

Scotland's Railway after the pandemic Iain Docherty, 30 April 2021

1 Introduction and purpose of the report

This report provides an overview of the challenges facing Scotland's Railway as we plan for recovery from the COVID-19 pandemic, and the key questions to be addressed in planning for a sustainable future. Transport in Scotland more generally is at a critical juncture given the unprecedented changes to travel behaviour that have been seen since March 2020. Decisions made in the months ahead will set the demand trajectories for car travel, public transport use, walking, cycling and digital communication for years to come, and probably for the timescale over which we must achieve decarbonisation.

Before the pandemic, we were planning for a continuation of several established trends. For the railways, above all this meant significant investment in providing more capacity on key commuter routes serving our largest cities. Yet over the last year, people have walked and cycled more, and working from home has become commonplace than ever. For many, commuting has given way to staying local. These enforced changes underpin the substantial falls in public transport demand that have been seen over the last 12 months, and the roughly doubling in public sector financial support required to keep the railway operating over this period. ***The extent to which these changes in behaviour 'stick' as we emerge from the pandemic is by far the most important short-medium term challenge facing the railway*** given the implications for passenger demand and taxpayer support.

2 Situation in January 2020

At the onset of the pandemic, Scotland's Railway was on a well-established trajectory of investment and growth. In January 2020, ScotRail operated c2,400 train services per day across its 2,800km network serving 360 stations. Passenger journeys were on target to reach 100m in 2019/20, a 30% increase over ten years. 75% of these journeys were made on the 25% of the network that is electrified.

In 2019, around 9% of rail journeys beginning or ending in Scotland were cross border. Cross border traffic rose 61% in the decade to 2016, with Glasgow to/from London trips on the West Coast Main Line growing at twice this rate over the same period.¹ The UK Government's decision in February 2020 to proceed with the full extent of HS2 Phases 1 and 2 opened up the potential to transfer even more trips away from flying, which consumes roughly 12 times as much carbon per Scotland-London trip than rail. The Scottish and UK Governments have previously outlined a joint aspiration for a sub 3 hour journey time from Glasgow and Edinburgh to London.

In addition to regular passenger services, the rail network in Scotland carries around 4 million tonnes of freight per annum, taking the equivalent of around 91,000 HGVs off the road.

¹ ORR as quoted in "Does Scotland and the North of England Need High Speed Rail?", Transport Scotland January 2020.

Pre-pandemic, the railway industry and Scottish Government had committed to significant further investment during the current 5 year planning cycle or 'Control Period' that began on 1 April 2019. This includes:

- Reopening the line to Levenmouth;
- New stations at East Linton and Reston on the East Coast Main Line and at Kintore and Dalcross between Aberdeen and Inverness;
- Further electrification, first from Glasgow to East Kilbride and Barrhead and later to enable Battery EMU operation in Fife and Borders;
- Enhancement of the Far North Line to increase sustainable commuting and leisure journeys to Inverness, improve reliability and reduce journey times;
- Enhancement of the Aberdeen to Edinburgh and Glasgow routes to reduce journey times, increase sustainable commuting opportunities into Dundee and Aberdeen and to deliver more capacity for rail freight paths.

Beyond the explicit commitments for Control Period 6, the Scottish Government's 2018 Programme for Government included a commitment to establish a "National Infrastructure Mission" and increase annual investment in infrastructure by 1 per cent of 2017 GDP, or £1.56 billion, by the end of the next Parliament in 2025-26². This commitment was restated in the Infrastructure Investment Plan published in February 2021.³

3 Impacts of the pandemic

This section draws on original research undertaken as part of the COVID19 Transport, Travel and Social Adaptation Study (<https://covid19transas.org>) which surveyed household travel behaviour in ten regions across GB including the Aberdeen, Edinburgh and Glasgow city regions and Ayrshire.

Public transport patronage declined sharply as a result of the pandemic, with falls in rail passenger numbers being evident 10 days or so in advance of the imposition of formal lockdown on 23 March 2020. Although there is some variation in points of detail between regions, there is nonetheless a relatively consistent overall picture about the broad impacts on public transport use. ***Rail has been the most impacted mode with use on average only around 25% of that in the equivalent periods of 2019***, with a best performance on some days in August/September 2020 of just over 40%.

² <https://www.gov.scot/policies/government-finance/infrastructure-investment/>

³ <https://www.gov.scot/publications/national-mission-local-impact-infrastructure-investment-plan-scotland-2021-22-2025-26/>

Car use recovered to around 70% of pre-pandemic levels, and although this is clearly a stronger rebound than that evident for public transport, car use is nonetheless not yet 'back to normal'. Despite an initial spike in leisure related activity, cycling remained broadly static. The only mode to have increased during the pandemic was walking, with trips increasing by around half. This is consistent with other evidence suggesting many more essential requirements such as shopping are being services by short trips in local neighbourhoods.

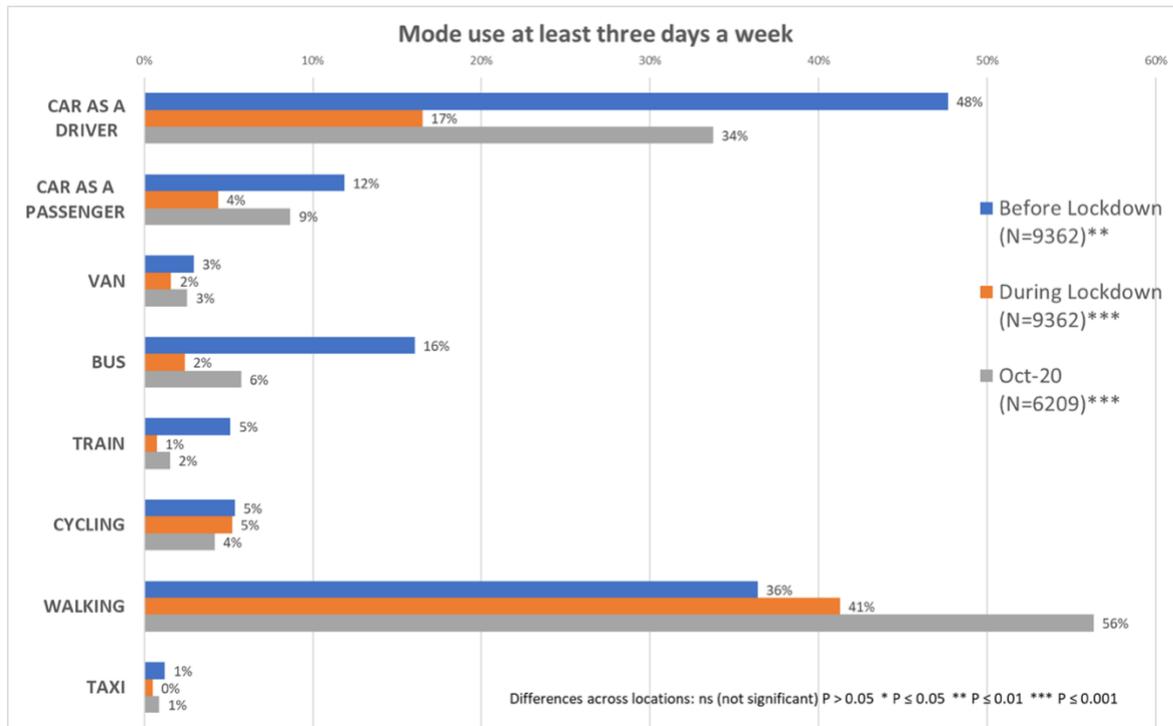


Figure 1: Change in mode use. Source: <https://covid19transas.org>.

