



Fare-free public transport: clear social gains, limited congestion relief

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Luxembourg became the first country in the world to introduce nationwide fare-free public transport (FFPT). Six years later, the evidence suggests that free fares alone have not transformed car dependency, congestion or environmental pressures. The reform has delivered its clearest value as a social policy: by removing ticket costs, it helps vulnerable groups, such as younger adults, lower-income households, students, unemployed people and families with children, to participate more fully in work, education, culture, leisure and everyday life. Public transport is being added to people's mobility mix rather than replacing cars at scale. There is also limited evidence of cannibalisation of walking and cycling, and no broad deterioration in service quality, although comfort, cleanliness and safety deserve continued attention. Stronger effects on traffic, car use and emissions would require FFPT to be embedded in a broader mobility strategy.

Fare-free public transport (FFPT) has attracted increasing political interest as a potential solution to congestion, environmental issues and social inequality. International experience shows that there is no single model of FFPT. Examples include local schemes in cities such as Dunkirk and Montpellier (France), Tallinn (Estonia) and Albuquerque (United States), as well as in rural areas and more recent national reforms (e.g. in Malta). Some countries have also implemented temporary or partial fare-free programmes (e.g. Spain and Germany), while others have discontinued them. The evidence is nuanced. While fare abolition often increases public transport use, it rarely produces a significant shift away from private cars on its own. Luxembourg is a notable case in this regard, as it became the first country in the world to introduce FFPT nationwide. Our study addresses three policy questions: has fare abolition changed mobility behaviour and reduced car dependency? Who benefits most from free access? And does higher demand threaten active mobility or the perceived quality of the service?

Fare-free public transport in Luxembourg

In March 2020, Luxembourg was the first country worldwide to introduce FFPT across its entire national network. Unlike many schemes that are geographically limited, targeted at specific groups or temporary, the Luxembourg reform applies nationwide, covers bus, tram and rail services, and is available to residents, cross-border commuters and visitors. It operates throughout the year and does not require registration or ticket validation. Users simply board without buying or validating a ticket. The only exceptions are first-class rail travel and the international sections of cross-border trips. The scheme is therefore known as a ‘full FFPT’ scheme (Gillard et al., 2025). The national scale is central to the policy lesson: FFPT applies not only to urban trips, but also to regional travel, commuting corridors, and the everyday movements of visitors and cross-border workers. This makes Luxembourg a stronger test case than most city-level reforms.

Two important points are worth noting about the financial impact of the reform. Firstly, ‘fare-free’ does not mean ‘free’. Public transport still incurs significant operating and infrastructure costs. Prior to the reform, farebox revenues covered only 8% of the annual operational costs, meaning that the system was already heavily

subsidised (EU Urban Mobility Observatory, 2021). The reform eliminated this remaining fare revenue, meaning that the system is now fully financed through public revenues. Secondly, the reform moved from low fares to zero fares rather than from high fares to zero. Prior to March 2020, students, pensioners, and certain lower-income groups enjoyed free or reduced-price travel, while other users paid €2 for a two-hour ticket valid across the country or €4 for a daily ticket. This is important for interpretation: in a low-fare system, the price change was symbolically important, but the direct monetary incentive was smaller than it would have been in a high-fare context.

The evidence presented here comes from two online surveys conducted by LISER in collaboration with the University of Luxembourg and Vrije Universiteit Brussel. The first took place in February 2020, immediately before fare abolition; the second was conducted in 2023, once the policy was well established. Both surveys included residents and cross-border workers aged 16 and over, as well as public transport users and non-users. While the samples are not fully representative, statistical weights were applied for age, gender, and place of residence. The timing also calls for caution. Mobility patterns may have been influenced by the following factors: the COVID-19 pandemic, teleworking, fuel prices, inflation and network reforms. Therefore, the results should be interpreted as changes observed around the implementation of FFPT, rather than as effects attributable solely to fare abolition.

Mobility impacts: free fares alone do not substantially reduce car dependency

Reducing car dependency and emissions is often cited as one of the primary goals of FFPT. In Luxembourg, where congestion levels are among the highest in Europe and cross-border commuting generates significant daily travel, the expectation of a shift towards public transport was particularly high.

At first glance, the results of the 2023 survey appear encouraging. When asked directly whether they had replaced car trips with public transport trips since the introduction of FFPT, 53% of respondents said that they had. Among these respondents, the main reason reported was the introduction of FFPT itself, which was mentioned by 60% of respondents. However, other

contextual factors should not be overlooked.¹ While these findings initially suggest a strong effect of FFPT on travel behaviour, direct self-reported measures should be interpreted with caution as respondents may attribute behavioural changes to the most visible policy intervention even when multiple factors affect mobility choices simultaneously.

