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ScotRail Peak Fares Removal Pilot Final Evaluation Report

An analysis of the Fair Fares Review Pathfinder project

Contents

Summary

As part of the Fair Fares Review, a pathfinder Pilot was established, the "ScotRail Peak Fares Removal Pilot" (the Pilot) to encourage modal shift from car to rail by reducing the cost of travel at peak times, for a period of initially six months between 2 October 2023 and 29 March 2024 and eventually a full year to end September 2024. The aims and objectives of the Pilot were as follows:

- Improve awareness of rail as a viable travel choice
- Improve access to rail by reducing the cost of travel at peak times, enabling more people to travel more often
- Reduction in private car travel as more people choose to travel by rail

The survey results suggest that the Pilot has been successful in improving awareness of rail as a viable travel choice with over 80% of survey respondents stating that they were making more trips by rail and of these, around ¾ suggested that the primary reason for this was the Pilot. The Pilot did significantly reduce the cost of travel by rail at peak times with the average saving across all ticket types being around 17% and significant savings were reported by users.

The analysis undertaken is heavily influenced by the choice of counterfactual – what would have happened had the Pilot not been in place. This is made more complicated by the recovery path of rail passenger demand from the pandemic. A number of scenarios were assessed and used for detailed modelling. The scenario viewed as most realistic – that without the Pilot in place, demand would have returned to 90% of pre-pandemic levels as reflected across the rest of the UK – results in an increase in demand from the pilot of 6.8%. This represents around 4 million extra rail journeys over nine months, of which 2 million are journeys that would previously have been made by private car. This is in the context of around 5 billion annual private car journeys in Scotland and represents a reduction of less than 0.1% of car based carbon-emissions.

There remains some uncertainty around the demand impacts, with a more negative view suggesting that the impact was instead around 2.4%. This has a resultant impact on the estimates of costs which are in the annual range of £25 million to £30 million per annum (in 2024 prices) with the possibility of being as large as £40 million. Noting that these figures include the additional costs incurred by ScotRail as well as the net loss of revenue.

There are regional variations in the impact with the greatest being observed in the Central Belt, specifically on the East Suburban network around Edinburgh and the Express Edinburgh to Glasgow routes. There is some evidence that the pilot has encouraged commuting from smaller towns into larger population centres, but this is localised and may be better addressed by looking at individual fare levels.

The Value for Money (VfM) analysis, suggests that the removal of ScotRail peak fares has a Benefit Cost Ratio of between 1.2 and 1.5 or between £1.20 and £1.50 of value for each pound of cost. Taking into account the relative incomes of those benefiting (tending to be those on above average income), reduces this to 1.0 to 1.25. **This represents between £1 and £1.25 of value for every £1 spent.**

The surveys undertaken have identified some emerging evidence of sustained behaviour change arising from the Pilot, including shifting the time of travel from off-peak to peak and mode shift from car to rail. This evidence suggests around half (52%) of existing rail users who changed their behaviour because of the Pilot, have made at least one rail journey that they previously made using another travel mode, with half of those journeys from car. Of those new rail passengers identified as switching from other modes, 54% had previously used a car as a driver, and a third had switched from bus. However, this is in the context of an increase in an estimated increase in demand of 2.4% on the lower end and 6.8% at the higher end – **meaning the vast majority of the increase in passengers were existing rail users making existing journeys.**

There is some moderate evidence that the Pilot has encouraged rail use amongst low to middle income households whilst primarily benefiting existing users who tended to be above average income**.** There is strong evidence that the Pilot has helped existing users who are in work and encouraged greater rail travel amongst this group but has had a lower impact in encouraging full-time workers who did not use rail to use it**.** In terms of age, there is some, relatively weak evidence that the Pilot has encouraged older users to use rail when they didn't before and has encouraged 31- to 40-year-old existing users to travel more by rail.

In summary, the Pilot has been somewhat successful in meeting the objectives of increasing awareness of rail and improving access but has had minimal impacts on overall car travel and has tended to benefit those on higher incomes within the Central Belt. What is clear, however, from the robust analysis undertaken, is that there has not been a significant shift from car to rail use and limited impact in terms of meeting the First Minister's priorities for Scotland.

Introduction

This paper provides an evaluation of the impact of the removal of peak fares from the ScotRail network. It covers the period from the introduction of the Pilot in October 2023 to the beginning of July 2024. Whilst it does not cover the full year of the extended Pilot, the commitment to make a decision on the future of the policy before it ended means that analysis has to be conducted at this point, due to the time required for changes to be made to rail pricing systems).

Background

Our public transport system is a key enabler for growth and opportunity – providing the vital link between where people live, learn, earn and socialise. Access to affordable and reliable public transport services helps people and communities unlock opportunities to connect to jobs, education, retail, public services, leisure, recreation and social and family networks.

A sustainable and viable public transport system is also vital in achieving our ambitious targets on climate change mitigation. Scotland`s National Transport Strategy (NTS2) sets out a vision that:- *"We will have a sustainable, inclusive, safe and accessible transport system, helping deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors."*

The Scottish Government published the "Fair Fares Review" on 22 March 2024. The Review sets out our aim to ensure the public transport system is more accessible, available, and affordable, with the costs of transport more fairly shared across government, business, and society. It also highlights the challenges facing public transport and presents options on the immediate to short and medium to long-term actions that are available to reform our current transport offering ,to support delivery of a quality, accessible, available and affordable integrated public transport system.

As part of the Fair Fares Review, a pathfinder Pilot was established (the "ScotRail Peak Fares Removal Pilot") to encourage modal shift from car to rail by reducing the cost of travel at peak times for a period of six months between 2 October 2023 and 29 March 2024. As part of the 2024/25 Scottish Government Budget, this was subsequently extended for a further three months scheduled to end on 28 June 2024 and extended again for a further three months to the end of September 2024 following the appointment of John Swinney as First Minister. This has resulted in the Pilot running for a full twelve months, allowing 9 months of data to be analysed to provide a robust assessment of the impact.

