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ScotRail Peak Fares Pilot - Interim Evaluation

Contents

Executive Summary

This paper details the interim evaluation results of the removal of peak fares from the ScotRail network (Pilot) and covers the period from October 2023 to mid-May 2024. This report is being published alongside material being submitted to the Net Zero and Transport Committee of the Scottish Parliament in line with specific guidance received from the UK Office of the Statistics Regulator (OSR) in terms of the normal functioning of the Scottish Parliament during the UK pre-election period.

A detailed evaluation plan is in place to assess the impacts of the Pilot. This comprises several strands of analysis, of which some interim results are now available. The plan combines survey work – asking rail users and others about their experience and desktop statistical analysis. Work is ongoing to ensure that the final evaluation is as robust as possible but there remain significant challenges in establishing what would have happened if the Pilot had not taken place – the counterfactual - as the post-pandemic recovery means there is great uncertainty over the current baseline for travel demand in Scotland, and for rail in particular.

This interim assessment uses data up to the 13th May 2024. It represents preliminary results and demonstrates that the impact of the Peak Rail Fares Pilot is still subject to significant uncertainty. Crucially, it indicates that the impact has changed over time with a greater impact in the first 3 months of the Pilot (after accounting for external events) than in the second 3 months and onwards. This is illustrated in the diagram below:

Table 1 – Actual demand and Estimated impact of the pilot.

Period	Actual demand over the period	Cumulative change in demand (journeys) estimated since removal of peak fares	Percentage change in demand estimated since removal of peak fares
11 weeks	17.8 m	565,000	3.18%
3 months	20.5 m	809,000	3.95%
6 months	39.8 m	-1,305,000	-3.28%
To 13th May	49.3 m	-1,627,000	-3.29%

It should be noted that ScotRail's passenger figures were already increasing from the pandemic prior to the Pilot launching and it has been challenging to extrapolate the impact of the Pilot within the wider passenger revenue figures so these should be treated cautiously at this stage. Further work is being undertaken to ensure that the final assessment of the Pilot is as robust as possible.

The analysis suggests that Peak Fares had a positive impact over the first 3 months (and was accelerating during this time) but since January the response has been muted and demand has fallen below the current best available counterfactual (although demand is broadly similar in actual terms, the growth seen before the Pilot has not been maintained).

However, it does not mean that the Pilot has specifically caused a fall in demand, it simply shows that demand is lower than expected.

The assessment of the impact on demand is being finalised before reporting formally on the impact on revenue (the cost of the Pilot). However current ScotRail estimates suggest that the revenue impact remains within the £40m budget allocated.

There is some emerging evidence of behaviour change arising from the Pilot, from survey work undertaken in the initial period, including shifting of travel from off-peak to peak and mode shift from car to rail suggesting around one-third of existing rail users have made at least one rail journey previously made using another travel mode, with two-thirds of those journeys primarily from car. Of those new passengers identified as switching from other modes, it is assessed that 53% had previously used a car as a driver, and a third had switched from bus. But this should be considered in the context of a small overall increase in demand (over the initial 3 month period) – the vast majority of passengers were existing rail users making existing journeys. And in the context of that initial period showing positive demand impacts overall.

In summary, whilst the initial impact of the Pilot has been found to be somewhat positive, the impact on rail journeys since the start 2024 is significantly less pronounced and there is currently no strong evidence of its effectiveness in achieving mode shift, other than helping with cost of living issues for existing users. Analytical work is progressing, and a final evaluation will be produced in time for a decision to be made on whether the trial should be made permanent. This will include further survey work, continuing liaison with bus operators and a formal value for money assessment.

Introduction

This paper provides an interim 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 May 2024. As such it remains a preliminary analysis and is subject to significant uncertainty over the long-term impacts. Before the Pilot concludes in September 2024, a final evaluation will be undertaken and the Scottish Government will then carefully consider the impact and long-term sustainability of any further measures.

This paper focus on two main strands; an analysis of the impact on rail demand from the Pilot and the results of initial survey work (undertaken over the first 3 months of the Pilot) which explored the impact on existing and new rail passengers. Further survey work was scheduled for early June, but the announcement of a UK General Election means that Civil Service rules relating to this form of Social Research suggest that this should be postponed until the election is concluded. Survey work in July will allow it to be incorporated into the Final Evaluation Report.