One perhaps underappreciated aspect of public transport use during the pandemic is that despite the very significant headline falls in patronage, those passengers that did use the service were likely to say that it was essential to them. This did not vary significantly between mode: around 60 percent of bus and train users reported having no alternative available for the journeys they made during the pandemic.

Post-pandemic recovery scenarios

Given we now know that the COVID19 pandemic is playing out in terms of successive 'waves' of increased infection, it is clear that the economic recovery pathway will not be a straightforward 'V' shape curve in which the economy rebounds from the very steep fall in GDP brought about by lockdown to regain its prior growth trajectory. The central forecast in the OBR's latest 'recovery range estimates' sees GDP recovering to its pre-pandemic level in mid-late 2022. In downside scenarios it takes until 2025 for GDP to recover to January 2020 levels. These scenarios do not incorporate the possibility of a major new wave of infection in autumn/winter 2021 as a result of new 'escape' variants however.

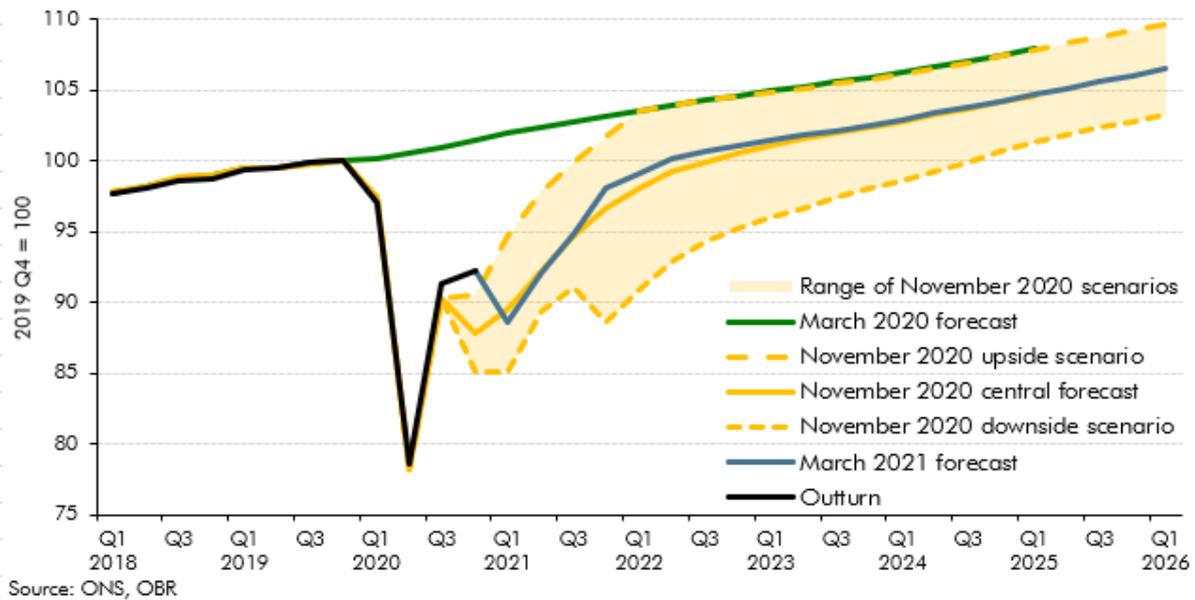


Figure 2: March 2021 OBR GDP recovery range estimates.
 Source: <https://obr.uk/efo/economic-and-fiscal-outlook-march-2021/>

Given the strong relationship between GDP and rail use, these scenarios would suggest recovery to previous levels of patronage over a period of 2-5 years. ScotRail currently estimates off peak journeys will recover to pre pandemic levels and peak journeys to 85% of pre pandemic levels by end 2023. However, these forecasts do not take account of other critical determinants of rail demand, specifically the travel behaviour changes stimulated by the conditions of the pandemic, and the potential spatial- and sectoral restructuring of the economy.

‘Avoid public transport’

An overriding concern of decision-makers and public transport operators alike has been the extent to which the experience of the pandemic, where alternatives to public transport use have been proactively promoted for a year or more, coupled with changing working practices and messaging that public transport is unsafe could have a significant and long term impact on public transport use post-pandemic.

Focus group work by Transport Focus⁴ suggests that the pandemic has indeed had a negative impact on attitudes to public transport. In their report on week of 19-21 February 2021, TF found that a half of people agreed that Coronavirus has made them rethink how they will use public transport in the future.⁵ In Transport Scotland’s Covid Public Attitude Survey, up to 75% of people have reported being very or fairly concerned about contracting or spreading the virus while using public transport.⁶ However, differences in attitudes between people who were users and non-users of public transport during the pandemic are important, with

⁴ Full details available at www.transportfocus.org.uk/data-hub
⁵ *Travel during Covid-19: attitudes to travel post-lockdown*, <https://www.transportfocus.org.uk/publication/travel-during-covid-19-attitudes-to-travel-post-lockdown/>
⁶ <https://www.transport.gov.scot/publications/?topic=63625>

various attitudinal surveys suggesting **people who continued to use public transport were more reassured**. TRANSAS study data shows that around half of people who reported using the train during the pandemic said that they had no alternative for their journeys. In contrast, around three quarters of people who had not used the train said that they had alternatives for the journeys they had to make. It is likely, therefore, that there will be significant reluctance in returning to rail amongst groups that have avoided the train during the pandemic and that have alternative travel options available. **Attracting people back to rail for whom taking the train is optional will require concerted effort.**

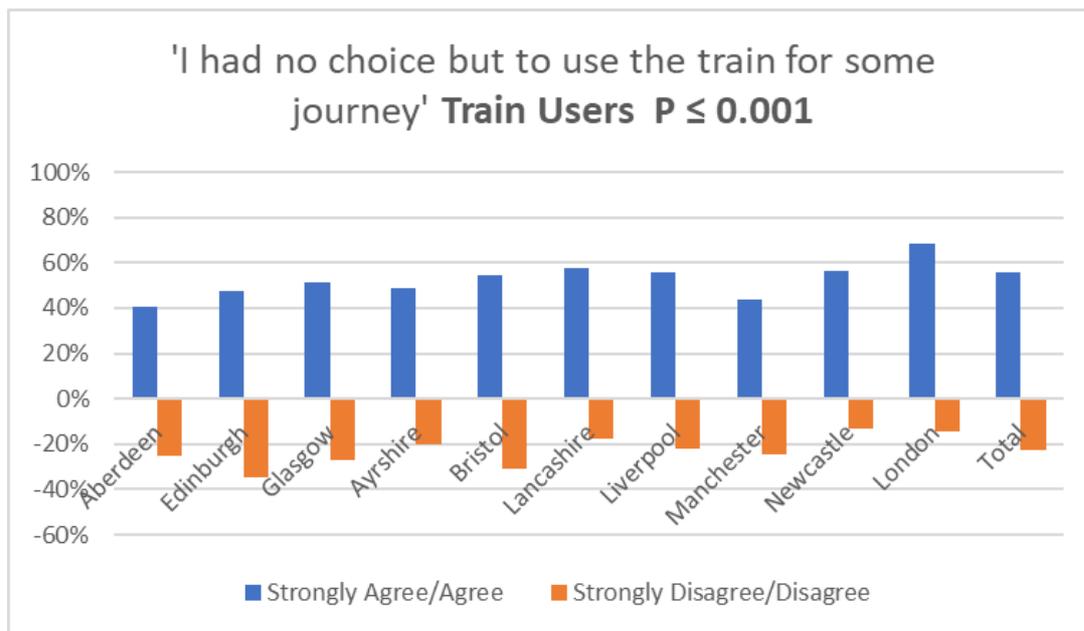


Figure 3: Reported modal choice: train users. Source: <https://covid19transas.org> .