ScotRail has removed the timing restrictions on the off-peak fares and products which they set and control that are currently only valid on off-peak services, so they are valid to travel all-day. No other train operators are participating in the Pilot.

The pattern of fare changes also varies significantly geographically. See Table 1.

Table 1 – Demand-weighted Anytime (Day) Return fare reduction by geography

Area	Far North	Aberdeen & NE	Dundee - Stirling	West Highland	Edinburgh	Inner Glasgow	Outer Glasgow	SW Scotland
Far North	-1%	-28%	-17%	-4%	-19%	-19%	-19%	-20%
Aberdeen & NE	-28%	-21%	-14%	-17%	-22%	-21%	-20%	-19%
Dundee - Stirling	-17%	-14%	-20%	-20%	-32%	-35%	-23%	-20%
West Highland	-4%	-17%	-20%	-4%	-22%	-9%	-9%	-5%
Edinburgh	-19%	-22%	-32%	-22%	-33%	-41%	-37%	-31%
Inner Glasgow	-19%	-21%	-35%	-9%	-41%	-34%	-34%	-31%
Outer Glasgow	-19%	-20%	-23%	-9%	-37%	-34%	-34%	-29%
SW Scotland	-20%	-19%	-20%	-5%	-31%	-31%	-29%	-30%

There are significant savings on some flows and some of the examples highlighted in the promotion of the trial are:

- Edinburgh – Glasgow (£28.90 to £14.90)
- Inverkeithing – Edinburgh (£11.10 to £6.50)
- Perth – Dundee (£14.40 to £9.90)
- Glasgow – Stirling (£16.10 to £9.60)
- Inverurie – Aberdeen (£11.10 to £8.90)
- Inverness – Elgin (£22.00 to £14.40)

Purpose

The aims and objectives of the pathfinder Pilot are as follows:

- Improve awareness of rail as a viable travel choice
- Improve access to rail by reducing the cost of travel at peak times, enabling more people to travel more often
- Reduction in private car travel as more people choose to travel by rail

Methodology

The impact on demand has been estimated using the same econometric approach that was used in the TS Interim report that covered the period to mid-May 2024 (ScotRail Peak Fares Removal Pilot - Interim Evaluation Report | Transport Scotland) but applied to data to 3 July 2024. Details of the methodology can be found in Annex A but the basic approach is to estimate the impact of the Pilot using a "dummy variable" (1 when it is in place, 0 otherwise) and an additional trend variable alongside a range of other variables to account for factors such as the day of the week, wider seasonality, bad weather, large scale events and the impact of the fare rise in April 2024 as well as general levels of (road) travel across Scotland. The analysis is undertaken at National level and then across the 5 ScotRail service groups.

Value for Money is calculated using the Transport Model for Scotland (TMfS) calibrated to the actual results from the econometric analysis. Whilst the nature of the Peak Fares Pilot is different to a "normal" transport infrastructure project (in that it simply changes price rather than the network) ***the methodology used to determine VfM (including carbon savings) is identical to that normally used*** across all transport investment– the benefits arise from changes in the Generalised Cost of Travel (Time and Money) to existing and new users, as is standard for any other scheme, meaning the results are consistent with the analysis of other (including infrastructure) projects. See Annex B.

The only distinctions are that for existing users, there is no change in the time component of Generalised Cost and that there is no infrastructure cost to Government – costs are the net impact on revenue and additional costs incurred by SR and the subsequent changes to the ScotRail level of subsidy required. New users during the Pilot, as measured by the change in demand, switch to rail because they are better off in terms of either time or money or both and this is captured in a standard way by the analysis.

The impact on revenue is calculated in 2 ways:

- similar econometric analysis to that on demand but with revenue as the dependent variable
- and by the approach developed using the Transport Model for Scotland (TMfS) whereby a run of the model was undertaken before the results of the trial were known and then set-up in such a way that the results can be calibrated to the estimated impacts on demand.

The counterfactual

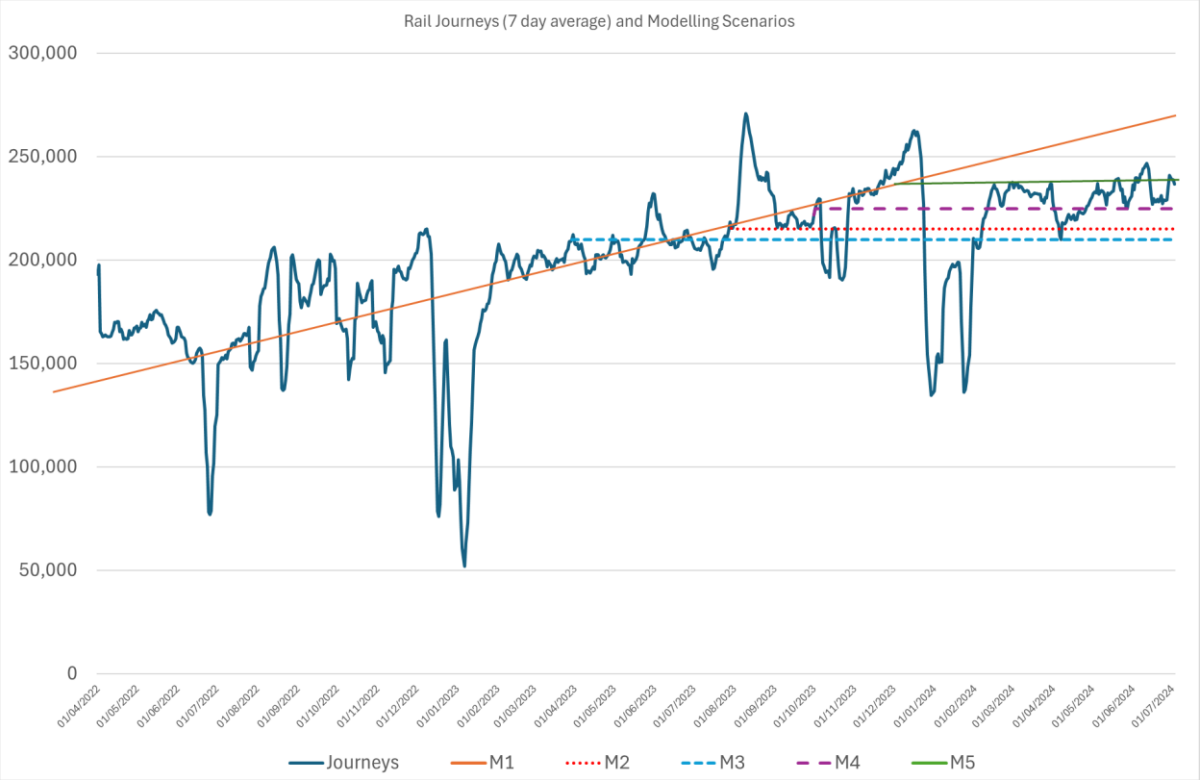
As discussed in the Interim report, the key analytical issue for analysing the Pilot is around what would have happened if it had not been in place – the counterfactual. Significant work has been undertaken examining possible scenarios.

