main beneficiary of full-discount or free transport in most networks. Over 40% of respondents stated that most passenger categories could benefit from discounts of up to 50% of the full price. For instance, a range of passenger categories in Warsaw can get benefits; children under the age of 7 and retired people above 70 can travel for free, and pupils and students under 26 and retired people under 70 get a 50% discount. In Christchurch, children under 5 travel for free, those under 19 get a 40% discount, and the 65+ segment benefits from free off-peak and weekend travel – this is all funded by the central government through New Zealand’s national SuperGold Card scheme.¹⁵ Looking at the overall passenger distribution, Vancouver concession products targeting both students aged 13-19 and adults aged 65+ represented 14.4% of all transit journeys in 2022. UITP assessed that over 60% of respondents reported that these beneficiary segments accounted for around 20% of total passengers.¹⁶



► Ruter

STRATEGIES TO DEPLOY AFFORDABLE FARES, MINIMISE REQUIRED PUBLIC COMPENSATION, AND OPTIMISE RIDERSHIP

Three main fare strategies have been identified to deploy appropriate fare policies:

- **Fare-based:** identifying potential price-sensitive markets.
- **Fee-based:** identifying closed target groups for a fee independent of individual usage (e.g. companies).
- **Income-based:** determining household purchasing power and adjusting fares accordingly.

These approaches can provide different perspectives for cities or networks seeking to experiment with multiple levers. A price-aggressive flat fare would make sense if usage is low and price-sensitive, whereas a fee-based approach can be used for a closed user group. Transport affordability can be improved through the rollout of integrated fares, along with potentially including other sustainable transport modes available within the network.

PRICE VOLUME FARE STRATEGY

In a sector where transport fares are already affordable, the use of price volume strategies can be used to test the market’s price elasticity¹⁷. Price volume strategies seek to establish attractive fare products that focus on increasing ridership, creating a steady revenue stream, or increasing public transport usage by specific segments (e.g. seasonal passes).

¹⁵ Ministry of Social Development. (2024). SuperGold Card: <https://www.workandincome.govt.nz/eligibility/seniors/supergold-card/index.html>

¹⁶ UITP. (2022). Fares and Fare Policy Survey.

¹⁷ The price elasticity indicates the impact a price increase or reduction has on ridership.

THE BRUSSELS APPROACH

The city of Brussels in Belgium provides fare concession for three main segments: youth/students, the elderly (65+), and passengers with preferential status. For youth and students, passes are currently priced at €12 and €85 per year, respectively. The measures were very well received by the main beneficiaries across both categories when implemented. A 28% increase in new passes issued between 2019 and 2023 was recorded for both segments. However, no significant impact on the modal shift was observed and sales revenue has significantly decreased since the initiative's rollout. For the elderly segment, the impact of the measure still needs to be evaluated, as it was introduced in 2023.

Finding the appropriate equilibrium between revenue and ridership without affecting service quality can be tricky. The city of Innsbruck in Austria introduced a substantially discounted annual pass for the 65+ segment. The price reduction is about one third for passengers aged 65+ and two thirds for those aged 75+ for city transport (50% and 75% for statewide transport). The city's strategy has proven commercially successful, as the share of pass holders, and, thus, fare revenue, has significantly increased. Other cities have started offering very affordable passes, as in the case of Barcelona in Spain, where passengers benefitted from a temporary 50% reduction in transport pass fares from October 2022 to the end of 2024. Ridership surpassed 2019 levels as a result of this popular offer. However, such a result rarely comes from a single policy. In this case, there were two relevant types of policies in play: the economic stimulus and policies aiming to improve road space distribution across transport modes, especially by reducing private vehicles' share. An increase in bus and train supply was reported, along with an overall increase in the number of visitors to Barcelona for both leisure and business-related activities.

There are several prerequisites for successful deployment of volume fare strategies, such as integration of fare policies and ticketing and full multimodal integration to ensure a seamless mobility experience. In some cases, the use of fare caps, as in London or New York, keeps the passenger from exceeding a certain total fare, regardless of the number of trips. Ease of use from the customer perspective is a strong lever for a modal shift; this can be ensured through integrated and multimodal fare passes (annual, monthly, etc.) or post-payment, similar to utilities. The advantages that a nationwide ticket may provide in terms of customer experience are being explored, and this offering is currently being tested or considered in France, Sweden, Austria, and Germany.