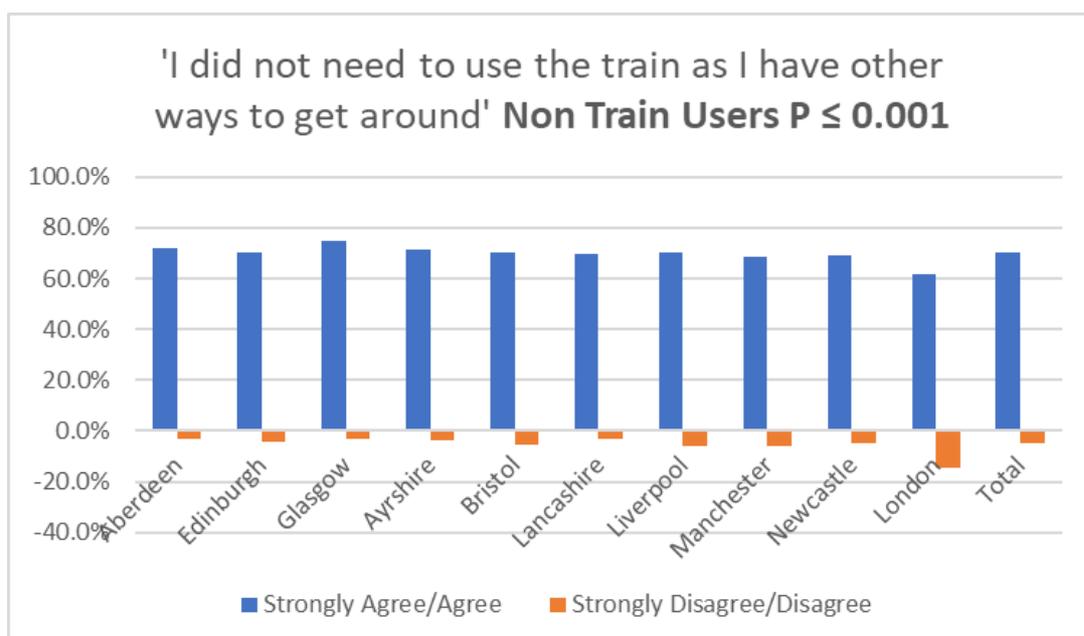


Figure 4: Reported modal choice: non train users. Source: <https://covid19transas.org> .

Working from home

Prior to the pandemic just over 25% of the workforce reported some experience of working from home (ONS, 2020a); however by April 2020, 46.6% of people in employment did some work at home and of those 86.0% did so as a result of the pandemic restrictions (ONS, 2020b). The potential for home working to continue to replace a significant proportion of pre-pandemic commuting is therefore obviously evident, although the extent to which the population can work from home varies significantly both across occupation and role (Figure 5).

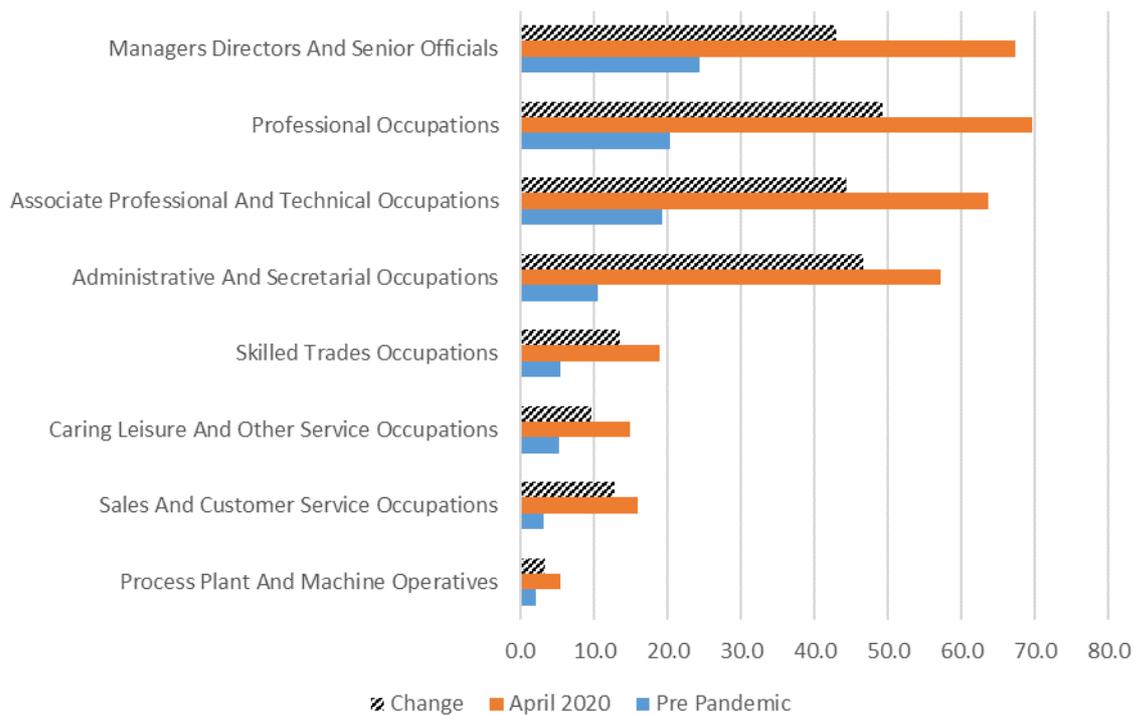


Figure 5: Change in reported homeworking during a survey week. Source: ONS 2020a and ONS 2020b.

The most critical issue here is that is those white-collar jobs most closely associated with city centre commuting by train that are most easily substituted by working from home. In the TRANSAS data, people in occupations such as financial and business services reported a shift from one day per week working from home pre-pandemic to four days from home (likely all of their working week) even in the looser period of restrictions in autumn 2020 (Figure 6). This is correlated with the largest shifts to home working being found in those locations (such as Edinburgh, Figure 7) with a high proportion of these occupations in the labour market. Further, train commuters were already more likely to have experience of a workplace/home blend in their pre-pandemic work pattern, and could therefore be expected to find it easier to continue this kind of ‘blend’ in future.