5 main scenarios have been considered. The key factor is how demand recovered compared with pre-Covid 19 levels before the Pilot started and how this would have continued in the absence of the Pilot. There remains considerable uncertainty around the counterfactual which means that results are presented as a range.

- M1 - Assume recovery trend pre-Pilot continued.
- **M2 - Assume recovery stabilised at 90% of pre-C19 demand (Demand at end Jul 23) – Equivalent to the rUK position and considered the primary scenario**
- M3 - Assume recovery stabilised at 80% of pre-C19 demand (Demand at end Mar 2023)
- M4 - Assume recovery stabilised at end Sept 2023 (Before trial started)
- M5 - Assume recovery trend continued to 100% pre-C19 demand (End Nov 2023) and then would have stabilised at this level

Discussion of scenarios

The scenarios are illustrated in the diagram below. Note that the “Journeys” line shows actual demand and does not account for variations due to external factors – the large dips and peaks in demand in the diagram - the subsequent econometric analysis takes these into consideration.



Scenario M1 assumes demand would have grown significantly above pre-C19 levels and would have been at around 115%-120% of Pre-C19 levels by July 2024 which is significantly higher than the actual levels seen.

Scenario M2 matches rail demand in the rest of the UK (broadly, estimates are that UK rail demand has recovered to 87% of pre-C19 levels, ignoring the new Elizabeth line in London) and it matches the data in the period preceding the Pilot. The M2 scenario is considered to be the strongest and closest to likely actuals of those considered. But there are a number of reasons (that are difficult to formally assess analytically) why it can be considered as being at the high end of a range:

- less industrial action (in 2023-24) in Scotland meaning demand in the rest of the UK is depressed compared with Scotland
- impact of public ownership in Scotland (potential positive impact)
- growth in leisure market in Scotland due to tourism (higher tourism numbers relative to population)
- whilst demand was above M2 levels over the first few weeks of September 2023 (before the Pilot started) there is evidence (see later econometric results) that this was due to seasonal factors and one-off events.
-

Scenario M3 (demand stabilised at 80% of pre C-19) levels is included primarily for illustration purposes. Scenario M4 is a prudent view i.e. demand was stable before the Pilot started. Scenario M5 (that demand would have recovered to pre-C19 levels without the Pilot in place is included for illustrative purposes only – there is no real evidence that this would have been the case (particularly in comparison with the position in the rest of the UK0.

Results

This section details the results in terms of demand, costs and value for money.

Demand

The results of the econometric modelling are shown in the table below.

	M1: Model 1 All Basic	M2: Model 2 All T90 Pre-Covid Demand	M3: Model 3 All T80 Pre-Covid Demand	M4: Model 4 All T Oct23	M5: Model 5 All T100 Pre-Covid Demand
% Increase in Demand over Trial Period	-5.07%	6.81%	15.90%	2.36%	0.0%
Fare change	-16.8%	-16.8%	-16.8%	-16.8%	-16.8%
Elasticity	0.30	-0.41	-0.95	-0.14	0.00

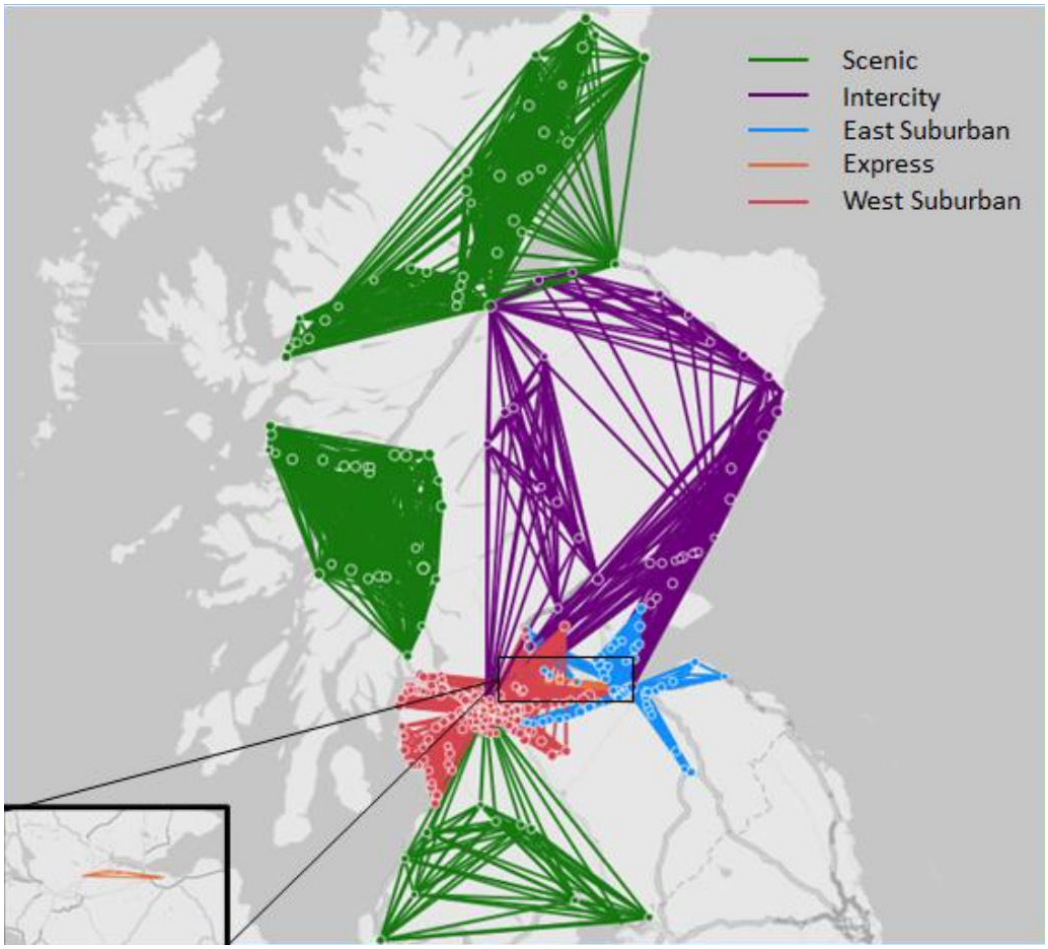
The preferred scenario (M2) shows that the best estimate of demand impacts is that the Pilot increased demand by around 6.8%. This is subject to considerable variation with the M4 scenario (demand stabilised before the Pilot) showing an increase in demand of 2.4% and the M5 scenario (that demand would have increased to pre-C19 levels) showing that the Pilot had no impact. Scenario M1 and M3 are considered to be out with a reasonable range (giving results of a reduction of demand of around 5% and an increase in demand of around 16% respectively).

