Embargoed until 00:01 Wednesday 4 August 2021

The value of rail to the green economic recovery from Covid: leisure travel

A WPI Economics Report for Rail Delivery Group

James Edgar – Chief Economist – james.edgar@wpieconomics.com

Catrin Owen – Junior Consultant – catrin.owen@wpieconomics.com

19/07/2021

We've signed the time to change Employer Pledge let's end mental health discrimination

We are a Living Wage Employer

www.wpieconomics.com info@wpieconomics.com @wpi_economics

WPI Economics Limited, registered address 28 Church Road, Stanmore, Middlesex, England, HA7 4XR, is a registered as a limited company in England and Wales under company number 10086986.

1. Introduction

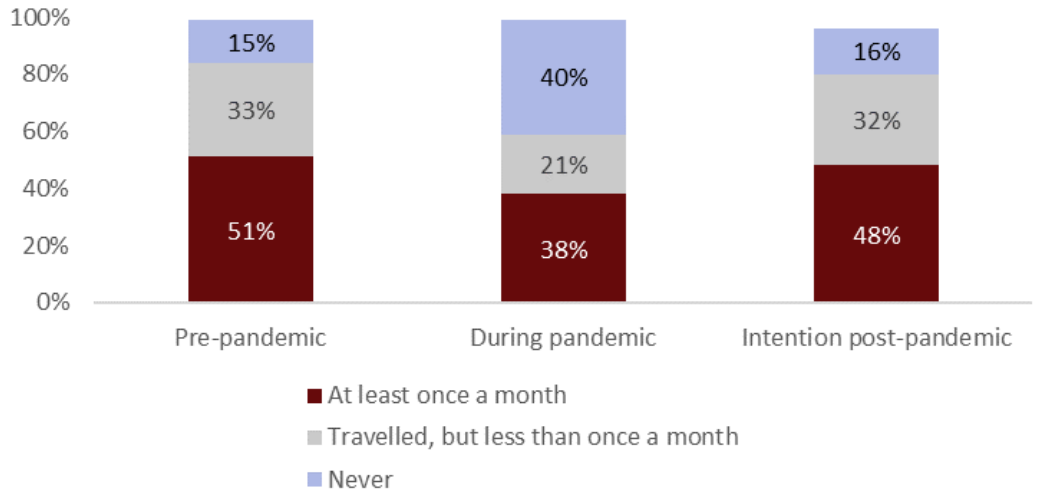
The COVID-19 pandemic has seen rail usage drop to unprecedented levels – the lowest level of passenger usage since the mid-nineteenth century. Usage fell to 5% of pre-pandemic levels at its lowest[1] and social distancing regulations meant that trains were only able to accommodate up to 45% of their previous capacity.[2]. As rules are relaxed rail will be critical in providing access to work and leisure opportunities, encouraging city life to return in a sustainable way, moving critical freight and enabling an increase in domestic tourism.

To illustrate the crucial part that the rail network has to play in enabling a green economic recovery from Covid we were commissioned to carry out a study of the economic, social and environmental benefits of rail by the Rail Delivery Group. A key part of the study has been an online survey of a nationally representative sample of 2,241 residents of Great Britain between 16th and 22nd June 2021 asking people about their rail travel behaviour, the value the rail network has to their household and their concerns if we were to see a car-led recovery and a permanent drop in rail usage.

This short note focuses on the value of leisure travel by rail to the economy. Figure 1 shows that leisure rail use declined during the pandemic, but people expect to return to rail for leisure purposes in broadly similar numbers following the lifting of restrictions.

- Pre-pandemic only 15% of passengers say they never used rail for leisure purposes. After rising to 40% during the pandemic this has fallen back to 16% when considering people's intentions once restrictions have been lifted.
- Some 48% intend to use the rail network for leisure purposes at least once a month once restrictions are lifted (as opposed to 51% pre-pandemic).

Figure 1: Frequency of rail use for leisure - stated behaviour before and during the pandemic and intended behaviour following the lifting of restrictions



Source: WPI Economics / Savanta
Note: Respondents were asked to state their frequency of rail usage for leisure and personal reasons (e.g. shopping, visiting friends / family, going to events / on holiday) pre-pandemic, during the pandemic, and their intentions once COVID-19 restrictions have been fully lifted for several months.