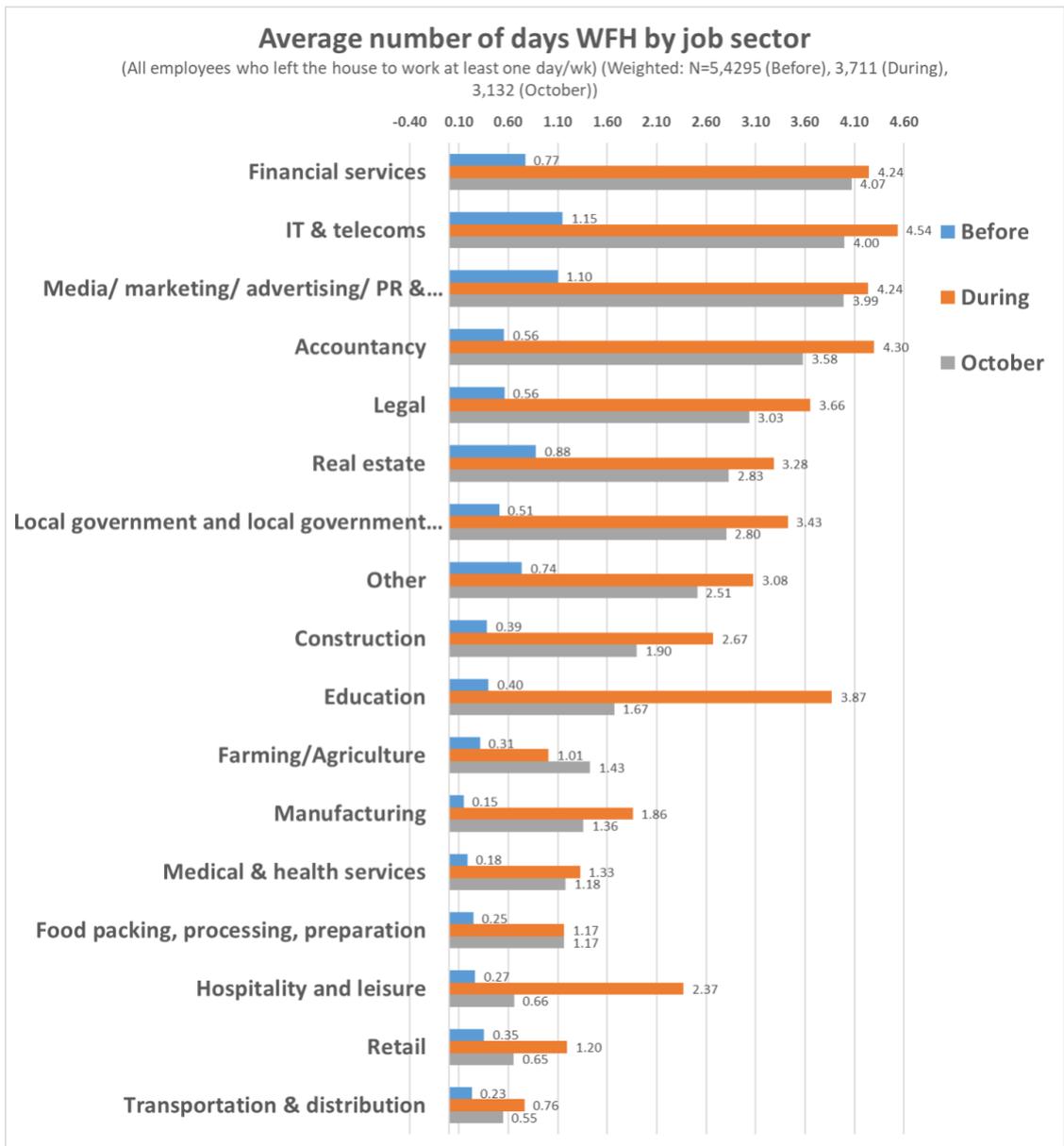


Figure 6: Change in average number of days worked from home by employment sector.
 Source: <https://covid19transas.org>.

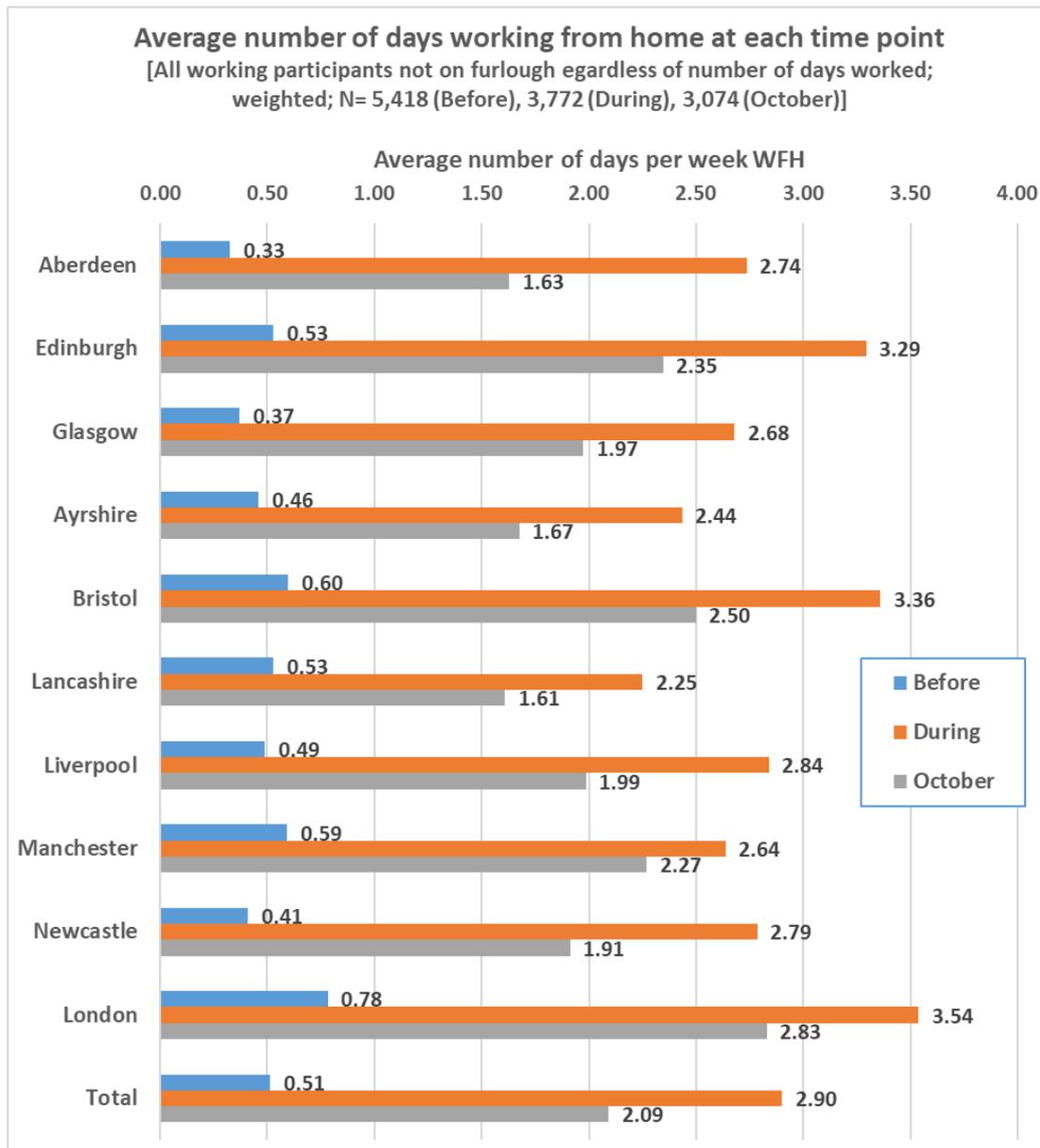


Figure 7: Change in average number of days worked from home by area. Source: <https://covid19transas.org>.