Whilst the M2 scenario is used for subsequent regional analysis, it is reasonable to suppose that the results lie between M2 and M4 – an increase in demand of between 2.4% and 6.8%.

Regional variations in demand

There is significant regional variation. The Table below shows the impact across ScotRail Service Groups (SRSG) which are illustrated in the diagram.

Figure – Scotrail standard service groups (Origin/Destination of journeys)



The implied elasticities, which account for other factors outwith the trial, are in line with ranges within the Passenger Demand Forecasting Handbook. Elasticities on Express (Edi-Glasgow via Falkirk High), Intercity and West Suburban are similar with the differences in demand change arising from different changes in the average fare.

	Express T90	Intercity T90	West Suburban T90	East Suburban T90	Scenic T90
% Change in Demand Over Trial Period	8.86%	3.54%	7.07%	13.66%	6.45%
Fare change	-27.5%	-9.2%	-17.0%	-16.9%	-8.3%
Elasticity	-0.32	-0.38	-0.42	-0.81	-0.78

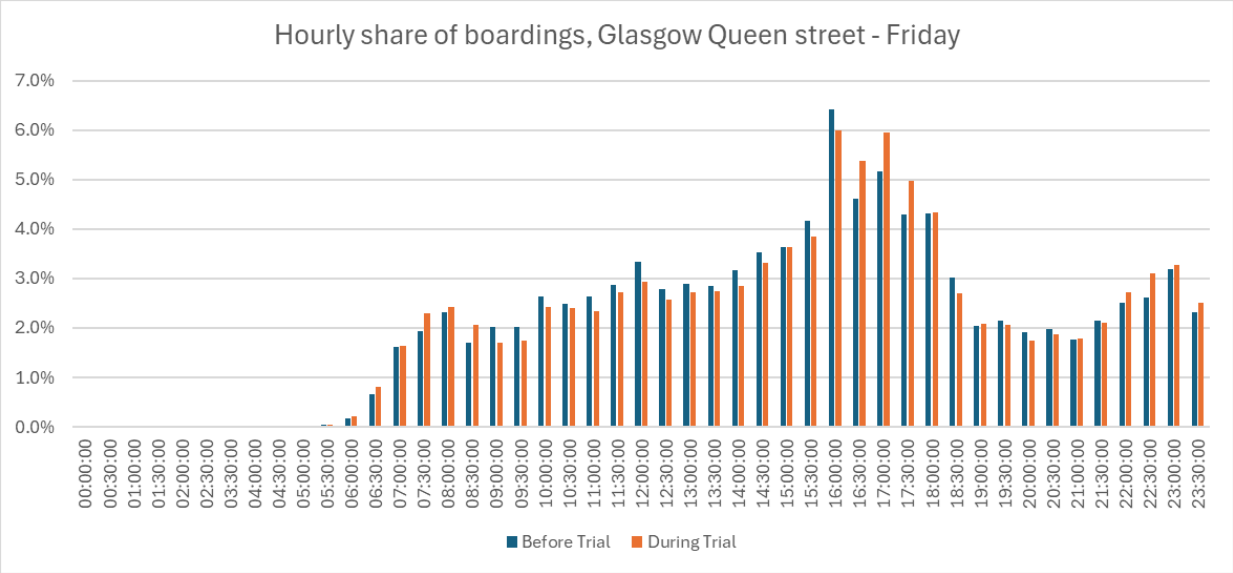
Elasticities for East Suburban and Scenic are higher (more sensitive) but subject to considerable variation at sub-SRSG level. At all SRSG levels the elasticities are between 0 and -1 which means that demand is inelastic (the demand response is lower than the change in price) with respect to price. The impacts in terms of demand are highest on East Surburban routes and Express (Edinburgh-Glasgow via Falkirk High) with the West Suburban next highest meaning that the impacts are greatest in the Central Belt.

Analysis of Gateline data

Gateline data (boardings, alightings and total) is available for 17 stations (22 platforms) on a half-hour basis for the period 1/10/22 to 2/7/24. The 17 stations are:

Aberdeen, Anderston, Argyle Street, Bathgate, Charing Cross, Dundee, Edinburgh Gateway, Edinburgh Park, Exhibition Centre, Glasgow CenP 3-6, Glasgow CenP 7-8, Glasgow CenP 9-10, Glasgow Central LL, Glasgow CP11-15, Glasgow Qn St LLv, Glasgow Queen street, Haymarket, Inverness, Motherwell, Perth, Stirling, Waverley

Note that there are several caveats with the usefulness of the data in terms of assessing the impact of the peak fares Pilot. The extent of it (approx. 1.5 million data points) means it is difficult to present but it should also be noted that when stations are particularly busy, the gatelines tend to be switched off to avoid crowding etc. and some stations are known to do this more commonly than others due to the physical layout presenting greater issues. A further issue is that the analysis is focused on boardings (as these can be accurately mapped to the am and pm peaks). Alightings are more problematic as there is no way of knowing (especially in the PM peak) at what time any particular journey started (and thus if it was previously subject to a peak fare) as there is no station-to-station information.