While the main advantages of fare affordability initiatives include simplicity for the passenger and increased ridership, sometimes the revenue from such products cannot fully offset the programme cost. In such cases, the main goals are reducing mobility costs to commuters and increasing the public transport modal share (e.g. in the case of TPass in Taipei and Climate Card in Seoul). Given that this strategy is often used to meet wider public policy objectives or political agendas (e.g. reducing pollution or enhancing a city's economic status and vibrancy), the differential between actual and optimum fares should be covered through public compensations or funding from indirect beneficiaries.

Fare affordability programmes should not entail unnecessary price reductions that affect the overall fare mix, especially given the overarching objective of encouraging a modal shift. The use of fare discounts with marketing undertones can support more general policy objectives. Any new deployment or product requires analysis and data-based decisions using tools to model and assess the impact of proposed initiatives.

THE DEPLOYMENT OF NATIONWIDE TICKETS

Nationwide fare products are becoming increasingly popular across the world. Various reasons underpin their creation, such as climate change considerations (e.g. in the case of South Korea or Germany), cost of living, and congestion.

A key example is the Germany-wide monthly pass, also known as Deutschlandticket. This ticket is valid for all local and regional public transport services across the country, at a price of €49 per month. The ticket is set to increase to €58 per month on 1 January 2025.

The national and state governments have agreed to compensate operators for revenue losses (currently €3 billion/year). The main outcome of the new Deutschlandticket is greater fare simplicity and increased access to public transport. There has been a significant increase in ridership, but the modal shift seems to be very moderate. Thus far, the programme has mainly resulted in the migration of most of the previous holders of local and regional passes to the new ticket, which is much cheaper.

In Spain, an extension of the free RENFE (commuter rail) passes and 50% discounts on AVANT (medium distance rail) services for regular travellers was applied from 1 January to 31 December, 2023. The additional funding of a 30% discount from the regional and local entities will raise the discount up to 50%. The national transport ministry (MITMA) will finance fare-free transport passes and multi-trip tickets for public land transport in the Canary and Balearic Islands.

FEE-BASED FARE STRATEGIES AND SOLIDARITY FARES

There are several approaches to targeting larger groups of users with different fare products. The main levers to apply fee-based solutions include tourism, solidarity fares for either students or tenants/employees, and voluntary solutions, as detailed below. All members of the whole group pay for the ticket based on a regulatory or contractual provision.

- **Tourism:** Most Swiss and several Austrian and German cities, as well as touristic regions, include an earmarked portion for public transport in their local tourist levies. In most cases, everyone staying overnight is subject to this levy but is entitled to free use of public transport during their stay. The part of the levy earmarked for public transport frequently reaches up to €1-1.5/night, and the revenue usually exceeds the replaced revenue source from the same group of (potential) passengers.
- **Solidarity fares:** Many universities in Germany have agreed with their student union on a semester pass for all students for public transport in the area surrounding their campus. These passes are substantially cheaper than normal monthly passes, and every student has to pay for the pass as part of the semester fee. Other models for solidarity fares exist, e.g. for employers and landlords using a similar model for their employees or tenants. These tickets may either be part of their company benefits or included in the rent, respectively. In the new context of the Deutschlandticket, such initiatives for both students and employees are now integrated into the new scheme, with additional discounts. For instance, the Deutschlandticket Semester costs six times €29.40, whereas the Deutschlandticket Job has an additional discount of 5% and a compulsory employer grant of 25%. In the city of Berlin, it is estimated that over a third of employers fully cover such costs.¹⁸ Such costs are tax-deductible for employers, which can be perceived as an additional benefit.
- **Voluntary solutions:** A voluntary solution could entail offering a reduced fare level if either a minimum proportion of employees or tenants buys the ticket or if the employer or landlord subsidises the ticket above a certain level. For instance, Belgian employment law provides for employee benefits that include commuting expense coverage through both mandatory and voluntary contributions to public transport (minimum requirement of 75% of ticket cost), private transport, or cycling (€0.417 per km for a round trip). Another example of a voluntary approach, in Singapore, focuses on building health points to redeem eVouchers known as SimplyGo eVouchers (formerly known as TransitLink eVouchers) for the public

transport travel card. Passengers that have accumulated points through various health promoting activities can use them to top-up their public transport travel card.¹⁹

INCLUSION OF EMPLOYERS

In Brazil, the Vale Transporte, regulated by federal law, is a benefit granted to workers to cover travel expenses between their home and workplace using public transport. Employers in both the private and public sectors must provide their employees with Vale Transporte. The employer can deduct up to 6% of the worker's basic salary to cover part of the benefit. If the cost of transport exceeds this amount, the employer has to pay the excess amount.