The critical question for rail demand in the medium term is therefore clearly how much working from home will ‘stick’ in the post-pandemic period. This is as yet unclear, and there are various ways in which adjustment could play out by sector and location, especially as the outcome is essentially a negotiation between employer and employee preferences rather than it simply being a matter of individual- or sector norms preferences or sector alone. So far, significant examples of corporate planning for after the pandemic include BP, which employs 6000 people in the UK and has told employees that they will be expected to work from home for two days a week after summer 2021,⁷ and investment bank JP Morgan which

⁷ <https://www.theguardian.com/business/2021/mar/08/bp-to-tell-25000-office-staff-to-work-from-home-two-days-a-week>

has signalled that its employees will be given the choice to work from home in a variety of different patterns including a few days a week, or one or two weeks a month.⁸ The interaction between commuting preference and combining travel to the office with city centre retail and leisure opportunities at lunchtime or before or after work is another important unknown factor, although there is research ongoing to try and address this.

From the TRANSAS data on observed and stated likely future travel behaviour, it is possible to estimate some parameters for the permanent reduction in commuting trips as a result of the pandemic. For example, if all of those workers who have switched from workplace to at-home working adopted a 'blend' of two days per week at home post-pandemic, then the estimated number of days that all workers are at home rather than in their main place of work increases from 0.3 to 1.1.⁹ This would correspond to a reduction in all commuting trips of around 15%. This figure would likely be higher for rail given the geographical and sectoral characteristics of the rail commuting market described above. ***A scenario of around 20% less demand for rail commuting in a post-pandemic 'new normal' is therefore a reasonable starting point for future planning assumptions.***

4 Developments in government policy

Although delayed by the demands of managing the pandemic response, there have nonetheless been a series of highly significant government policy statements relevant to the future of the rail sector in Scotland published since March 2020:

- The Scottish Government formed an Advisory Group on Economic Recovery (AGER) in April 2020. In August 2020 it published its recommendations¹⁰, including that the National Infrastructure Mission to increase annual investment in infrastructure by 1% of 2017 Scottish GDP by 2025-26 "must be maintained as a key factor in recovery";
- In December 2020, the Scottish Government published its updated *Climate Change Action Plan*,¹¹ which noted the unprecedented fall in demand for public transport use during the pandemic and the scale of financial support from government required to keep the network operational. Under the general rubric of 'a green recovery', the Plan introduced the critical commitment to reduce the total number of car kilometres in Scotland by 20% by 2032. More generally, the general trajectory towards altering the transport mix in Scotland to more closely reflect the transport hierarchy by prioritising active travel and public transport, and to decarbonise public transport are restated;

⁸ <https://www.itproportal.com/news/jp-morgan-will-adopt-remote-working-on-a-permanent-basis/>

⁹ 7.1% of workers assumed to work from home 1 day per week and 5.1% 5 days per week pre-pandemic (inferred from ONS pre-pandemic survey). 46.6% of workers assumed to work from home (5.1% working 5 days per week as before, remaining 41.5% to work 2 days per week).

¹⁰ <https://www.gov.scot/publications/towards-robust-resilient-wellbeing-economy-scotland-report-advisory-group-economic-recovery/pages/6/>

¹¹ <https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/>

- Phase one of the Strategic Transport Projects Review 2 (STPR2) was published in February 2021.¹² The Review has been divided into two, with the first report focusing on delivery for COVID recovery. The document restates Scottish government priorities for transport investment, linking strategic perspectives to potential modal and spatial investment options. Rail is seen to play several important roles, especially for inter-urban transport and within city regions. For the latter, STPR2 envisages the substantial extension of light rail modes including the Edinburgh Tram (with the potential for tram/train mixed running) and a 'Metro' system for Glasgow.
- In March 2021, the UK Government published the Interim Report of its *Union Connectivity Review*¹³, chaired by Sir Peter Hendy. The UCR examines the strategic case for improvement in long distance modes connecting the four nations of the UK, with the interim report setting out the results of a stakeholder consultation of key priorities. For rail, passenger connections to/from Scotland to HS2 via the East and West Coast main Lines and cross-border routes for freight are identified as priorities for further analysis.
- Also in March 2021, the Scottish Government announced its decision to bring the operation of the Scotrail franchise into the public sector from spring 2022. The initial mechanism will be via an 'Operator of Last Resort', but the longer term organisational structure of the industry in Scotland remains uncertain pending the outcome of the UK Government Williams Review.

5 Key choices to help build back better

It is now clear that COVID-19 represents the most significant shock to the transport sector in the modern era. Even under the most optimistic recovery scenarios, rail patronage will take around 5 years from the onset of the pandemic to recover; under more pessimistic scenarios, patronage does not recover to its previous levels for the foreseeable future due to a change in travel behaviours driven by deep economic restructuring and altered traveller preferences.

There are therefore three interlinking variables that set the strategic context for development of Scotland's Railway over the next 5-10 years:

Demand

- To what extent will total demand for rail travel recover, and over what time period?
- What will the trip purposes for rail be in future, and in particular, how important will commuting and the peak be in the overall profile of rail trips?
- To what extent will government policy shifts such as the 20% car use reduction commitment and £500m investment in bus travel impact on demand for rail?

¹² <https://www.transport.gov.scot/publication/update-and-phase-1-recommendations-february-2021-stpr2/>

¹³ <https://www.gov.uk/government/publications/union-connectivity-review-interim-report>

Financial sustainability

- In the short-medium term, how robust is the government commitment to provide emergency funding support for the industry to maintain a level and type of operations that remain similar to that in place before the pandemic?
- Following on from the demand questions above, once the recovery profile becomes clearer, what cost savings will government demand of the industry? In particular, to what extent will investment in peak capacity be curtailed, and what is the scale of the potential cost savings from this?
- To what extent does emerging from the pandemic present the opportunity – or obligation – to address longstanding issues regarding the cost base of the industry in Scotland ranging from the labour productivity of railway operations to staffing levels and procurement?

Net Zero

- The Scottish Government remains committed to an ambitious programme of railway decarbonisation as part of its wider strategy to achieve Net Zero. But how does the dramatic fall in rail use and the uncertainty over future demand affect the basis of investment decisions in e.g. which routes might be considered for fixed electrification?
- To what extent do other non-rail sector considerations highlighted in strategic government policy statements such as the decarbonisation of the road vehicle fleet and the potential for development of hydrogen production on the west coast affect the strategic case for investment in rail?

In short, the challenges facing the rail sector in Scotland if it is to ‘build back better’ are extremely demanding. Any effective recovery strategy will have to address the three intersecting demands outlined above, against the background of the emergency imperative to stabilise the finances of industry.

Critical choices for recovery planning

Following on from the above, there emerges a set of critical questions central to the framing of a recovery strategy for rail in Scotland.