The example above shows the hourly share of boardings at Glasgow Queen Street (High Level) on Fridays for illustration purposes rather than reporting everything. Flows into Glasgow Queen Street show a significant impact Mon-Fri of an increased share of demand in both the AM and PM peaks with the biggest impact between 17:00 and 17:30. There is little to no sign of peak spreading in terms of overall share of demand. There is significant nighttime demand on a Friday which has increased during the trial period.

In terms of other stations, Haymarket shows increased PM Peak demand (and to a lesser extent in the AM Peak) but at a lower level than Queen Street. There is a less pronounced Friday evening impact. Stirling shows significant increases in the PM peak (significantly greater than at other stations examined). This is most pronounced Monday to Thursday. For Inverness, there is relatively little AM and PM peak demand, and it is relatively unchanged over the trial with minor increases in the PM Peak on Wednesdays and Thursdays. Aberdeen shows small increases in AM Peak demand and no real pattern to the changes on PM peak. The biggest impact is a significant increase in demand over the 15:30 to 16:00 period. This may be due to timetable changes.

Looking across all 17 stations the overall picture is in line with the wider demand estimates with some localised exceptions (eg Motherwell) which are likely to be due to timetable changes and interactions with other train operators.

Impact on costs

The impact on cost is primarily driven by the estimated impact of changes in demand generating additional revenue to offset that lost by the reduction in fares. Then the additional costs incurred by ScotRail are added to this estimate.

The current estimated additional costs are £2.5 million over the initial trial period (to end June) or £3.3 million per year but this includes the Trainline costs (for changing fares etc) which arguably should not be included as a permanent estimate giving an annual cost £2.7 million. A figure of £3 million has been used in subsequent analysis for the additional annual cost.

In terms of the impact on revenue, the econometric approach suggests a net loss in revenue of £12.7 million over 9 months, which annualised would be £17 million, giving an annualised total of £20 million (including additional ScotRail costs).

The TMfS approach suggests an annualised total of £17 million (M2 or main scenario) or £37 million (M4, the low impact scenario)) (including the additional SR costs) which illustrates how sensitive the results are to the demand assumptions made. ScotRail estimate the cost to be between £20 million and £27 million on an annual basis including the additional costs.

A prudent view of annual costs would be in the range of £25 million to £30 million with a (less likely) downside scenario of up to £40 million.

Estimates of Value for Money

Using the demand and cost information for the M2 preferred scenario, the estimated Benefit Cost Ratio of the project (on an annual basis as per standards) is in the range 1.4 to 1.5 (depending on the cost assumptions used).

In terms of sensitivities, the M4 scenario reduces this to 1.2, although to further complicate this scenario there is a significant impact on VAT which would accrue to UKG rather than SG without full [and accurate] VAT assignment in place. Accounting for this would reduce the BCR for SG alone to 1.1 although it is general practice to look at the overall impact rather than that solely to Scottish Government.

Thus, a prudent range for the value for money is between 1.2 and 1.5 – benefits of between £1.20 and £1.50 for each £1 spent.

HMT Green Book guidance also suggests that “Distributional weighting” may be undertaken to account for the income levels of those who are benefiting from the intervention. See The Green Book (2022) - GOV.UK (www.gov.uk). Given that rail users are on average of higher than median income this weighting reduces the impact by around 17% (using income data from the Scottish Household survey). This results in a Value for Money range (in terms of Benefit Cost Ratios) of between 1.0 and 1.25 or between £1.00 and £1.25 of benefits for every £1 spent.

Extent of demand impacts, Mode Shift and Carbon savings

In terms of numbers of passengers, the Pilot resulted in up to around 4 million extra rail journeys over the 9 months from October 2023 (based on the 6.8% demand figure) of which half of new passengers switched from private car (from both the

TMfS and Survey results). This removal of around 2 million car journeys over 9 months is in the context of around 5 billion private car journeys annually in Scotland.

There was some shifting from bus but discussions with bus operators suggested that this was not significant and was more than outweighed by growing demand from the U22 concessionary scheme. The modelled scale of abstraction from bus was small (around 1 million bus journeys which represents around less than 0.25% of bus journeys) and was overshadowed in reality by an ongoing increase in patronage from the U22 concessionary scheme.

The value for money analysis includes around £1.5 million of monetarised CO2 savings (from reduced car use). This represents less than 0.1% of car emissions (around 5 Mt in 2022).

Public Survey Results

The focus for the Transport Scotland data collection was to understand the wider impact of the Pilot on the transport network alongside existing rail customers. Two survey waves were completed. Wave 1 Survey fieldwork was during the first 3 months of the Trial - December 2023 and the survey was open for four weeks and 1476 responses were received. Wave 2 Survey fieldwork was conducted in July 2024 and 2248 responses were received.

The TS online survey was designed to target four distinct population groups to understand the impact the Pilot had on; existing and new rail users as well as non-rail users.[1] The surveys have identified some emerging evidence of sustained behaviour change arising from the Pilot, including shifting the time of travel from off-peak to peak and mode shift from car to rail. This evidence suggests around half

[1] The four target groups included: Group 1 – Rail users, who do not change their behaviours; Group 2 – Rail users, who do change their behaviours; Group 3 – Non-Rail users, who do change their behaviours; Group 4 - Non-Rail users, who do not change their behaviours

(52%) of existing rail users who changed their behaviour because of the Pilot have made at least one rail journey that they previously made using another travel mode, with half of those journeys from car. Of those new rail passengers identified as switching from other modes, 54% had previously used a car as a driver, and a third had switched from bus. However, this is in the context of an increase in demand of 2.4% on the lower end and 6.8% at the higher end. – **meaning the vast majority of passengers were existing rail users making existing journeys.**

There is some moderate evidence that **the Pilot has encouraged rail use amongst low to middle income households whilst primarily benefiting existing users who tended to be above average income**. Despite this, from Wave 2 respondents, the benefits reported from making new trips by rail and switching from a different mode of travel were consistent across all household income bands. Higher income bands were more likely to be switching from private car (as a driver) compared to lower income groups who were likely to switch from bus. In terms of *new trips,* there was an increase in respondents making new trips between Wave 1 and Wave 2, but the frequency of these trips has decreased and are mainly cited as being for leisure rather than commuting purposes.