2. Spending associated with rail travel

Rail travel is important for a wide range of businesses, industries and locations, in part because of the spending associated with people who have chosen to travel by rail. Pre-pandemic, in 2019, Britons took 1.4bn domestic day trips in England, spending £56bn in the process, which includes accommodation, food and drink, transport, cultural activities and more.[3] This supported direct and indirect employment (approximately 4 million people in the UK across tourism and travel), employing high numbers of young people and women.[4] 11% of these trips were taken by train, which contributed £9 billion in spending alone.[5]

However, domestic tourism has been severely restricted over the past year with many major sporting, cultural, outdoor and business events prohibited from taking place. The Tourism Recovery Plan published by the Department for Culture, Media and Sport in June 2021 found that coastal and rural areas were granted some respite in the late summer of 2020 when restrictions were lifted enough to permit some leisure travel; cities, however, and particularly those dependent on international visitors, saw no return in tourist activity[6].

There is evidence to suggest an increase in demand for local and regional holidays. Visit Britain research suggests domestic tourism will be up 51% compared to 2020.[7] This could imply a strong summer for domestic travel where staycations and trips to visit family and friends boost travel in the short term as people catch up on visits not made during the pandemic.[8] Furthermore, 43% of consumers plan on spending more on a holiday post covid-19, which is up from 31% in October.[9] This indicates a degree of pent-up demand and a desire to make up for lost time when it comes to travel, spending and maximising new-found freedoms. However, this depends on the continued success of the vaccine rollout and social distancing restrictions continuing to be reduced. More than half (55%) of people believe the virus will only stop impacting their lives after the majority of the population has been vaccinated.[10]

London dominates the UK tourism sector, bringing in the largest number of visitors overall in absolute terms. However, other cities, including York, Blackpool, Edinburgh, Oxford and Cambridge, bring in a greater proportion of visitors per head of resident population; and Blackpool, Bournemouth and York have the highest share of leisure visitors.[11] Given the strains on city centre parking and road congestion in many of these locations, their success depends heavily on the rail network. Rail has always formed part of the urban landscape and the development of city centres has relied on mass transit infrastructure from suburban towns. For example, cities benefit from the culmination of different modes of transport[12]. The rail infrastructure allows for interchange between different modes of transport (taxis, buses, cycle) which eases the flow of people in and out of these tourist locations.

International tourism has dramatically reduced with restrictions on crossing borders, reducing inbound flights by 90% of 2019 levels.[13] These visitors are significant to the rail network. 9.1 million inbound visits from international tourists in 2019 included a train ride to explore outside a town or city, which makes rail travel the third most used transport mode within the UK by tourists.[14] In light of this, there will be substantial capacity for an increase in domestic leisure travel over the summer which can make a major contribution to the recovery of rail travel.

In this respect, regions outside London can benefit from increases in domestic travel. Around 90% of tourism expenditure in places like the North-West, Yorkshire and South-West is already domestic in origin whereas only 60% of tourism expenditure in London is domestic.[15] This demonstrates the importance of potential increases in domestic leisure travel for locations across the country and, by implication, the levelling up agenda.

The intention of leisure travellers to make regional trips this summer will be welcomed by retail and hospitality outlets near stations. To understand the importance of this, our online survey asked respondents about spending habits associated with rail trips including time spent at the destination. This includes both day trips and trips where one or more nights were spent away from home.

Usual practice is to ask respondents about their last journey to ensure a representative sample of journeys and to aid recall. However, spending on recent journeys would be expected to be lower than usual due to covid-19 restrictions. As we wanted to understand likely spending patterns as restrictions are lifted, we asked respondents to remember their last typical journey pre-pandemic. To avoid potential upward bias from respondents recalling more memorable journeys we removed all outliers more than two standard deviations above the mean.

We found that, on average, rail leisure passengers said that they spent £107 in addition to their rail fare across a wide range of categories. Food and drink and shopping were the two largest categories, accounting for £64 in total.