The survey therefore also allowed for a more indirect assessment of behavioural change, comparing respondents' reported transport frequencies before and after the implementation of FFPT. They were asked how frequently they used six modes of transport – driving a car, being a passenger in a car, taking the bus, taking the train, cycling and walking – in both 2020 and at the time of the autumn 2023 survey. The results indicate some changes in mobility behaviour, albeit considerably

smaller than those suggested by direct questioning. Daily car use decreased from 34.5% to 29.9%, representing a reduction of 4.6 percentage points. Conversely, daily bus use increased from 11.2% to 12.7%, and daily train use increased from 7.7% to 10.5%.

However, the patterns suggest that changes occurred primarily through an increase in the use of public transport on an occasional or weekly basis, rather than through a substantial transition towards using public transport daily. This distinction is important because it suggests that public transport may increasingly supplement existing travel habits rather than replacing private car use entirely. Furthermore, many respondents who reported using public transport at least weekly in 2023 remained frequent car users (see Figures 1a and 1b).

Figure 1a – Mobility pathways from car use in 2020 to bus use in 2023

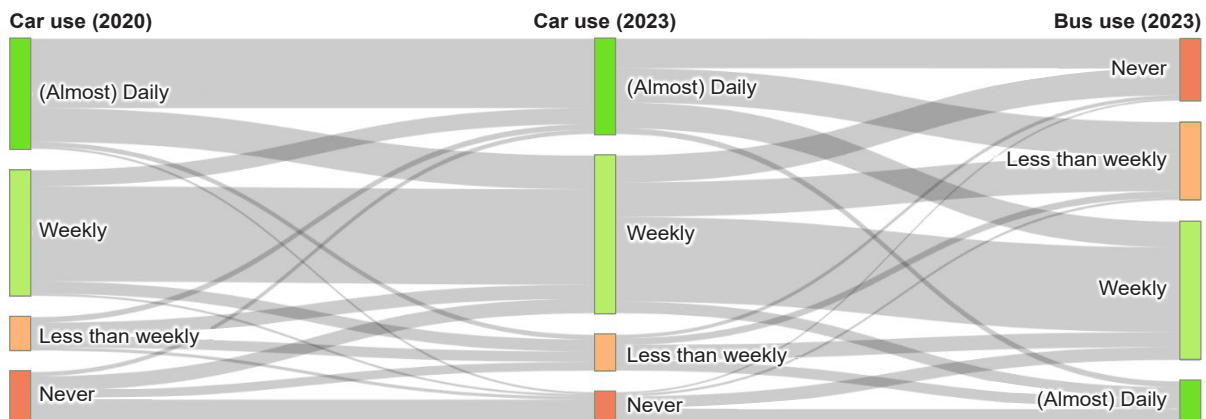
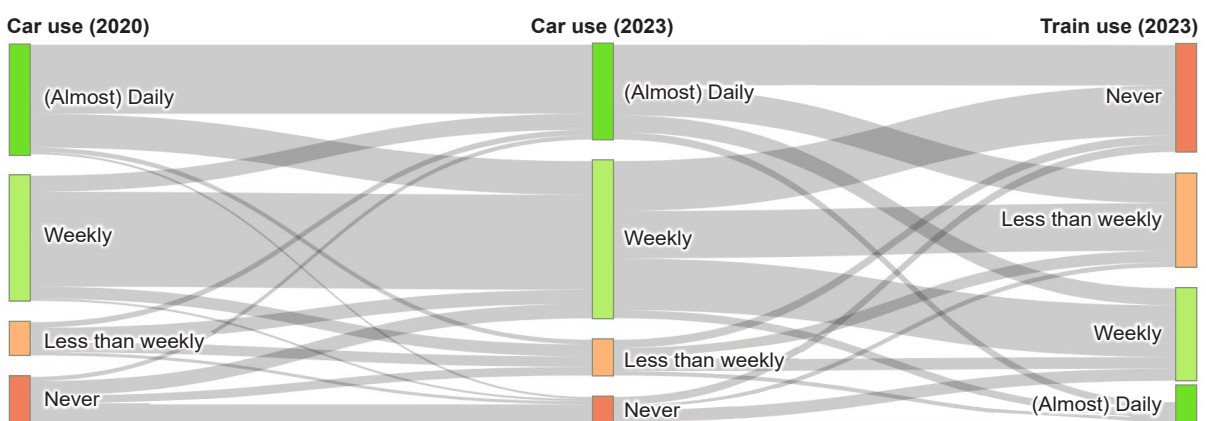