France has legally mandated that employers cover a minimum 50% of the public transport pass cost for employees in both the private and public sector. In 2022, the threshold for tax exemption for transport costs' contributions was legally increased to 75% of the public transport pass cost.

INCOME-BASED FARE SCHEMES

An income-based fare is based on the household's economic situation. In France, the *quotient familial*²⁰ is a rate calculated by the French social authority depending on household status, number of family members, and annual income. This ratio determines the allowances that people receive, depending on their individual needs (family allowance, disability allowance, rent allowance, etc.). The ratio is also often used in French public services, such as school cafeteria fees or children's nursery fees. The fare evolves based on the ratio calculated by the national family allowance authorities, by creating different fare categories. The benefits of this approach are significant; it can be seen as the most precise and targeted fare policy, matching the household's context and financial situation.

Figure 4: Social vs. solidarity fares – key differences to keep in mind²¹

	SOCIAL FARES	SOLIDARITY FARES
Beneficiaries	Individual	Overall household
Set conditions	Status and/or individual income	Household income
Fare advantages	Set level of reduction	Tiered-based reductions according to income

18 Online survey amongst all employers having a job-ticket contract within the VBB, conducted by VBB und BVG in summer 2021; approx. 2,500 contracts with approx. 150,000 users; questionnaire and analysis by Probst & Consorten Marketing-Beratung

19 HealthHub, HPB Rewards Programme: <https://www.healthhub.sg/programmes/healthhub-rewards/faq>

20 Equivalent of "household income adjusted to family size"

21 Cerema. (2020). Tarification solidaire des transports collectifs urbains : décryptage et retours d'expérience, accessed 5 May 2024: <https://www.cerema.fr/fr/actualites/tarification-solidaire-transports-collectifs-urbains>

When social fares are exclusively based on categories, depending on passenger status, these may not always match the different socio-economic realities. The French ratio calculated individually by the social allowance authority targets the needs more accurately and reduces inefficiencies and non-recourse rates. However, this entails a greater amount of work for the public transport authorities and higher administrative costs. The resulting price levels can be difficult for users to understand and accept. Furthermore, this approach requires an exchange of confidential user data between the public transport authorities and operators and social services.

DESIGNING SOLIDARITY PRICING

The city of Grenoble in France (representing about 450,000 residents in the city and its surroundings) has developed a new fare structure based on individual income. Four levels of pricing have been defined, from €2.50 per month for the most precarious residents and students with scholarships, up to €46.50 per month (the standard monthly pass costs €66.40 per month).

In the much smaller Corsican city of Bastia, the transport authority (servicing about 70,000 residents) has rolled out a fare-free system targeting the lowest income bracket (representing about 10,000 people). This is considered a huge social investment made by the city, enabling the authority to help reduce inequality.