There is strong evidence that **the Pilot has helped existing users who are in work and encouraged greater rail travel amongst this group but has had a lower impact in encouraging full-time workers who did not use rail to use it**. In terms of age, there **is some, relatively weak evidence that the Pilot has encouraged older users to use rail when they didn't before and has encouraged 31- to 40-year-old existing users to travel more by rail.**

More detailed information from the survey is available in Annex C.

Annex A - Econometric Analysis

The full list of variables is as follows:

Table - Variables used and description.

Variable	Description
Constant	A standard constant or intercept
Trend	An overall trend growth rate – varies and choice has a strong influence on results. The preferred version is that in which demand stabilises pre-trial at 90% of pre-C19 demand in line with rail demand across the UK. From Scenarios M1 to M5
PFT Dummy	A Peak Fares Trial Dummy - A variable that takes the value 1 from October 1 2023 and 0 before and allows a shift in demand from the Pilot to be estimated
PFT trend	A trend variable from October 1 2023 that allows the ongoing impact of the Pilot to be estimated
Day of the week variables	Wednesday is chosen as the base and Sunday, Monday, Tuesday, Thursday, Friday and Saturday variables take the value 1 on relevant day of the week to allow daily variations to be captured*
Month variables	Similar to the Day variables, September is chosen as the base* (All other months take the value 1 when applicable). This is a standard way of capturing seasonal impacts.
XmasNewYear	To account for distinctly different travel demand over the Christmas and New Year period.
Sport	1 if there was a major sporting event that would be assumed to influence rail demand on the day
Concert	1 if there was a major concert or cultural event on the day
Strike	1 if strike action within Scotland.
Bad weather	1 if yellow weather warning on day
Extreme weather	1 if major weather event on day.
Travel demand difference	Proxy variable for general travel demand. Is the variation in road travel demand from the equivalent period in 2019 as percentage variation. Various specifications tested and make no difference to other results and just vary interpretation of this variable.
Fares Rise	A dummy variable to account for the rise in fares in April 24

*Note that the choice of the base has no impact on the overall results only the interpretation – for example, the Day variables show the impact of each day compared with the base (Wednesday).

Example results for the main Scenario (M2) are shown below.

Table – Regression results M2 Scenario

Variable	*Coefficient*	*Std. Error*	*Star rating*
	Coefficient	*Std. Error*	
const	115161	8841.09	***
PFT_Dummy	14177.6	2305.87	***
Trend_to_90PCD	122.293	6.37062	***
Xmas_New_Year	-50897.1	4876.11	***
Sat	16662.1	2599.02	***
Sun	-92459.4	2565.98	***
Mon_	-16650.6	2559.99	***
Thur	5670.76	2554.08	**
Fri	21615.1	2562.89	***
Sport	15248	3381.03	***
Concert	17338.6	4457.12	***
Strike	-116852	5084.33	***
Weather	-26818.4	3801.96	***
Extreme_Weather	-74399.2	9352.31	***
Travel_Demand	544.253	89.2585	***
Jan	-19605.7	3249.88	***
June	-9196.58	2650.52	***
July	-10861.2	3072.91	***
Aug	16015.1	3154.37	***
Dec	6586.5	3477.24	*
R-squared	0.84	Adjusted R-Squared	0.84

The approach used is a “General to Specific” methodology – all variables are initially included, and a model estimated. Then the most statistically insignificant variable is excluded and the model re-run. This is repeated until all remaining variables are significant.

The full results for the main scenarios are shown in the table below.

	All Basic	*All T90 PCD*	*All T80 PCD*	*All T Oct24*	*Express T90*	*Intercity T90*	*West Suburban T90*	*East Suburban T90*	*Scenic T90*	Revenue
const	114767	115161	110084	114767	10184	11552	78381	11836	4319	565478
PFT Dummy		14178	15906		1700		9396			-46275
Trend	122									
Trend to 90PCD		122			10	13	76	18	6	523
Trend to 80PCD			157							
Trend to OCt23				122						
Peak Fares Trend	-85		105	37		5		24	4	
Xmas/New Year	-51627	-50897	-50230	-51627	-6197	-4524	-33263	-5671	-1436	-204006
Sat	16636	16662	16648	16636	3386	1830	6845	2904	1767	
Sun	-92550	-92459	-92468	-92550	-5819	-7612	-63205	-11780	-3966	-347206
Mon	-16609	-16651	-16523	-16609	-2261		-11638	-2189	-298	-49177
Tue										
Thur	5630	5671	5817	5630	917	513	3366	645	349	17879
Fri	21607	21615	21887	21607	1545	2769	13982	1890	1556	66359
Sport	15514	15248	16018	15514	2128	782	9928	2059	335	47833
Concert	17224	17339	16715	17224	2770		12226	1715		71306
Strike	-117078	-116852	-117612	-117078	-7240	-12842	-77434	-14257	-4988	-444002
Weather	-23972	-26818	-25197	-23972	-2559	-3678	-15692	-3111	-1123	-100841
Extreme Weather	-73874	-74399	-74502	-73874	-5331	-5372	-51744	-9458	-2736	-239081