Figure 1b – Mobility pathways from car use in 2020 to train use in 2023



¹ Approximately 19% reported that increasing costs associated with car use had influenced their behaviour, likely reflecting broader economic developments such as rising fuel prices and inflation. Furthermore, 11% attributed changes in their travel behaviour to life events, such as relocating or changing jobs, which improved their access to public transport. Another 10% cited various other reasons, including environmental concerns, a dislike of driving, traffic congestion, or difficulties finding affordable parking.

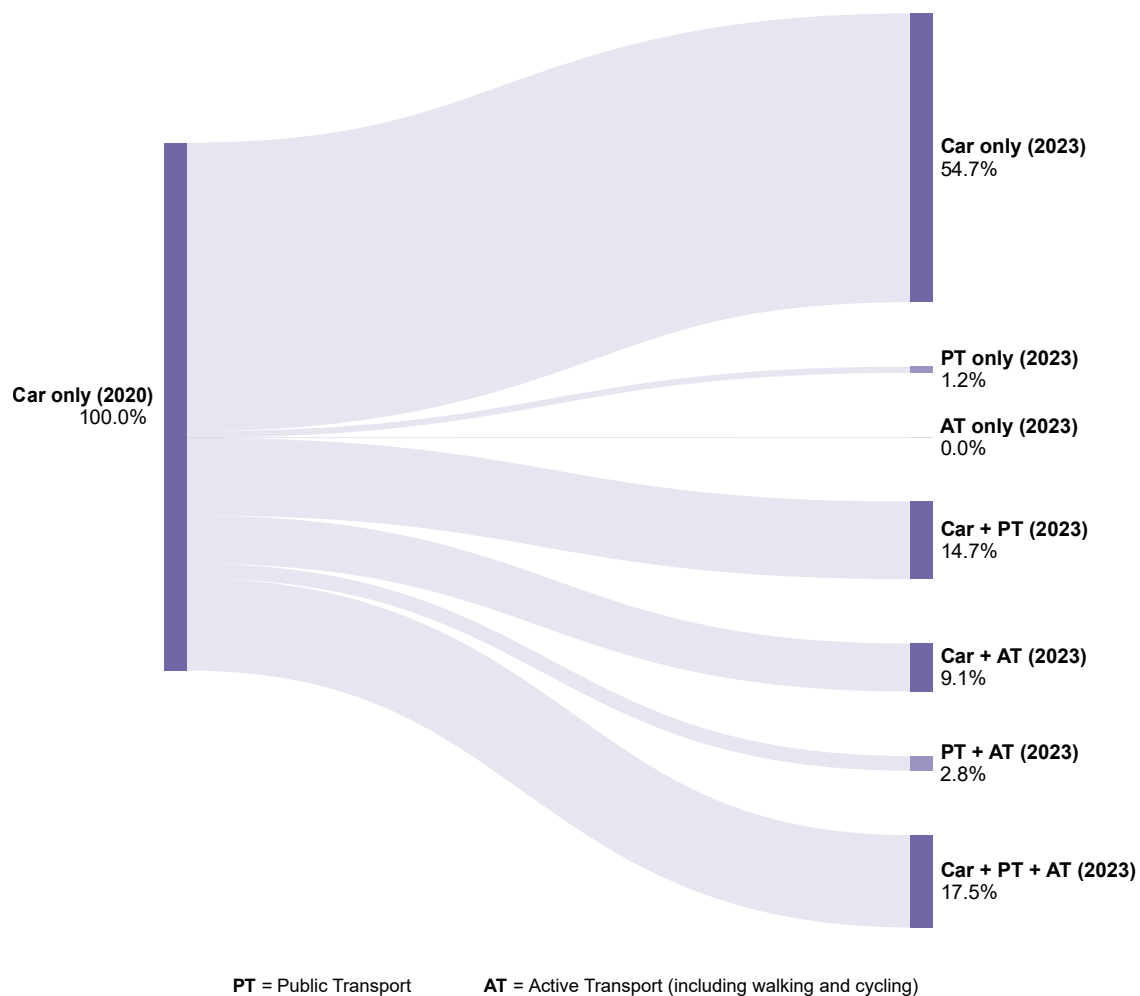
Rather than simply replacing one mode with another, public transport appears to be becoming more closely integrated into broader mobility portfolios. This may indicate a shift from monomodal to multimodal travel behaviour, understood here as the regular use of several transport modes in general (rather than for specific trips). To further examine changes in multimodality, respondents were grouped into mobility profiles based on the combinations of transport modes they used at least weekly before and after the introduction of FFPT. While 77.8% of respondents were classified as multimodal travellers in 2020, this figure increased to 86.2% in 2023.