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, including the development of proposals to introduce a national integrated fare structure, developing a proposal for a bus flat fares Pilot scheme and establishing a National

Forum on the Future of Public Transport to co-ordinate improvement of 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, the 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 twelve months.

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.

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)

The pattern of fare changes also varies significantly geographically. See Table 2.

Table 2 – Demand-weighted Anytime (Day) Return 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%

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 – Travel Behaviour Fieldwork

The focus for the data collection is to understand the wider impact of the Pilot on the transport network alongside existing rail customers.

The Transport Scotland survey was designed to target four distinct population groups to understand the impact of the Pilot on travel behaviour. The fieldwork started in December 2023 and the survey was open for four weeks. This month typically sees more leisure trips in the lead up to Christmas and fewer commuting trips. In total 1,476 responses were received.

A representative sample, covering all target groups identified was achieved, with some variation in that one group, non-rail users who have changed their behaviour as a result of the Pilot, had a sample size that was smaller than ideal – this is however, the hardest to reach group (as it is the smallest in actual size) but will be targeted as a priority in the forthcoming survey work.

Target Groups

The online survey was designed to target four distinct population groups to understand the impact of the Pilot. The groups are listed below with respective sample size. In total 1,476 responses were received.

- User Group 1 – Rail users, who do not change their behaviours: 445 responses (30%)
- User Group 2 – Rail users, who do change their behaviours; 444 responses (30%)
- User Group 3 – Non-Rail users, who do change their behaviours; 162 responses (11%)
- User Group 4 - Non-Rail users, who do not change their behaviours; 425 responses (29%)

Demographic Characteristics

As well as considering the different groups using or not using rail services, the sample was designed to capture a representation across certain protected characteristics, in line with the equalities outcomes around accessible and affordable transport detailed in the National Transport Strategy. This included splits by age, disability, gender and income – as an indicator of socioeconomic status. In addition, participants were asked which local authority they lived in and their employment status.

A quarter of responses were provided by those between the ages of 51 to 65. Those under the age of 30 provided just under a quarter of responses, whilst the three age bands between 31 and 50 provided just over half (51%) of responses.

In terms of disability, 58% of respondents indicated that they do not have any long-term illness; 12% indicated having mental health issues; and a further 10% indicated having a physical illness or health condition that affects their ability to travel.

Overall, there was an almost even split between male and female respondents, with 48% of responses submitted by male participants, 51% by female participants and 1% by non-binary participants.

Geographically, most responses were submitted by residents of the City of Glasgow (16%) Local Authority area, with a further 8% from residents of the City of Edinburgh. Fife residents provided a further 6% of responses, while the remaining responses were submitted by residents spread across the rest of Scotland.

Over a quarter (28%) of respondent households earn between £20,000 and £34,999 a year whilst around a fifth (19%) earn between £35,000 and £49,999, and around a further fifth (22%) earn under £20,000 a year. Half of all responses were provided by those in full-time employment, while a fifth were provided by retirees.

In terms of car ownership and ownership of National Entitlement Cards, 67% of respondents have access to a car for their own personal use, whilst a further 8% have shared access to a car with other members of their household. 15% of respondents are NEC card holders, while nine percent are Young Scot card holders. A further nine percent are blue badge holders.

Challenges & Limitations

These interim results are heavily caveated in terms of the limitations imposed on the survey distribution, the time available to survey the public, and understanding (see next section) that demand patterns have changed since the first 3 months. The full impact of the Pilot can only be comprehensively assessed over the full period of the trail. Learning has been taken from this interim assessment and will be used to refine the methodology for the final evaluation.

Travel behaviour survey analysis

A third of respondents who were existing rail users (38%) felt they now saved money as part of the Pilot. The average reported cost saving was £7 per week for those who previously purchased an off-peak ticket (compared with what a peak ticket would have cost), while those who indicated they previously purchased an anytime ticket, the average saving was considered to be £10 a week. Given the actual changes in ticket prices, this is an issue that will be investigated more fully over the remainder of the Pilot but appears to be due to different journey types between different user groups.