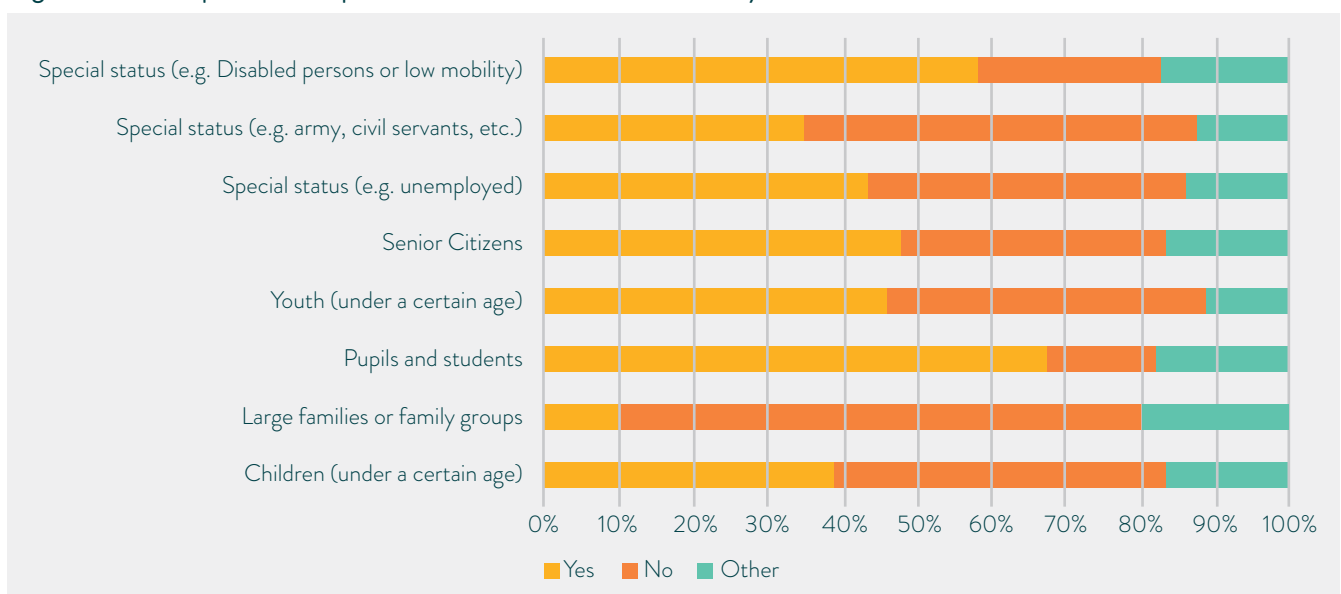
BALANCING FARE AFFORDABILITY, COST PRESSURE, AND REVENUE SOURCE UNCERTAINTY

IMPACTS TO OPERATORS

Operators' compensation is a key element to ensure public transport's financial sustainability in the context of increasing costs, changing mobility behaviours, and the reeling impact of COVID-19. In parallel, many politicians or transport authorities have generalised the issue of fare affordability and deploying discounted fare schemes, and further adding to the financial challenges.

The trend towards affordable fare schemes has continued worldwide. Over 25% of the 2024 UITP survey respondents stated that their budget for concessionary fares had either increased (2-5%) or significantly increased (6-10%). The survey also showed that over 55% of public transport networks and cities intended to maintain their current concessionary schemes and the associated required budget. The mechanisms in place to set up the fare affordability scheme cover a wide range of approaches and built-in policies. However, these schemes can be negatively perceived by operators if the compensation process takes months, as this impacts the operator's cashflow. Around 60% of networks surveyed include the level of compensation on a year-to-year basis, via their budgets, closely followed by negotiated grants with their local politicians or competent entities, whereas only 13% used formulas agreed on by both the operator and competent authority.²²

Figure 5: Is the operator compensated? (UITP Social Fares Survey 2022)



22 UITP. (2022). Fares and Fare Policy Survey.



In some cases, fare discounts or new low-price schemes were either defined or financed at the national level; in others, these schemes were directly managed by the competent local authority (e.g. municipality). Some respondents reported a range of fare discounts for different segments of the population, with individual government compensation granted to operators. In Budapest, the state covers the cost of the concessionary fare with a formula based on number of discounted tickets sold; free travel is compensated through another formula based on the number of inhabitants, complemented by additional compensation set by the municipality. The impact on operators and authorities can be significant, especially when establishing the pricing without taking into consideration the associated financial burden. The cost of public services has increased due to a wide range of factors, including inflation, increased material and energy costs, and wage increases.

LISBON'S NEW FARE POLICY

The Lisbon metropolitan area established a new fare policy known as PART (Fare Reduction Support Program) that aims to simplify public transport use and increase accessibility for frequent public transport users.

In April 2019, a new fare system was implemented that eliminated almost all the existing monthly passes (several dozen). Two new passes replaced the old ones:

- ▶ Navegante Municipal pass, for use in one of the 18 cities of the Lisbon Metropolitan Area
- ▶ Navegante Metropolitano pass, for commuters in the Lisbon Metropolitan Area.

The respective fares were also considerably reduced. As a result, public transport ridership increased by over 16% between March and December 2019 (before the COVID-19 pandemic). This programme also established a monthly fare compensation scheme for public transport operators, ensuring they would get the same level of revenue compared to the expectations without the change.