Examining the mobility pathways more closely from one profile in 2020 to another in 2023 reveals that transitions from exclusive car use to exclusive public transport use remained relatively limited (see Figure 2). Among respondents classified as ‘car-only’ users in 2020, only a small proportion (1.2%) shifted entirely towards exclusive public transport use in 2023. Instead, the most

common changes involved incorporating public transport into existing travel habits rather than abandoning car use entirely. Notably, former ‘car only’ users more frequently transitioned to combined car and public transport profiles (14.7%). An even larger proportion adopted more diverse mobility portfolios by combining car, public transport, and active modes of transport, such as walking and cycling (17.5%).

These findings support the idea that FFPT reinforces multimodal behaviour rather than simply replacing private cars with public transport. Public transport therefore seems to serve as an additional mobility resource within everyday travel practices. Such changes may also indicate the fulfilment of previously unmet mobility needs. Removing financial barriers could enable trips that were previously avoided or considered too costly. Consequently, an increase in public transport usage does not necessarily imply a displacement of existing car trips, but may instead reflect a newly generated demand for mobility.

Figure 2 – How exclusive car users changed to a more diversified mobility portfolio



Social impacts: where FFPT matters most

As suggested by Kębłowski et al. (2025), the strongest contribution of FFPT may be social rather than congestion-related or environmental. By removing the cost of travel at the point of use, fare abolition can improve access to opportunities and reduce the need to ration trips, particularly among groups facing mobility constraints. Therefore, the reform should not only be evaluated through modal share, congestion or emissions. Even if it has limited effects on car dependency, a policy can still produce meaningful gains if it expands people's ability to reach work, education, services, social networks and leisure.

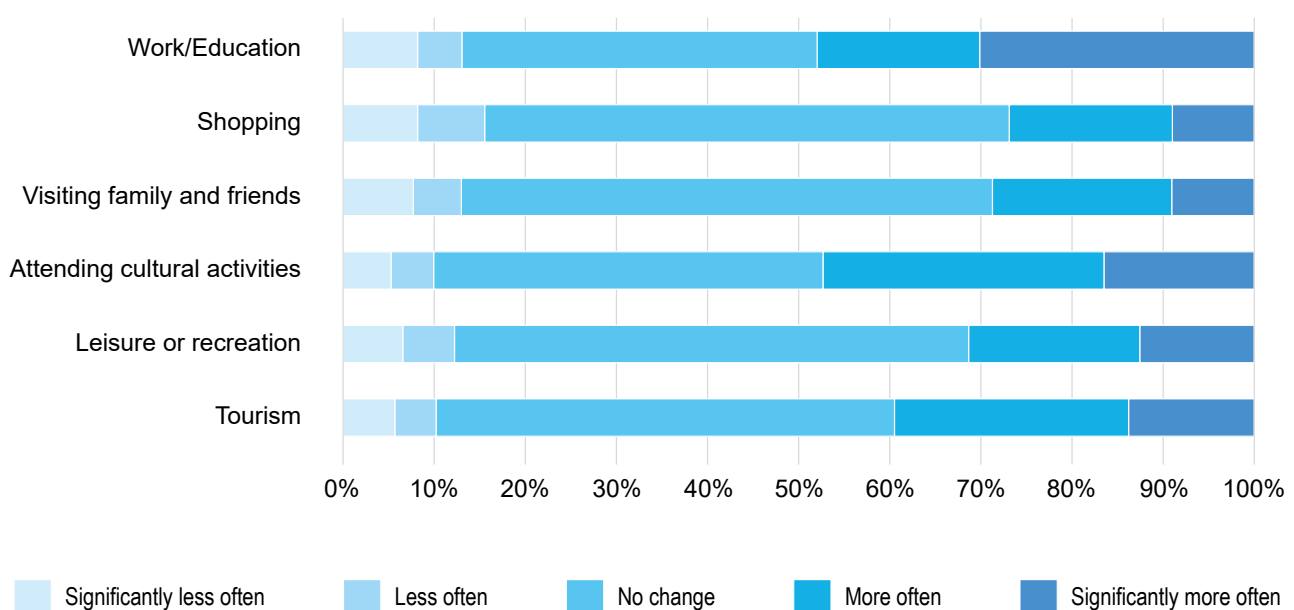
Respondents whose use of public transport had changed between 2020 and 2023 were asked how this had evolved in terms of the purpose of their trips: work and education, shopping, visiting family and friends, cultural activities, and leisure and tourism. The largest increase was reported for work and education trips, with 47.9% of respondents saying they used public transport more often or significantly more often. Similar increases were observed for cultural activities (47.3%) and tourism (39.5%), suggesting that FFPT contribute not only to functional mobility needs but also to broader forms of social participation and quality of life (see Figure 3).