	All Basic	*All T90 PCD*	*All T80 PCD*	*All T Oct24*	*Express T90*	*Intercity T90*	*West Suburban T90*	East Suburban T90	Scenic T90	Revenue
Travel Demand	550	544	562	550	55	56	334	78	25	1853
Jan	-19024	-19606	-27058	-19024	-2608	-2938	-11669	-2921	-1615	-175744
Feb			-12502		-1038	-1307		-1209	-728	-110654
Mar			-10700					-1249	-476	-63056
Apr					-739	2081	-5477	881	1025	-25636
May						1755	-3800		888	
June	-10284	-9197	-9966	-10284	-643		-9274	-1104		-38154
July	-11145	-10861	-9330	-11145	-1245	1264	-12548			-39263
Aug	14858	16015	18061	14858	3617	2110		5901	2113	68262
Oct						-752			-356	-40837
Nov									-829	-47239
Dec	8130	6587		8130	1166	-1595	4553	1429	-504	-60871
Fares Rise			-19685			-1684		-2442	-724	

Annex B - Value for Money Analysis

The methodology for assessing the Value for Money (VfM) of the policy change was developed specifically for the Pilot. Normally, appraisal of transport interventions is undertaken before they are in place, using standard tools and techniques to predict the impact of options and following delivery. This is followed up by evaluation of outputs and outcomes – did the appraisal accurately capture the actual outcomes of the intervention.

For the Pilot of the removal of peak fares, an almost unique situation was faced in that a “natural experiment” is being undertaken i.e. the purpose of the Pilot is to specifically test the impact it has on behaviour. This allowed a different approach to be taken. As is standard practice, the predicted outcomes of the Pilot were assessed but the trial means that these predicted outcomes can now be adjusted to see what the actual impact is (see below). This is particularly useful in the context of the changing patterns of demand post pandemic and the fact that such a significant change in fares is unusual.

The approach was as follows:

- Use the Transport Model for Scotland (TMfS) to assess the impact of the Pilot with the expectation that the model would not necessarily capture the actual impact.
- Calibrate the results of the model to the actual impacts of the Pilot, check that the detail of the results matched what was seen in reality and use these calibrated results to estimate the Value for Money in the usual way.

Simplistically, whist existing rail users benefit from reduced fares, the full impact of the Pilot is measured by capturing the value to those who switch to rail from other modes or undertake additional journeys. The approach captures the wellbeing (or welfare) gained by those who switch to rail as well as the impact on existing users, the loss of revenue from existing users (and the gain from new users) to ScotRail,

the impact on bus patronage, as well as an estimate of CO2 emissions impacts from changes in car use.

The model runs on an annual basis, so the inputs are adjusted to reflect this. For example, the initial additional costs incurred by ScotRail are annualised.

As such, the assessment of VfM for the Pilot combines the appraisal and evaluation methodologies within Scottish Transport Appraisal Guidance (STAG) to give the most accurate possible assessment of the impact.

Of particular importance was the establishment of a robust "counterfactual" – what would have happened if the Pilot had not taken place. This was difficult over the interim period due to significant weather disruptions in October and November and the impact of the Christmas and New Year holiday period in December and early January especially when combined with changing patterns of travel demand – more leisure and fewer commuting trips, post-pandemic. Significant further work was undertaken to ensure that the counterfactual used over the full extent of the Pilot (Scenario M2) is as robust as possible.

Annex C - Detailed survey results

Wave 1 and Wave 2 Comparisons: key points

Rail usage

The distribution of frequency of use from existing rail users largely remained unchanged. However, there was an increase in responses for those travelling at least weekly. With a 47% increase of existing rail users reporting travelling at least weekly compared to Wave 1. For existing rail users, overall, the purpose of trips was consistent across each wave with leisure trips more popular compared to commuting. There was a small change from existing rail users with commuting increasing by 8 percentage points and leisure decreasing by 6 percentage points.

There was a notable change in perception regarding cost savings from the trial. There was a 14-percentage point (p.p) increase in respondents who felt they had saved money in Wave 2 compared to Wave 1. On average, off-peak ticket users perceived a £2 increase in savings, while anytime ticket users reported an average saving of £7.

In terms of *new trips,* there was an 11 p.p. increase in respondents making new trips between Wave 1 and Wave 2, but the frequency of these trips decreased.

Satisfaction levels remained high, at 84% in Wave 1 and 85% in Wave 2. However, there was a 9 p.p increase in respondents who felt carriages were busier in Wave 2, with a corresponding 6 p.p decrease in those who felt carriages were not as busy.

Have they switched how and when they travel?

In terms of mode shift from car and bus, there was a small percentage change between Wave 1 and Wave 2, with a 2 p.p. decrease switching from bus and a 3 p.p. decrease switching from being a car passenger. However, of those switching, 8% of respondents who switched to rail travel in Wave 2 previously made more than five return trips a week by their previous mode.

There was small change from new *rail users* with 2 p.p. increase in those switching from bus, with corresponding 1 p.p. decrease in those switching from other modes including car, between Wave 1 and Wave 2.

In terms of when people travelled, there was a 5 p.p. increase in respondents switching to peak travel from off-peak in Wave 2. Between the Wave 1 and Wave 2. there was a 10 percentage point increase in respondents considering the trial very important for making travel behaviour changes.

However, there was a decrease (13%) of those in Wave 2 who said they would continue to use rail compared to Wave 1. At the same time there was an increase of 5% for those who were undecided.

Will new users continue to use rail after the trial?

In Wave 2, 19% of respondents indicated they had started using rail but no longer do, compared to 16% in Wave 1 who indicated they either hadn't decided or were unlikely to continue using rail. There was a slight decrease in the overall importance placed on the Trial as a reason for switching travel behaviours in this group of new rail users.

For *non-rail users* who were surveyed the reasons for not using rail remained consistent across both survey waves, with no significant differences noted.

We also asked *non rail users* if there was a future propensity to use rail. Fewer respondents in Wave 2 indicated a desire to use rail more, with a 7 p.p. decrease from Wave 1. However, the perceived frequency of use and purpose type remained consistent between the two survey waves.

Income and Mode Shift: Wave 2 Survey results

From Wave 2 respondents, the benefits for making new trips by rail and switching from a different mode of travel were consistent across all household income bands. With people indicating a combination of the train being quicker, more convenient and relaxing, as well as saving money on fares, car parking and fuel. There was also some awareness of the environmental benefits of doing so.