USING A FARE FORMULA

The use of fare adjustment formulas can be a suitable tool for benchmarking the evolution of costs and fares. It can also be used as a communication tool between transport authorities and citizens, as well as between authorities and operators e.g. during contract or funding negotiation. It provides a clear, quantifiable approach to determine the cost of transport. Fare adjustment formulas are used in Asian cities such as Singapore, Hong Kong, and Taipei. These formulas consider the key cost drivers in public transport service provision, such as inflation, wage growth, energy prices, and costs due to growth in public transport network capacity.²³

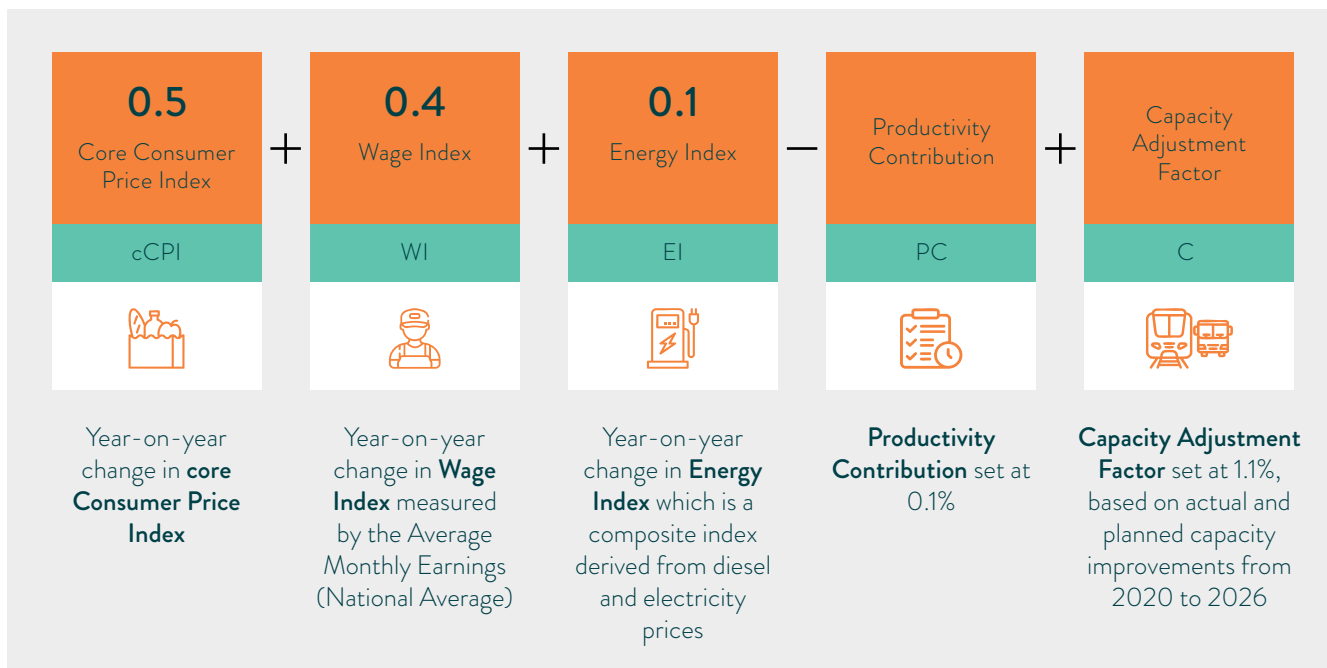
There is also a mechanism in place to give authorities the flexibility to defer in part or in full the fare adjustment amount calculated using the formula. In the Singaporean case, using the Deferred Fare Adjustment mechanism helps the government take into consideration the economic and social situation faced by citizens each year. A similar approach is undertaken in Hong Kong, where, in 2021, its adjustment rate was at 2.1% for public transport rates, while the consumer price index (CPI) was at 2.6% and the wage index, at 3.9%. These approaches balance the need to keep pace with cost changes and the need for flexibility to respond to social, economic, and political ground realities.²⁴

Unlike other products and services, fare adjustments are typically subject to approval by authorities, mayors, or other political office holders. To ensure the gap between fares does not further diverge from changes in operating costs, some form of a fare adjustment mechanism based on inflation-related principles should be in place to ensure longer-term financial sustainability and revenue certainty. It would be challenging for authorities or operators to undertake long-term investment planning and asset management and service quality improvement without such contractual or legal obligations.



23 Public Transport Council. (2023). Fare adjustment formula and mechanism review report 2023, moving forward together: better rides, affordable fares and sustainable public transport.