First concerns the ***strategic purpose of rail travel in future***. In summary, rail investment in Scotland over the last 10-20 years has been framed by the desire to increase capacity into the major city centres in pursuit of policy objectives such as road congestion relief, journey time reduction for the largest number of passengers, and stimulating economic growth through capturing agglomeration benefits.¹⁴ Investment in many longer distance routes has been justified on the basis of time savings for passengers including premium business travellers paying premium fares.¹⁵

¹⁴ <https://www.transport.gov.scot/media/32289/j358676-09.pdf>

¹⁵ See section 16 in <https://commonslibrary.parliament.uk/research-briefings/cbp-8552/>

However, if as seems likely, the overall propensity to commute and travel for business falls and/or if conducting many economic activities virtually sticks, then the case for infrastructure investment changes fundamentally. In this scenario, the priority to provide more radial capacity in the peak, and the value of journey time reduction, are both reduced substantially. This should not be seen as an “either/or” situation where digital connectivity and physical travel should be played off as “good/bad”. As our estimates in sections above demonstrate, there is significant uncertainty about where the longer term ‘blend’ of activity will settle. However, one obvious challenge for rail is to avoid the situation where demand for peak travel recovers to the extent that there are two or three highly ‘peaky’ days per week even if overall commuting demand is significantly below that seen pre-pandemic.

There is a strong potential upside for rail arising from our climate commitments however. Although 30% of the emissions reduction expected from transport by 2029 comes from demand reduction¹⁶, not all of the requirement to reduce car km by 20% is likely to be accommodated by switching physical travel to virtual communication. Notwithstanding the high degree of uncertainty set out in the analysis above, assuming the overall demand for travel recovers to pre-pandemic levels, then ***if half of the reduction in car travel was met by a shift to online communication and half of the shift from car to public transport were met by rail, then this suggests roughly a doubling in rail passenger demand.***

Despite the substantial falls in patronage due to the pandemic, over the medium term, the decarbonisation imperative suggests that by the dates of our decarbonisation milestones in 2030 and beyond, the rail network will need to carry a materially greater number of people than it has done before. The strategic planning challenge is therefore one of matching service provision and infrastructure enhancement to best accommodate this demand, which may be in different market segments and/or geographies from those that we have become used to.

Some critical decision points for the sector are therefore:

What do we mean by ‘rail’ in Scotland in the 2030s and beyond? The post-pandemic economic- and environmental imperatives outlined above support the need to re-appraise what we mean by ‘rail’ and the trip demands it serves. The Scottish Government’s current Strategic Transport Projects Review has identified the extension of the Edinburgh Tram network and the conversion of significant sections of the current heavy rail network in the west of Scotland to form the core of a new Glasgow Metro system as strategic priorities. Maximising the role of these light rail modes in the wider mobility mix in both city regions will be essential to meeting the national target for road traffic reduction.

Transport Scotland’s statistics on modal split by length of journey¹⁷ are an important backdrop to this debate. 40% of all journeys made in Scotland in 2019 lasted 10 minutes or less, and two thirds were less than 10km in length, with the average car trip between 6 and 7km (depending on whether the traveller was car driver or passenger respectively). The car was the most popular mode choice for all journey classes longer than 2km.

¹⁶ <https://www.theccc.org.uk/publication/sixth-carbon-budget/>

¹⁷ See Figures 10, 11 and 12 in <https://www.transport.gov.scot/publication/transport-and-travel-in-scotland-2019-results-from-the-scottish-household-survey/personal-travel/>

Given that achieving a doubling of rail use is likely to require rail modes to be much more competitive for more complex journeys across the city regions rather than simpler radial trips, ***careful planning of the repurposing of urban routes to rapid transit and the future role of other key assets such as major stations will define the envelope for the scale of possible car-rail modal shift.*** This may sound like an impossible aspiration, but the overall level of public transport use in Scotland's larger cities is relatively low by European standards. For example, Scheurer (2013) found that the number of public transport boardings per capita in Edinburgh in 2012 was around half that in Copenhagen and only just above one quarter of the equivalent number in Zurich.¹⁸

There would therefore appear to be the potential for very significant car to public transport modal shift in and around Scotland's two largest cities. How this should be achieved in practice could vary significantly in each, however, given the different infrastructure inheritances of each city region. In Edinburgh, which has very few existing heavy rail stations and a limited suburban network, a key question is over the extent to which tram/train services should be part of the future vision for the city region, and which parts of the existing network could accommodate such services. In Glasgow, the Metro concept implies the physical separation of intensively used Metro corridors from the retained longer distance heavy rail network in a similar manner to many of the S-Bahn regional networks in Germany, with some inner routes operating a highly intensive service pattern to accommodate the scale of overall movement by public transport. In both cases, however, planning for large modal shift will also require careful consideration of planning rail/mass transit and the bus network in a complementary rather than competitive fashion to maximise overall public transport capacity. There will also need to be consideration of how future infrastructure can better facilitate cross-city and circumferential trips as these would reasonably be expected to become a relatively larger part of overall public transport provision given the post-pandemic scenarios discussed above.

The sector has already moved to respond to some of these changes in the timetable alterations that have been achieved during the pandemic. Scottish Government policy has also become more focused on supporting the bus network than it has been for some time, with the pandemic shifting attitudes to the role of market competition and underlining the essential nature of many bus services for key workers. Given the commitment to invest £500m in bus service improvement, we might therefore expect the context for planning the role of rail vis-à-vis the bus (as well as expanded light rail) to change significantly. Achieving genuinely joined up planning between public transport modes will be crucial to achieving the changes required for decarbonisation.

Scotland also has several long distance rural rail routes that accommodate relatively few services. This infrastructure is expensive to maintain and potentially difficult to decarbonise, but it performs a range of important functions from 'lifeline' connectivity for remote communities to supporting tourism. Given the likelihood of much less new road construction in future, and the development of autonomous vehicle technologies, there is an important opportunity to reappraise the form of these corridors and consider whether any redesign of

¹⁸ <https://core.ac.uk/download/pdf/327193994.pdf>

them to achieve decarbonisation also provides the opportunity to reconsider what kind of rolling stock/vehicles might run on them in future, for both passenger and freight services.

What kinds of trips is rail best placed (not) to serve? It seems clear that the mix of journey purposes that make up the overall demand for travel will not revert to pre-pandemic conditions. At this stage, a central scenario would see a smaller share for commuting in terms of overall journeys, and more a more diverse range of cross-city trips especially on the larger Strathclyde network as city trip demand becomes less dominated by radial trips. We also know from research that the fewer days per week people commute to a fixed workplace such as an office, the longer they are prepared to travel for those trips that do remain.¹⁹ This means that we might reasonably expect more remote working to increase the demand for the kinds of middle distance commuting trips into main centres that the rail network is well placed to accommodate in many places, but also that markets such as Ayrshire/Clyde Coast to Edinburgh and Fife to Glasgow might also reasonably be expected to grow. Rail already has the longest average trip length in Scotland at 20km, or roughly three times as far as car: given the location of much of the housebuilding in central Scotland and the North East at this kind of distance from Aberdeen, Edinburgh and Glasgow city centres, there is another highly significant target trip pool in making rail more competitive for these trips. Given that much of this housing is low density and designed for car use, making good on longstanding objectives to achieve true multimodality and a high quality ‘final mile’ solution for trips based on a rail journey will be imperative.