Higher income bands were more likely to be switching from private car (as a driver) compared to lower income groups. While lower income groups were likely to switch from the bus. There is variation across all income groups on the frequency of trips across the week, with a fifth to a quarter of responses making at least one new trip per week as a result of the trial.

Income band (n=total responses for these two questions**)**	**Q. How many trips were you making per week by this mode?**	**Q. Mode shift - What transport did you use most often for these trips.**	**Q. How have you benefited from taking these trips by rail now?**
Less than £10,000* (n=9)	Two responses indicated 2 or 3 trips per week and	Bus 33% Car Passenger 7%	Comments in survey suggest train was faster, and even if equivalent

	three responses indicated 1 trip per week	Walk 13% Taxi 7%	cost to other mode, they were saving time which was an important factor for this group.
£10,000-£19999 (n=25)	21% stated making 2 weekly trips and 14% making 1 trips per week.	Bus 26% Car (driver) 21% Car (passenger) 4% Walk 2%	Comments include saving money – fare, fuel, parking, faster, convenient, less hassle i.e. as no need to park a car. Less stressful
£20,000-£34999 (n=96)	18% stated making 2 weekly trips, 17% making 1 trips per week 12% 3 trips per week	Bus 26% Car (driver) 27%, Car (passenger) 4% all others 1%	Same as above - more mention of relaxing
£35,000-£49,999 (n=82)	18% stated making 1 weekly trips, 18% making 2 trips per week 12% 3 trips per week	Car (driver) 31% Bus 19% 5% Car (passenger) 4% Cycling 2% all others 1%	Same as above as well as – can work on train, it is safer, more options - e.g. Edinburgh for fun as cheaper, good for environment
£50,000-£74,999 (n=72)	23% stated making 1 weekly trips, 22% making 2 new trips per week 10% 3 trips per week	Car (driver) 40% Bus 17% Car (passenger) 5% 2% Subway all others 1%	Same as above – positive comments about quicker, convenient, saving money etc.
£75,000-£99,999 (n=34)	24% stated making 1 weekly trips, 16% making 2 trips per week	Car (driver) 40% Bus 14% Car (passenger) 3% Cycle 2%	Again quicker, can do work etc. on train, relaxing, environment, savings - fuel, fare '*with trains being cheaper in the morning now, I have*

	11% 3 trips per week		*got the train more regularly than drive'.*
More than £100,000 (n=22)	21% stated making 1 weekly trips, 21% making 2 trips per week 21% 3 trips per week	Car (driver) 52% Car (passenger), 9% Bus 3% Subway 3%	Again, saving money, speed, relaxing, convenience etc.
Prefer not to say (n=22)	31% stated making 1 weekly trips, 23% making 2 trips per week 15% 3 trips per week	Car (driver) 50% Bus 12% Car (passenger) 19% Other 4%	As above – as well as better mental health/health as walking more etc.

*Income bands the response is less than 10

The Trial has resulted in immediate savings from existing rail travellers and has generated new trips, as well as attracting new rail travellers. For example, in Wave 2, 81% (n=330) of new rail users indicated that they started to use rail as part of the trial and continue to do so.

Since the introduction of the trial, 83% (n=695) of respondents in Wave 2 indicated making more trips, with 52% of these trips classed as trips that were previously made by another mode. The remaining 48% (n=333) were recorded as new trips that were not previously made. There was also an 11 p.p. increase in respondents making new trips between Wave 1 and Wave 2, but the frequency of these trips decreased.

There was a notable change in perception regarding cost savings from the Trial. There was a 14 percentage point (p.p) increase in respondents who felt they had saved money in Wave 2 compared to Wave 1. On average, off-peak ticket users perceived a £2 increase in savings, while anytime ticket users reported an average saving of £7.

Those who used to purchase an anytime ticket before the Trail saved on average £18.75. with lowest household incomes and highest household incomes reporting saving the most. Not surprisingly those who worked full-time (£14.14) were one of the highest savers, alongside those in education (£19.50).

We also asked *non rail users* if there was a future propensity to use rail. Fewer respondents in Wave 2 indicated a desire to use rail more, with a 7 p.p. decrease from Wave 1. However, the perceived frequency of use and purpose type remained consistent between the two survey waves

Socio-demographic analysis

This section examines the characteristics of the different groups of users to draw out the socio-demographic impact of the trial. It looks at 3 main factors: Income, Employment status and Age.

Income

Existing rail users who didn't change their behaviour were more concentrated in the income group above average income (£35,000 to £49,999) than the population as a whole but the proportions within the middle income groups (£20,000 to £49,000) was broadly the same for all (45%,47%,47% and 47%). New rail users were more likely to be in lower (less than £35,000) income groups (48%) than existing users (37%,37%). Non-rail users were more likely to be in very low income groups (28%) compared with both groups of existing users (18%, 12%) and new rail users (20%). So there is some moderate evidence that **the trial has encouraged rail use amongst low to middle income households whilst primarily benefiting existing users who tended to be above average income**.

Employment status

New rail users were less likely to be working full time (49%) compared with both groups of existing rail users (56%,67%) and non-rail users (29%) though it is notable that the highest group in employment is existing users who changed their behaviour (83% of whom made additional trips). New users are more likely to be retired (18%) than existing (15%, 8%) users but the non-users are much more likely to be retired (33%). Part time work is constant across all groups, and the unemployed are more likely to be non-users. There is thus strong evidence that **the trial has helped existing users who are in work and encouraged greater rail travel amongst this group but has had a lower impact in encouraging full-time workers who did not use rail to use it**.

Age

The age profile of new rail users is very similar to that of existing users who did not change their behaviour but with a greater proportion of people over 65 compared with existing users. Existing users who did change their behaviour tend to be younger (with the majority in the 31-40 age group). 16-21 year olds (who are eligible for concessionary bus travel) make up a small proportion of all groups. As such there **is weak evidence that the trial has encouraged older users to use rail and has encouraged 31 to 40 year old existing users to travel more by rail.**

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