Table 1: Reported spending associated with average leisure journey by rail

Leisure journey spending category	Associated spending (average per leisure rail journey including spending on outward and, if any, return legs as well as at the destination)
Other travel	£10
Food and drink	£33
Shopping	£31
Accommodation	£21
Entertainment and culture	£12
Total	**£107**

Source: WPI Economics/Savanta

There are an average of 6.5 leisure trips per year per person in England.[16] Making the assumption that there are the same number in Scotland and Wales,[17] this implies around 425m trips made annually across the 65m people in Great Britain, meaning that **we estimate total spending associated with leisure travel by rail in Great Britain to be around £46bn**. Using the corresponding calculations for regions and city regions, we have estimated spending for these areas (see table 2).

Table 2: Total spending associated with leisure rail journeys, by region and city region

Regions	Other travel	Food and drink	Shopping	Accommodation	Entertainment and culture	Total
East Midlands	£130m	£430m	£640m	£400m	£210m	**£1,800m**
East of England	£260m	£990m	£590m	£570m	£510m	**£2,900m**
London	£1,990m	£5,750m	£3,170m	£3,970m	£1,680m	**£16,600m**
North East	£80m	£310m	£170m	£190m	£50m	**£800m**
North West	£320m	£1,400m	£1,740m	£1,100m	£570m	**£5,100m**
Scotland	£390m	£940m	£750m	£580m	£270m	**£2,900m**
South East	£610m	£2,150m	£2,180m	£960m	£760m	**£6,700m**
South West	£290m	£810m	£830m	£450m	£370m	**£2,700m**
Wales	£100m	£480m	£360m	£440m	£200m	**£1,600m**
West Midlands	£180m	£740m	£880m	£360m	£320m	**£2,500m**
Yorkshire and The Humber	£250m	£810m	£860m	£590m	£280m	**£2,800m**
Great Britain	£4,600m	£14,800m	£12,200m	£9,600m	£5,200m	**£46,400m**
Mayoral Combined Authority	**Other travel**	**Food and drink**	**Shopping**	**Accommodation**	**Entertainment and culture**	**Total**
Greater Manchester	£140m	£560m	£430m	£310m	£200m	**£1,630m**
Liverpool City Region	£50m	£400m	£220m	£220m	£120m	**£1,000m**
Tees Valley	£20m	£70m	£70m	£40m	£6m	**£200m**
West Midlands	£90m	£360m	£280m	£120m	£110m	**£960m**
West Yorkshire	£150m	£470m	£550m	£290m	£110m	**£1,570m**
West of England	£40m	£100m	£50m	£20m	£10m	**£220m**
Cambridgeshire and Peterborough	£60m	£180m	£150m	£100m	£100m	**£600m**
Sheffield City Region	£90m	£400m	£340m	£250m	£100m	**£1,190m**
North of Tyne	£30m	£100m	£70m	£80m	£40m	**£320m**

Source: WPI Economics/Savanta[18]

Spending by type of destination

We also asked respondents what type of area they were travelling to. We found that people going to seaside locations and cities spent the most on average (£116 and £114 respectively), with food and drink, shopping and accommodation attracting the most spend per journey.

Table 3: Average spending per leisure journey by type of destination

Destination	Other travel	Food and drink	Shopping	Accommodation	Entertainment and culture	Total
Rural area	£10	£23	£21	£16	£13	**£83**
City	£10	£35	£36	£20	£13	**£114**
Seaside town or village	£13	£40	£23	£31	£10	**£116**
Other town or village	£8	£21	£21	£17	£9	**£75**

Source: WPI Economics/Savanta

Moreover, respondents told us that a substantial portion of this spending was with small businesses. **For 19% of people, over half of their spending was with small or independent businesses, and for a further 20% it was around half.**

3. Value of rail leisure travel to the regions and cities of Great Britain

The section above provides estimates of just one aspect of the benefits that rail leisure travel provides. More broadly, the rail network delivers a wide range of benefits to the economy and society, both to passengers themselves through access to work, leisure and other opportunities and to broader society through enabling high concentrations of economic activity, reducing environmental damage and providing connectivity across the nation. For this work, we distinguish between private benefits – those benefits accruing to the passenger themselves – and "external" benefits – those benefits accruing to broader society. For example, a commuter travelling to work by rail gets the private benefit of the wages received from employment whilst society may benefit from the lower greenhouse gas emissions of the rail journey versus an alternative by car. For more detail of the different types of benefits and our approach to estimation, see Annex 1.