Whilst there has been longstanding attention on interventions to achieve modal shift for shorter trips given the dominance of the car for journeys that can be made by other existing modes, post-pandemic we might reasonably also expect to see a change in the profile of demand for longer distance trips. Given now lengthy experience of using online alternatives, it seems likely that there will be less business travel in future. In contrast, experience from summer 2020 was that the busiest rail services across GB were leisure services, which provides at least anecdotal evidence for people being keen to return to rail when infection levels are low, and for non-work trips that they were keen to make. Equally, given that we know that cars account for more than three quarters of distance travelled but only around 60% of trips, government decarbonisation and car use reduction imperatives suggest that modal shift of longer distance trips from road to rail will also be an increasingly important element of wider transport strategy.²⁰ For domestic Scottish trips, this means that leisure journeys may become an even larger component of inter-urban rail demand. This implies different approaches to fares structures and aspects of service quality compared to an offering focused on business travel.

The uncertainty over future demand for Anglo-Scottish rail travel reflects the tensions between post-pandemic economic shifts and the decarbonisation agenda outlined above. Whilst there may be a continued steep reduction in the number of business trips (especially to/from London), it is also reasonable to assume higher leisure demand. Given that rail (750k pax pa) accounted for roughly one third of the combined rail/air demand for travel between

¹⁹ See, for example,

<https://www.ingentaconnect.com/content/alex/benv/2019/00000045/00000004/art00010>

²⁰ <https://www.gov.uk/government/statistics/national-travel-survey-2017>

Edinburgh/Glasgow and London in 2019²¹, any concerted efforts to achieve air to rail modal shift (such as a measure to restrict the use of central belt – London air travel) would create substantial capacity pressures.

Who pays for rail, and how?

Pre-pandemic, rail was achieving sustained passenger growth despite a longstanding gap between public transport fares and private motoring costs (Figure 8). However, the economic uncertainty of the post-pandemic period presents several further challenges for rail concerning (perceived) affordability. Crucially, government desire to limit rises in the cost of motoring resulted in a freeze in fuel duty for the 11th consecutive year in the 2021 Budget.²² As yet, and despite the evident benefits in terms of decarbonisation, there appears little desire at UK government level to address the divergence in costs between transport modes.

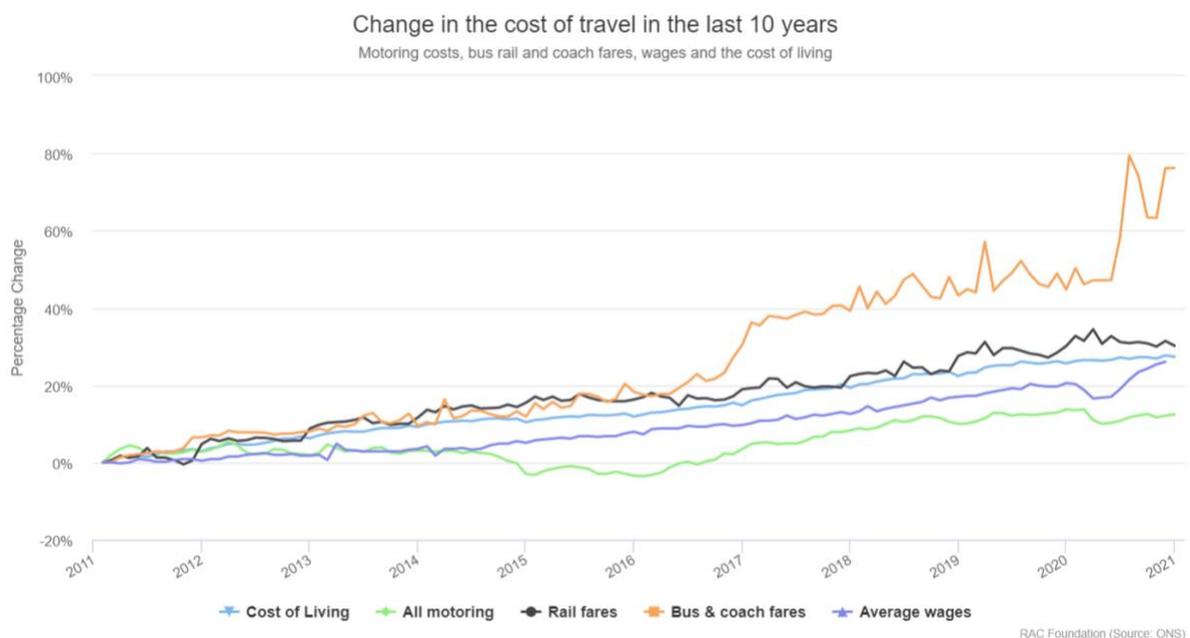


Figure 8: Changes in the real cost of travelling by car, rail and bus.

Source: RAC Foundation, <https://www.racfoundation.org/data/cost-of-transport-index>

Post-pandemic, the failure to confront the relative reduction in the cost of using a car will no doubt impact on rail demand. Equally, the medium term outlook for the Scottish Government’s devolved funding settlement is highly uncertain given a range of political and economic factors ranging from the nature of the fiscal framework to the assumptions about tax revenue growth the current spending commitments are based on.²³ There are a number of other questions that arise:

²¹ <https://www.globalrailwayreview.com/news/61985/record-passengers-travelling-scotland-london-via-rail-rather-air/>

²² <https://www.bbc.co.uk/news/uk-politics-56264885>

²³ <https://fraserofallander.org/tax-and-spending-in-the-scottish-parties-2021-manifestos/>

- **How far will the changing profile of passengers – with more leisure and off peak travel compared to peak commuting and business travellers – in future alter fares yield?** The fall off in use of season tickets is well understood, and in the non-commuting market there is already substantial innovation across Europe in terms of product offer and fares for the leisure market, including SNCF's Ouigo/InOui disaggregation of long distance TGV services and the recent restructuring of the fares framework in Spain.²⁴ Although the context in Scotland is different, many leisure trips are nevertheless 2+ hours in duration, and so the 'product quality' of the journey offer remains a critical determinant of mode choice;
- **What will enhanced government support for the bus sector mean for rail?** Although precise data are sketchy, it seems reasonable to assume that the divergence in bus and train fares in recent years (and in some cases the reduction in bus service coverage and/or quality) has driven bus to rail modal shift, especially across the Strathclyde network. Given the scale of investment planned for bus in Scotland, which encompasses new greener vehicles, significant roadspace priority (including on the motorway network and other key commuter corridors) and potentially fares reform, what will the relative competitive positioning of rail be in the public transport fares mix?;
- Any substantive transfer of the existing heavy rail network in Strathclyde to a new metro system will precipitate a **change in ownership/operator structure and reappraisal of fares across the Glasgow city region** (if this doesn't happen sooner). If more of the urban 'rail' network moves to continental style zonal or fixed fares – potentially along the lines of the '365 Euro city'²⁵ model of low annual multi-modal season tickets – what does this mean for the relative pricing of continuing heavy rail fares? Under such a system, any modest flat fare within the Edinburgh or Glasgow city areas would make £30 peak return ticket between them appear absurd to many travellers;
- **How long will government continue to support the vastly increased subsidy requirements put in place during the Emergency Management Agreements?** Given the challenges facing the sector to achieve recovery outlined throughout this report, it seems extremely difficult to see how rail can recover its income levels to pre-pandemic levels in the medium term. There will therefore almost certainly be a renewed debate about the split of funding between taxpayer and farebox, and the cost base of the industry as a result.