24 MTR. (2023). MTR Fare Adjustment Mechanism to Bring in Property Development Profit Link Support the Economic Recovery with Special Reduction and Extended Fare Promotions, Press Release, accessed 15 April 2024: https://www.mtr.com.hk/archive/corporate/en/press_release/PR-23-020-E.pdf



► Figure 6: Overview of Singapore Fare Adjustment Formula and Mechanism Review (Public Transport Council)

Fare adjustment formulas help stakeholders get on the same page by providing clear objectives and predictability. The formula clearly shows the cost changes and how to create a bridge to align fares with the socio-economic realities of citizens and passengers. The data used is collected from set economic indicators and published by set governmental entities (e.g. national statistics offices). This facilitates an open discussion on how to balance the financial sustainability of the service provider and customer affordability, ensuring a suitable framework for regular fare adjustment, as opposed to more seldom but larger adjustments that are likely to draw strong objections. The Singapore 2023 PTC Fare Adjustment Formula and Mechanism Review reported that 94% of respondents agreed to fare adjustment to keep pace with operating cost increases, including increases in workforce wages and maintenance and energy costs.²⁵

This formula-based approach tracks cost changes and strives for transparency, especially in communications to the wider public on the rationale for fare hikes. Having such a tool creates a space for discussion, negotiations, and engagement with all stakeholders, not only for fare adjustment, but also to cover the gap between costs and revenue, such as in the case of Taipei.²⁶ Nevertheless, this approach is not devoid of challenges. Fare adjustment can be as much an art as it is a science, and balancing all the (in some cases, contradictory) requests from different stakeholders can be difficult.

THE CASE OF HONG KONG – REVIEW OF FORMULA-BASED FARE ADJUSTMENT MECHANISM

Hong Kong's public transport is operated in one of the most densely populated and built-up areas in the world, with a daily patronage of 4.8 million passengers. More than 90% of all trips are made with public transport, and rail accounts for 50% of the market share. The average fare per passenger is currently set at USD 1.10.

The Formula-based Fare Adjustment Mechanism was launched in 2007 and is monitored and reviewed every five years. This has enabled the formula to evolve and adapt to new realities. The original formula included the CPI, wage index, and a productivity factor as core components. The reviews enabled the introduction of an adjustment to the productivity factor and an affordability cap, as well as the introduction of fare discounts in 2007.

In 2013, Hong Kong introduced 10% discounts on the second trip on the same day as rebate, and, in 2017, a 3% rebate for each trip in a six-month period. The formula was revised in 2023, and now a service performance rebate through 'thank you day' is available for identified loyal passengers. Furthermore, intermodal discounts on mini-buses have increased by 60%.

25 Public Transport Council. (2023). Fare adjustment formula and mechanism review report 2023, moving forward together: better rides, affordable fares and sustainable public transport.

26 Taipei City Government: How are MRT fares set? (Planning): https://english.gov.taipei/news_content.aspx?n=a0edc3930fbc7efc&sms=5b794c46f3cde718&s=4574cf27dbd84e66

As the public transport landscape evolves, it is crucial to establish a mechanism for formula review and adaptation to ensure it contributes to the overall sustainability of the mobility ecosystem. As the sector transitions to clean energy, becomes more automated, and diversifies its revenue sources, the cost structure will change, and the formula will have to be reviewed and updated to ensure its continued relevance in tracking cost changes. The fare adjustment formula helps provide stability to operators in the short/medium term (3-5 years) without external interferences.

RECOMMENDATIONS

Although each city and country is different, with its own specific history, economic situation, and political priorities, there are nevertheless commonalities across different cities to be identified and best practice examples to be shared.

- **An adequate level of public transport supply with affordable fares requires both public funding and fare revenues.** There should be a public contribution to the cost of public transport, in addition to the revenue from fares paid by direct users, i.e. passengers. This public contribution is justified by the general benefits of public transport, which contributes positively to the whole society.
- **The fares paid by public transport passengers should be affordable for all segments of the population** and be competitive to the (marginal) cost of car use. It is therefore important for local authorities to keep track of passenger costs and the mobility expenditure of different user groups.

- **Social or concessionary fare products to cater to different needs** can ensure affordable fares for the most vulnerable user groups while maintaining a reasonable overall contribution from fares to the overall cost of public transport.
- **The deployment of social tariffs should be done in a targeted and limited way** to avoid the erosion of the fare base and economic pressure on the system's service level.
- **A fare formula linked to service offering, inflation and affordability** might help set the right fare levels over time and enhance transparency in the debate on fare increases.
- **Affordable public transport fares should be combined with service quality improvements** to create a conducive ecosystem to attract and retain more public transport users, thereby creating a positive feedback loop.



This is an official Policy Brief of UITP, the International Association of Public Transport. UITP represents the interests of key players in the public transport sector. Its membership includes transport authorities, operators, both private and public, in all modes of collective passenger transport, and the industry. UITP addresses the economic, technical, organisation and management aspects of passenger transport, as well as the development of policy for mobility and public transport worldwide.

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