The results from using this methodology produce a realistic estimate of people's valuation of the "external" benefits of rail to society, environment and the economy – i.e. the benefits that do not accrue to themselves as fare-paying passengers. In this initial report, we report the results from one of the two methods we used, called the payment card valuation approach. This means the valuations are likely to be at the conservative end of the range we expect to find in the final report.

Table 4 and 5 below show the results for the estimated valuation of the external benefits of rail per household per month. We have made an estimate of how much is attributable to leisure passengers through a regional breakdown of the average rail distance travelled by journey purpose made available to us by the Department for Transport.[19] (It is notable that the South-East and East of the country along with Cambridgeshire and Peterborough have significantly lower proportions of rail distance travelled for leisure. This is driven by the relatively much higher commuting distance in these regions and city-region.)

These benefits are felt right across the country. For example, our results suggest that:

- People in the North West value the external benefits that rail travel for leisure brings at £170m, and people in Scotland at £120m.
- The estimated valuation of the external benefits of leisure travel to Greater Manchester is £60m per year, and to West Yorkshire a further £70m for example.
- The estimated value for all combined authorities is £320m.

Table 4: Estimated valuation of the external benefits of rail by country / region

Country / Region	Estimated valuation of external benefits of rail per household per month	Estimated proportion of distance travelled by rail that is for leisure purposes	Estimated number of households	Total estimated valuation of external benefits of leisure travel for region / country per year
East Midlands	£7.20	46%	2.0m	**£80m**
East of England	£8.50	32%	2.6m	**£90m**
London	£13.70	44%	3.8m	**£240m**
North East	£9.30	58%	1.1m	**£80m**
North West	£7.80	59%	3.1m	**£170m**
Scotland	£8.80	45%	2.3m	**£120m**
South East	£8.00	38%	3.9m	**£130m**
South West	£8.30	54%	2.4m	**£130m**
Wales	£7.00	45%	1.3m	**£50m**
West Midlands	£7.40	54%	2.5m	**£120m**
Yorkshire and The Humber	£9.50	61%	2.3m	**£160m**
Great Britain				**£1,370m**

Source: WPI Economics / Savanta ComRes

Table 5: Estimated valuation of the external benefits of rail by combined authority

Country / Region	Estimated valuation of external benefits of rail per household per month	Estimated proportion of distance travelled by rail that is for leisure purposes	Estimated number of households	Total estimated valuation of external benefits of leisure travel per year
Greater Manchester	£7.40	59%	1.2m	£60m
Liverpool City Region	£7.20	59%	0.7m	£30m
Tees Valley	£7.50	58%	0.3m	£20m
West Midlands CA	£8.90	54%	1.2m	£70m
West Yorkshire	£10.00	61%	1.0m	£70m
West of England	£7.00	54%	0.4m	£20m
Cambridgeshire and Peterborough	£5.60	32%	0.4m	£10m
Sheffield City Region	£6.00	61%	0.6m	£30m
North of Tyne	£5.50	58%	0.4m	£10m
All combined authorities				£320m

Source: WPI Economics / Savanta ComRes

Notes: We make the assumption that the proportion of travel by rail for leisure purposes is the same as for the broader region in which the Combined Authority is located

4. Value of rail to the high street and to retail / hospitality businesses close to rail stations

Retail and hospitality businesses across the country rely on the rail network to bring customers to them, whether in city centres, leisure locations or towns nationwide. Alongside our survey of the public we surveyed 103 decision-makers in small and medium-sized retail and hospitality businesses across the country about the value of the rail network to their business.

We used the same methodology described above to ask business decision-makers about the value of the "external" benefits of rail to their business – i.e. the benefits that do not accrue to the business directly through the use of the network by the employees or paying customers (see annex on defining the benefits of rail use and methodology for the valuation of the social benefits of rail). Our research found that small and medium-sized businesses (SMEs) value these social and environmental benefits of rail network at around £16 per month on average, or £192 per year. As there are around 6m SMEs in the UK,[20] we estimate that SMEs value the social and environmental benefits at a total **of £1.2bn per year.**

We also asked business decision-makers about what concerns they might have if the recovery relied more heavily on cars than was the case prior to the pandemic. We presented respondents with a long-list of potential consequences if railway usage were to drop permanently from pre-COVID-19 levels by either 5% or 20%, with many of those journeys being taken by car instead. We asked respondents to choose their top three concerns, if indeed they had any concerns.