Of respondents who indicated that they now make new trips by rail, 45% make one new return trip by rail a week and a third make two new return trips per week. Leisure was the most popular purpose provided by 50% of respondents making new trips.

When existing rail users were asked how likely they would be to continue using rail after the end of the Pilot, 31% indicated that they would definitely continue to use rail

and 54% indicated that it would be either highly (27%) or somewhat (27%) likely that they continue to use rail beyond the Pilot.

There are some indications that the Pilot has also attracted *new rail users*. For this group of respondents new to rail travel, 41% indicated making a new trip by rail which they did not previously make by any mode.

The survey also asked new rail users about the impact of the Pilot on their decision to switch mode; 78% indicated that the Pilot was a very important factor in making this change, and 66% of those within this group who changed *when* they travelled indicated it was because of the Pilot.

In terms of *all new trips*, almost 70% of those making new trips by rail indicated that they previously undertook these journeys by another mode of transport. Over half (53%) had previously used a car as a driver, and 33% had switched from bus. However, this analysis is based on a small sample size and should be interpreted with caution. Nonetheless, these results are a useful indicator that suggest people are choosing to swap a car journey for a rail journey.

When asked if they had changed *when* they travel, a few interesting trends emerged; 30% of respondents noted a change from travelling in the off-peak to the peak. Conversely, 16% indicated a switch in the opposite direction, from peak to off-peak. 52% of respondents indicated that they have not changed when they travel.

The survey also reached out to those who do not use rail to find out the barriers to using rail. The top three reasons in order were:

1. *“Trains are too expensive”*
2. *“I have a car and do not want to pay more for travel”*
3. *“trains are too unreliable.”*

Findings

Initial impacts - demand

Rail demand fell significantly (to less than 10% of pre-pandemic levels) during the pandemic but then rose steadily to September 2023. A key issue in establishing a counterfactual to analyse the impact of the peak fares Pilot, is to what extent the post-pandemic rises could have been expected to continue, in the absence of any intervention, and to what extent demand was likely to level out. The current situation is illustrated in the chart on the following page that includes both the actual changes in demand and the statistical estimates of impact.

Each year ScotRail estimate the number of daily journeys for the forthcoming financial year for budgetary purposes. The simplest way to assess the impact of the peak fares Pilot on demand is to compare actual journeys with these ScotRail projections which were undertaken without accounting specifically for the peak fares Pilot.

This estimates there have been around 2.1 million fewer journeys since the start of the Pilot than originally estimated – a fall of 4.2%. However, this simplistic analysis does not account for the bad weather and network closures seen during the October to February period. Simply eliminating these events from the data shows a fall of around 650,000 journeys or 1.7%.

A significantly more sophisticated approach has been developed which uses statistical techniques to account for a range of factors that influence rail demand on a daily basis. These are:

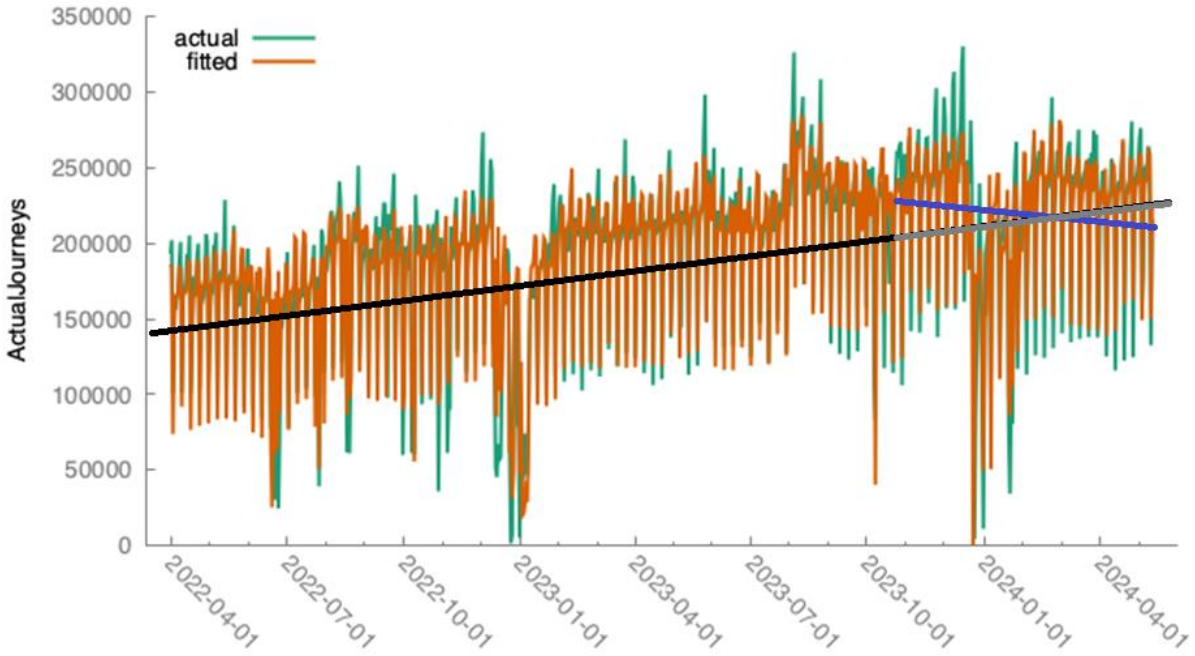
- Longer term trends in demand
- Day of the week factors – demand varies across days of the week
- Seasonal Factors – demand varies over the course of the year (this is already incorporated into ScotRail estimates)
- One off -events – Data on bad and extremely bad weather events, large Sporting and/or Cultural events and Strike Action, as well as the Christmas/New Year period.
- A proxy for overall travel demand

The approach is to use data dating back to April 2022 (when the immediate pandemic impacts were diminished) and estimate a model based on the above factors which includes overall trend growth in rail demand and captures the impact of the Peak Fares Pilot in 2 ways:

- A “Pilot Impact” variable (represents an immediate shift in demand from the start of the Pilot
- A “Pilot Trend” variable (represents the additional daily trend in demand from the start of the Pilot).

This resulted in 28 variables being used within the analysis. The approach is to statistically estimate a model using all 28 variables and then progressively eliminate variables which are not statistically significant until the model is stable. This model is compared with the actual levels of demand in the diagram below.

Diagram 1 – Actual and predicted demand with trend lines



The diagram illustrates the significant variation over days of the week and over time – the results of this more advanced method of analysis are reported below with full details of the advanced approach in Appendix A.

The black line shows the trend before the Pilot and the grey line where demand would be if it had continued, whilst the blue line shows the initial positive impact of the Pilot and where demand is now. There was an initial positive impact over the first 3 months but looking at the full data, demand has declined to around the levels at the begining of the Pilot.

This model is then used to estimate journeys with and without the Pilot in place (the latter by excluding the two Peak Fares variables).

This has been done over 4 separate time periods:

- First 11 weeks (to 17th Dec 23 – to avoid Christmas/New Year)
- First 3 months (to end Dec 23)
- First 6 months (to end March 24)
- All available data (to 13th May).

Table 3 - Actual demand and Estimated impact of the pilot.

Period	Actual demand over the period	Cumulative change in demand (journeys) estimated since removal of peak fares	Percentage change in demand estimated since removal of peak fares
11 weeks	17.8 m	565,000	3.18%
3 months	20.5 m	809,000	3.95%
6 months	39.8 m	-1,305,000	-3.28%
To 13th May	49.3 m	-1,627,000	-3.29%

Whilst the impact over 6 months onwards is negative this should not be interpreted as the Pilot causing a fall in demand (particularly in the context of the initial positive impact) as there is no evidence of any specific factors that could be causal (e.g. overcrowding etc.). At this point, the analysis simply states that accounting for all factors so far considered, rail demand as a whole is around the same as it was before the Pilot started compared with the fact that it was rising in the run-up to the Pilot.

The analysis includes a variable that is a proxy for overall travel demand (excluding rail). This is statistically significant and has a positive sign – rail demand varies in line with overall demand quite strongly. However, the variation in rail demand seems to have strengthened since January 24 – this is being explored further.