This last point is crucial. Given the likely economic circumstances post-pandemic, it seems infeasible for the rail sector to continue operations without radical efforts to reduce the cost base. There is therefore a classic crisis/opportunity dilemma for the sector to address in

²⁴ <https://www.railjournal.com/news/renfe-announces-new-passenger-fare-structure/>

²⁵ <https://www.theguardian.com/world/2019/jul/09/vienna-euro-a-day-public-transport-berlin-365-annual-ticket>

determining its actions during the period in which increased government support appears secure. Two principal challenges following on from this are:

- **Revenue spend:** How can the sector reduce its ongoing revenue requirement so that it presents a more sustainable cost base to government? This will at the very least require revisiting of difficult and long avoided questions of the size and role of the workforce, and whether legacy business activities such as the provision of ticket offices is viable in future. 25% of workforce is projected to retire or leave the sector for other reasons in the next 5 years. These three factors provide a unique platform to modernise and reduce staff costs quickly. There is also a clear opportunity to explore how digital technologies and automation of certain functions could reduce revenue spend, but this will require addressing 'difficult' cultural and political questions. In the short term, maintaining a more efficient timetable of the kind achieved during the pandemic will be essential to ensure ongoing commitment to the financial case for rail, but immediate service reductions such as reduced frequencies must be balanced against the medium and longer term objectives to significantly expand the role of rail in the mobility mix ;
- **Capital spend:** How can available capital be deployed to lock in reduced revenue requirements in future? Given the scale of investment in decarbonisation, it will be essential to deliver a traction strategy that makes the lifetime operating costs of newly electrified (or hydrogen powered) assets as low as possible. 75% of the ScotRail train fleet is due to be replaced in the next decade. New fleets will have greater carrying capacity with fewer vehicles, are more energy efficient and track friendly and need approximately 50% less maintenance than existing fleets. In theory, this equates to a 10% reduction in rolling stock costs, but can this be achieved given rail's patchy track record in achieving reduced opex costs through capital investment? Indeed, given the scale of the scope to achieve modal shift around Glasgow, achieving long term savings through modernisation will be the central focus of any approved business case for the Metro concept. A revised appraisal methodology including whole life capital and revenue cost scenarios must therefore be a central component of any strategy to transfer existing heavy rail assets to the new Metro system around Glasgow in order to maximise the 'passenger per pound invested' return.

7 Conclusions

No-one currently working in the UK transport sector has lived through a policy crisis of this nature and magnitude. High levels of uncertainty about the future remain, and are likely to do so for some time. In particular, the scale of the effects of the unprecedented 'avoid public transport' messaging discussed above, and the longer term structural changes in the economy arising from the experience of working from home and moving business activity online, remain unpredictable. Given the composition of its historic passenger base, rail is particularly exposed to these changes.

In summary, some of the key travel behaviour changes we might expect to set the context for recovery are:

- Recovery in overall public transport patronage will likely take a long period of time, more like years than months, and potentially build slowly;
- Working from home would be lower than it was during pandemic restrictions once the 'return to the office' eventually takes hold, but will remain very much higher than pre-COVID;
- Business trips are unlikely to return to near pre-pandemic levels because of the cost and productivity advantages of, and levels of experience in, using internet teleconferencing tools;
- The shift to more home working has the potential to lead to fewer but longer commutes by relocating further away from workplaces that are travelled to less often.

There are, however, significant longer term upsides:

- Scottish Government commitment to the decarbonisation agenda has been reaffirmed during the pandemic and there has been general public- and political acceptance that a reduced level of road traffic is not only possible but in many ways desirable;
- The move to a less peaky distribution of trips overall presents the opportunity to use the wider capacity of the rail network to accommodate a much greater share of overall travel demand;
- Given the 20% reduction in road traffic target, it is reasonable to suggest that if overall travel demand recovers to pre-pandemic levels, then we need to plan for (roughly) a doubling of rail demand compared to 2019 levels (this would be roughly equivalent to Swiss rail modal share pre-pandemic²⁶);
- Pandemic recovery represents a once in a generation opportunity to align service patterns with new demand profiles. In the short term this suggests recasting the timetable to reduce costs and match capacity with demand as efficiently as possible; in the longer term strategic questions about which journeys should be catered for by heavy rail and which parts of the network would be better transferred to light rail emerge.

Whilst there are therefore clearly evident threats to the financial profile of the rail network, there is no feasible decarbonisation trajectory for transport that does not incorporate

²⁶ <https://www.voev.ch/fr/Bienvenue>

substantial increases in the numbers of passengers (and probably levels of freight) carried by rail. In short, the decarbonisation imperative means that ***planning for rail post-pandemic should be framed in terms of how it can meet the requirement to play a larger role, not forecasts about how it might do so.***

In summary, the over-arching objective for rail in Scotland post-pandemic is therefore to maximise the use of existing infrastructure and ensure that investment is targeted to help deliver substantial modal shift away from the car, whilst reducing the ongoing revenue support requirement of the network to sustainable levels.

There are critical decisions to be made in the short term in order to achieve this:

The industry and Scottish Government via STPR2 need to focus on policies to deliver car to public transport modal shift, and agree a strategy to maximise this in order to achieve adopted car travel reduction and decarbonisation targets;

Given the location trends of housing development in recent decades, there needs to be particular focus on facilitating 'final mile' solutions so that the main mode for mid range trips (10-50km) are shifted from car to rail. This will require efforts from both the industry (station car parking and active travel integration) and government (pricing and planning interventions to influence trip destinations);

There needs to be thorough reappraisal of the role of rail in the overall mobility mix, specifically the potential to make more intensive use of existing infrastructure in and around the major cities, where the number of trips that can be moved to rail is high. In particular, the specification of the emerging Glasgow Metro network needs to be focused on providing the maximum possible capacity for trips within the city region given the scale of existing infrastructure and its potential for more intensive utilisation;

Following on from the above, there should be a delivery plan for the transition to Glasgow Metro – and tram/train in Edinburgh and potentially Aberdeen – agreed as quickly as possible in order to ensure that short term investment decisions made as part of post-pandemic recovery planning are future proofed as far as possible. Understanding the implications of decisions (on route selection, rolling stock type etc) at each stage of the decision tree is crucial;

Given the likely increasing importance of longer, less frequent commuting and non-radial trips as part of a more complex trip pattern/mobility/digital accessibility 'blend' of economic activity in future, the rail sector needs to consider how cross-city trips can be accommodated and what additional infrastructure might be required;

The pandemic has revealed how recent definitions on 'efficiency' in the rail sector in terms of maximising peak demand has in fact masked its fragility, especially in terms of its financial robustness given changing travel behaviour. The sector should develop a strategy to harness new technology to reduce its operational cost base, improve its resilience and achieve financial sustainability for the long term. This will require amongst other initiatives a thorough review of workforce planning across the industry.