For businesses we split this in to two categories:

- Concerns for their business
- Societal concerns, such as increased carbon emissions or the impact on people's ability to access jobs, leisure and other opportunities

When thinking about their own business:

- More than 3 in 10 businesses were concerned about increased traffic congestion around their business and around 3 in 10 businesses worried about the availability of parking due to increased car usage.
- Even a relatively small fall in rail usage of 5% prompted significant concern (4 in 10 businesses) about it becoming harder for staff to get to work and the impact on customer numbers and reduced profitability (around 3 in 10).
- If there were to be a 20% drop in rail usage, the level of concern over the ability for businesses to receive deliveries rose to over 3 in 10.

See table 6 below for the full results.

Table 6: Main business concerns for small and medium-sized businesses from a permanent drop in rail usage

Concern from a permanent drop in rail usage	Percent of respondents ranking concern in top 3 when considering a 5% fall	Percent of respondents ranking concern in top 3 when considering a 20% fall
Harder for staff to get to work	39%	28%
More traffic congestion around your business	38%	33%
Drop in customer numbers	32%	26%
Reduced profitability	29%	23%
Worse availability of parking near your business	26%	30%
I do not think any of these would be consequences / I am not concerned about any of these	22%	20%
Harder for your business to receive deliveries	21%	32%
Harder for your business to function	16%	28%
Don't know	1%	4%

Source: WPI Economics / Savanta ComRes

When asked to consider potential societal implications:

- Business representatives expressed significant concern over the environmental consequences; over 4 in 10 were concerned about an increase in Britain's carbon emissions and 3 in 10 were concerned about harm to the natural environment and biodiversity,
- More than 4 in 10 business representatives were concerned about increased traffic on Britain's roads, and around 1 in 4 were concerned about the harm to businesses near rail stations.

See table 7 below for the full results.

Table 7: Main societal concerns for small and medium-sized businesses from a permanent drop in rail usage

Concern from a permanent drop in rail usage	Percent of respondents ranking concern in top 3 when considering a 5% fall	Percent of respondents ranking concern in top 3 when considering a 20% fall
Increase in Britain's carbon emissions	44%	42%
Increased traffic on Britain's roads	43%	43%
Reduction in air quality in Britain	43%	34%
Harm to the natural environment / biodiversity in Britain	30%	30%
Harm to businesses near railway stations	25%	23%
Reduction in people's ability to access jobs, leisure and other opportunities	23%	24%
Reduction in the number of jobs in the rail sector	19%	17%
Harm to city centres / high streets in areas with rail stations	17%	25%
Reduction in people's work / life balance due to increased working from home	13%	15%
Drop in house prices in areas with rail stations	12%	10%
Don't know	3%	2%
I do not think any of these would be consequences / I am not concerned about any of these	1%	5%

Source: WPI Economics / Savanta ComRes

5. Seaside towns: Value of the rail network and concerns for residents about a car-led recovery

The rail network stretches across Britain and facilitates travel to seaside towns and leisure locations. Rail has a long and rich history of providing access to seaside towns for much of the population and it is still a popular choice of travel today. The network provides substantial social value to those living in seaside towns – whether that is through the economic benefits that increased tourism brings or the reduction in congestion and environmental impacts that travel by rail has compared to car.

In our nationally representative survey, 228 people (10%) said they lived in a seaside town with a rail station. Our survey found that on average these respondents value the social benefits that the rail network brings to their household at around £10 per month, or £120 per year. In total this implies **the social value of the rail network to seaside locations is worth up to £330 million per year.**[21] These benefits come on top of the private benefits explained above.

Alongside these social benefits, we asked residents about the concerns they might have if the recovery relied more heavily on cars than was the case prior to the pandemic. We presented respondents with a long-list of potential consequences if railway usage was to drop permanently from pre-COVID-19 levels by either 5% or 20%, with many of those journeys being taken by car instead. We asked respondents to choose their top three concerns, if indeed they had any concerns.