These gains are unevenly distributed. Increased use of public transport for work and education was more common among younger adults aged 16–34, students,

unemployed people, households with young children, individuals with below-median incomes, and those with higher levels of education. Similarly, increases in cultural activities and tourism were concentrated among young adults, students, the unemployed and lower-income groups, with residents being somewhat more affected by the first. These groups are particularly affected by transport costs and access constraints in everyday life. For these groups, free access can transform potential trips into actual trips or reduce the financial burden of regular participation.

The social value of FFPT also becomes apparent when respondents consider a possible return to fares. On weekdays, 56% of respondents said that reintroducing fares would moderately or significantly affect their lives, compared with 54% at weekends. Reported impacts were more common among younger people, households with children, lower-income respondents, and those with higher levels of education. This weekend result is particularly important. It shows that FFPT is not just about commuting and getting workers to jobs. It also supports access to family and friends, shopping, leisure, culture, and tourism — activities through which people participate in society. Open-ended comments support this view: some respondents described using a combination of public transport and cycling to explore Luxembourg, go hiking, and take leisure trips that would otherwise have been less frequent. While these examples are anecdotal, they illustrate the social mechanism behind the quantitative results.

Figure 3 – Changes in public transport use by trip purpose



On weekends, the affected profile broadened to include students and the unemployed, as well as individuals with access to a company car, which was more unexpected. This latter result should not be given too much weight when interpreting the findings. It should not be interpreted as evidence that free public transport has substantially reduced company car use. A more plausible explanation is that free public transport provides an additional option for non-work travel, such as leisure activities and weekend outings, even for those with access to private transport. In a country where company cars are widespread and strongly associated with car use, even a small shift towards alternative weekend mobility is nevertheless relevant from a policy perspective.

Overall, FFPT should be viewed not only as a fare policy, but also as a participation policy. Ending free access would reduce mobility opportunities for groups already facing financial or practical constraints, and would limit access to employment, education, culture, leisure and social networks. These social benefits are not an unintended consequence; they are one of the clearest advantages of the reform.

Additional effects on active mobility and service quality?

Two additional concerns deserve attention. Firstly, free public transport may encourage people to choose it over walking or cycling rather than over driving. Evidence from Luxembourg provides little support for a significant cannibalisation effect. Only 10.4% of respondents said they had replaced walking trips with public transport trips. Furthermore, indirect comparisons of travel frequencies show that walking increased alongside public transport use: daily walking increased from 36.5% to 40.8%, while walking at least weekly rose from 69.2% to 76.5%. This pattern suggests complementarity rather than competition, since public transport often generates walking through first- and last-mile connections.

Cycling shows a more cautious picture. Daily cycling declined slightly, from 3.7% to 3.2%, as did weekly-or-more cycling, from 20.9% to 19.3%. These changes were statistically significant but modest in size. Reported decreases in active mobility were also limited to relatively small proportions of respondents: 7.9% for walking and 12.2% for cycling. Where reductions occurred, they were concentrated among specific

groups and linked to previous mobility habits, particularly previous bus use. Therefore, FFPT is not the main threat to active mobility; however, cycling still requires protection in the form of safe, convenient and well-integrated infrastructure.

A second concern is that higher demand for public transport could lead to a reduction in service quality. Overall, perceptions of bus and train services in Luxembourg remained slightly positive between 2020 and 2023, with no evidence of a significant decline in satisfaction. The dimensions that travellers perceived as problematic in 2020 remained so in 2023, but did not substantially worsen following the abolition of fares. Traditional weaknesses such as punctuality, service frequency, transfer requirements and travel time remained among the lowest-rated attributes yet remained broadly stable, with some improvements observed. This challenges the idea that free access automatically lowers service standards.