One possible hypothesis is that a greater reliance on leisure travel has caused rail to be more sensitive to overall seasonality and especially the relatively poor weather over the associated period, or potentially sensitive to the impact on household finances post the December festive period. This hypothesis is not specifically supported by the inclusion of the overall travel demand variable but nor does this discount it and will be explored further. Analysts are exploring timely Economic Data released by the Office of National Statistics to assess this hypothesis.

Next Steps/Phase

Further survey work was scheduled for early June, but the announcement of a UK General Election means that Civil Service rules relating to this form of Social Research suggest that this should be postponed until the election is concluded. Survey work in July will allow it to be incorporated into the Final Evaluation Report.

The second wave of research will be refined in light of the challenges explained in this report e.g. repeated severe weather incidents, increasing the response rate

across all groups but especially the harder to reach, group 3 – new to rail - to ensure a robust evidence base to inform the final evaluation of the Pilot.

The final evaluation will specifically pick up on the following issues raised by this report:

- Further exploration of the counterfactual of what demand would have been without the Pilot in place.
- A rigorous assessment of the impact on bus services as well as the extent of mode shift from private car.
- Examination of specific issues around ticket sales – for example, the non-use of returns inflating demand figures.
- The extent to which crowding is impacting on services – there has been no evidence of this to date.
- A final assessment of the Value for Money of the Pilot. This will include distributional effects that weight the impact by the groups who most benefit from the change and a projection of how the costs and benefits of the policy might change over time.
- Full additional costs to ScotRail over the full Pilot.

Appendix A - Detail of Statistical model

The “advanced” statistical analysis uses linear regression techniques to establish both a counterfactual and assess the impact of the peak fares Pilot.

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 list of variables is as follows:

Table 4 – Variables used and description.

Variable	Description
Constant	A standard constant or intercept
Trend	An overall trend growth rate
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.

*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).

For brevity only the results of the full data model are reported.

The coefficients are discussed below. The Standard Errors are part of the measure of statistical significance. The star ratings reflect significance at the 10% level (*), 5% level (**) and less than 1% level (***) respectively. A lower value is better.

Table 5 – Regression results

Variable	*Coefficient*	*Std. Error*	*Star rating*
Constant	172648.0	2852.35	***
PFT Dummy	8598.8	4177.52	**
Trend	116.8	6.47248	***
Peak Fares Trend	−140.1	26.8472	***
Xmas New Year	−47609.3	5009.91	***
Jan	−19278.5	3372.00	***
June	−14495.2	3304.30	***
July	−10417.5	3316.79	***
Aug	14522.8	3294.85	***
Dec	7474.02	3637.33	**
Sat	18070.4	2754.28	***
Sun	−91055.6	2733.20	***
Mon	−17992.6	2712.70	***
Thur	4611.2	2712.94	*
Fri	19642.7	2703.65	***
Sport	17484.3	3525.76	***
Concert	15848.7	5114.80	***
Strike	−119413.0	5229.13	***
Weather	−26313.2	4169.88	***
Extreme Weather	−84368.7	9473.02	***
Travel Demand Diff	906.8	275.004	***

The R-Squared (0.835) and Adjusted R-squared (0.830) values of the model show that it explains around 83% of the variation in the data.

Use of 10% significance is appropriate for a regression of this type but with the exception of the Thursday variable all variables are significant at the highest level (1%) except PFT Dummy which is significant at 5%.

The R-Squared and Adjusted R-squared values show that the model explains around 83% of the variation in the data.

For this model, the variables February, March, April, May, October and November were insignificant with the remainder remaining in the model. For example, this implies that all other things being equal, daily demand in June of any year was around 14,500 journeys less than the demand in September. In terms of the day of the week variables, Tuesday was insignificant implying that Tuesday demand is not significantly different from Wednesday demand, but all other Day variables were significant and reflect varying travel pattens over the course of an average week,

All the event variables were significant with the expected signs (positive or negative) and the Travel Demand Diff variable was significant and positive suggesting rail demand is higher when total (non-rail) demand is higher. Xmas New Year was also significant and negative as would be expected.

The values and signs of all the significant co-efficient are sensible intuitively. The obvious exception is the negative value for the Peak Fares Trend variable, and this is discussed in the main text.

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