This revealed that:

- **Around four in ten seaside town residents were concerned about increased traffic if rail usage was to fall by either 5% or 20%**.
- **Almost six in ten seaside town residents ranked increased carbon emissions, reduction in air quality or harm to the natural environment and biodiversity as one of their top concerns if rail usage was to fall by 20%.**
- **Almost six in ten also ranked at least one economic or employment issue as one of their top concerns if rail usage was to fall by 20%** (these were reduction in number of jobs in rail industry / reduction in people's ability to access jobs, leisure and other opportunities / Harm to city centres / high streets in areas with rail stations and harm to businesses near railway stations).
- **Just one in ten thought that there would be no consequences / they were not worried.**

Table 8 below shows the list of concerns respondents were presented with and the percentages identifying each concern within their top three.

Table 8: Main concerns for seaside residents from a permanent drop in rail usage

Concern from a permanent drop in rail usage	Percent of respondents ranking concern in top 3 when considering a 5% fall	Percent of respondents ranking concern in top 3 when considering a 20% fall
Increased traffic on Britain's roads	43%	39%
Increase in Britain's carbon emissions	26%	35%
Reduction in air quality in Britain	26%	27%
Reduction in the number of jobs in the rail sector	23%	24%
Harm to the natural environment / biodiversity in Britain	19%	21%
Harm to city centres / high streets in areas with rail stations	21%	19%
Reduction in people's ability to access jobs, leisure and other opportunities	18%	16%
Harm to businesses near railway stations	17%	13%
Reduction in people's work / life balance due to increased working from home	14%	21%
Drop in house prices in areas with rail stations	10%	11%
I do not think any of these would be consequences / I am not concerned about any of these	10%	10%
Don't know	7%	6%

Source: WPI Economics / Savanta ComRes

Annex – defining the benefits of rail use and methodology for the valuation of the social benefits of rail

The rail network delivers a wide range of benefits to the economy and society, both to passengers themselves through access to work, leisure and other opportunities and to broader society through enabling high concentrations of economic activity, reducing environmental damage and providing connectivity across the nation. For this work we distinguish between private benefits – those benefits accruing to the passenger themselves – and "external" benefits – those benefits accruing to broader society.

Private benefits of rail use

People and businesses across the country benefit from using rail to access work, leisure and other opportunities; this may be through wages received for work, enjoyment derived through leisure or other benefits to wellbeing derived from accessing services, shops and educational establishments etc. Businesses also benefit directly through their employees using the rail network to, for example, meet with clients, visit work sites or explore new business opportunities. Businesses also benefit from the ability of people to work on train journeys, where that is possible. These benefits accrue to the individual or organisation paying for the journey.

Passengers incur the cost of this travel including both fares and other costs such as the value of the time the journey takes. Hence the net benefit to society is the private benefit net of costs, often measured as generalised journey time. In transport appraisal this is measured as consumer surplus. The Rail Delivery Group have previously published estimates of the value of this consumer surplus, made by Oxera, for the year 2013.[22] We have uprated these estimates to the final year pre-pandemic, 2019, by inflation, passenger growth and the increase in values of time – a key determinant of consumer surplus. These calculations suggest that passenger benefits increased to £16bn in 2019 (from around £12bn in 2013). Recent research by Deloitte for RDG has also estimated that there are a further £1.65bn in benefits enjoyed by the customers of rail freight.[23]

"External" benefits of rail use:

The rail network also provides a wide range of benefits that accrue to broader society, and not the person paying for the journey. These externalities include:

- Economic benefits: Use of the rail network reduces congestion on the rest of the transport network, particularly on the roads. This saves people time, and in the case of business travel translates to economic benefit from faster, more efficient travel. The rail network also provides wider economic benefits through enabling individuals and firms to be more productive as they benefit from co-locating in well-connected hubs. This benefit comes through a number of advantages that firms get from clustering together such as learning from each other, sharing infrastructure / suppliers etc. or improving the labour market through broadening firms access to a wider pool of potential employees. These are often known as agglomeration effects.
- Environmental benefits: Rail is one of the most environmentally friendly modes of transport. For each 1,000 passenger miles rail emits 59kg of CO^2 equivalent, compared to an average of 273kg for the same journeys taken by car.[24] Emissions of nitrogen oxides and particulate matter which cause local air pollution are lower for rail than for road and air transport.[25]