The warning signs are more specific. The largest declines were in the travel experience, specifically in terms of comfort, cleanliness, perceived safety, and for cross-border users, ticket prices on international sections. This suggests that the main risk is not whether buses and trains run, but whether they remain pleasant, safe and comfortable enough to attract and retain users. Differences between residents and cross-border workers also matter because the latter rely more on long-distance and rail-based commuting, while residents interact more often with local bus services and urban transport.

These findings argue for a balanced interpretation. FFPT has not dramatically undermined active mobility or the quality of public transport. However, higher demand requires sustained investment in capacity, reliability, and the quality of the user experience. Without this, overcrowding, discomfort and perceptions of insecurity could weaken the social benefits of free access. Rather than narrowing the reform to a price debate, the appropriate response is to treat quality as a core condition for maintaining public support and converting occasional users into regular public transport users.

Policy implications and looking ahead

FFPT can be considered both a mobility and a social policy. Its most significant benefits are improved accessibility, affordability and participation, rather than substantial reductions in congestion and emissions.

Therefore, there is a strong case for maintaining free fares for their social value, particularly for younger adults, lower-income groups, households with children, students, and the unemployed. However, fare abolition is unlikely to substantially reduce car dependency on its own. To achieve broader effects on traffic, car use and emissions, complementary measures that directly affect car use are required, including company car reform, parking management and wider demand management, as well as investments to protect and improve the quality of public transport, walking and cycling. Monitoring could also extend beyond ridership to track who benefits, which trips are enabled and whether car use falls. It could also identify where comfort, cleanliness or safety issues arise.

Luxembourg's experience suggests that the relevant question is no longer simply whether FFPT 'works'. The answer depends on the objective. If the goal is a significant and rapid reduction in car use, the evidence is limited. Car dependency remains deeply embedded and free fares alone do not fundamentally alter the incentives, convenience or infrastructure that support daily car use. However, if the benchmark is accessibility and social participation, the policy performs more strongly. It reduces the cost of mobility at the point of use and enables specific groups to participate more fully in everyday life.

The next phase could therefore shift the focus from fare policy to integrated mobility policy. Pull measures would still be essential, such as improving public transport, providing reliable services and comfortable vehicles and stations, ensuring safe walking and cycling routes, and facilitating seamless multimodal connections. However, Luxembourg's results also suggest that pull measures alone may not be sufficient. Achieving significant reductions in congestion and emissions may require push measures that directly address car dependency. While these measures are politically more challenging than free fares, they may be necessary if the aim is to reduce congestion rather than merely make alternatives more affordable. Implementation would also benefit from coordination between ministries, municipalities, transport operators, and employers. This reform sits at the intersection of mobility, social inclusion, environmental policy, and labour-market participation. This makes it politically attractive, but it also suggests that responsibilities may need to be better aligned to convert accessibility gains into lower congestion and better daily mobility.

At the same time, the social function of FFPT could be safeguarded. Removing free access could result in costs being shifted back onto groups that would benefit most from the reform but are least able to absorb additional mobility costs. A possible approach would be to combine universal free access with targeted service improvements in areas and at times that are important for vulnerable users, such as early mornings, evenings, weekends, peripheral areas, cross-border connections, and routes to schools, training sites, healthcare facilities, cultural venues, and leisure facilities.

This broader policy mix also requires better monitoring. Ridership figures alone are insufficient. A more comprehensive evaluation would reveal which groups benefit, the types of trips permitted, whether car usage is genuinely being replaced, where new demand is being generated and where service quality is deteriorating. In this sense, FFPT could be accompanied by a dashboard combining mobility, social, and quality indicators, rather than focusing solely on passenger volumes. This monitoring could distinguish between residents and cross-border commuters, weekdays and weekends, income groups, age groups, households with children, students, and the unemployed. It could also track interaction with company cars, parking availability, and service reliability, as these factors will determine whether the policy mix succeeds or fails.

In this broader context, FFPT becomes more than just a pricing reform. Free access can protect social participation and make public transport more accessible; targeted demand management measures can reduce the dominance of cars; and sustained investment can ensure that increased ridership does not compromise comfort, safety or reliability. The goal is not just to provide free public transport, but to create a more inclusive, multimodal mobility system that is better aligned with Luxembourg's long-term challenges.

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Publisher: LISER
Series: Policy Brief
e-ISSN: 2716-7437

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To cite this brief: Van Acker, V. (2026, Sep). Fare-free public transport: clear social gains, limited congestion relief. LISER Policy Brief; 2026-17, 10p.