- Social benefits: Rail provides mobility, which can help improve access to services such as education, employment and leisure, particularly for those who do not have a car. Across the country it promotes social capital and relationship building, which is an important pillar of the safety net of poor people in many societies, limiting the potential disadvantages of a local and restricted lifestyle.[26] Rail also provides connectivity to a wide range of rural locations. This can reduce social exclusion through providing access to jobs and education, lowering costs and widening the search for employment and providing access to a range of other social and leisure opportunities.[27]

There are a range of ways to estimate the value of these non-private benefits, or externalities, of rail including through the use of transport appraisal valuations of greenhouse gas emission reduction and wider economic impacts. We were commissioned to carry out an alternative approach through a survey-based method using people's stated preferences. In this method survey respondents are asked how much they would be willing to pay (or to accept) for something; in this case the external social, economic and environmental benefits of rail.

Methodology Summary

To design the valuation study we have followed an approach developed to estimate the social value of the post office developed by NERA (2009)[28] for PostComm and updated by YouGov and London Economics (2016) [29] for the Department of Business, Energy and Industrial Strategy. We have sought to follow best-practice throughout through a range of approaches including providing realistic context to respondents, a pilot survey, cognitive testing of survey questions and the use of alternative methodological approaches. Full details are given below.

Detailed Methodology

There are a range of ways to estimate the value of non-private benefits, or externalities, of rail including through the use of transport appraisal valuations of greenhouse gas emission reduction and wider economic impacts. We were commissioned to carry out an alternative approach through a survey-based method using people's stated preferences. In this method survey respondents are asked how much they would be willing to pay (or to accept) for something; in this case the external social, economic and environmental benefits of rail.

To design the valuation study we have followed an approach developed to estimate the social value of the post office developed by NERA (2009)[30] for PostComm and updated by YouGov and London Economics (2016) [31] for the Department of Business, Energy and Industrial Strategy. We have sought to follow best-practice throughout through a range of approaches including:

- Use of the Willingness to Pay (WTP) approach: Many studies suggest that Willingness to Accept (WTA) approaches lead to higher estimates of value than WTP approaches,[32] and have been found to yield inconsistent results.[33] We therefore used the Willingness to Pay approach throughout.
- Using two alternative stated preference methods: Following NERA (2009)[34] we used two methods for asking the stated preference questions
    i. The first, called dichotomous choice contingent valuation, gives respondents an either / or choice between paying part of their existing tax to maintain the current scope of the rail network, or paying none of their tax to the rail network and there being a substantially reduced rail network.

ii. The second, called Payment Card valuation, presents respondents with values from £0 to £100 per month and asks them to identify the maximum amount they would be willing to pay to maintain the current scope of the rail network.

The dichotomous choice method tends to produce higher values, possibly because the "take it or leave it" nature of the question may lead respondents to overstate their willingness to pay. The payment card approach tends to produce lower estimates. This may be because of a focus on money and greater opportunity for "strategic responses", where, for example, a respondent may choose a zero figure if they think the cost of maintaining the rail network exceeds their actual positive willingness to pay.[35]

- Realistic context: For SP surveys to generate reliable information, it is important that the context for the valuation is realistic.[36] Respondents to the survey were therefore initially asked about how much they estimate they paid in rail fares pre-pandemic and then told that "*separate to rail fares, the government supports the rail industry financially to deliver benefits including reduced congestion, environmental benefits (e.g. reduced carbon emissions and local air pollution), supporting less-frequently used train services and enabling economic growth in towns and cities."* They were then asked stated preference questions about how much their household would be willing to pay in order to maintain the current rail network at its current scope.
  We also followed NERA (2009) and YouGov / London Economics (2016) by using the framing of taxation, asking respondents how much their household would be willing to pay out of their existing tax bill. This increases the realism of the question for respondents.
- Guarding against starting point bias: Stated preference studies can exhibit "starting point" bias where respondents tend to give values close to an initial figure they have been given. We sought to follow best practice by giving a range of starting points for the dichotomous choice method, and by using an estimate of the average tax paid per household towards the rail network in 2014-2019 around which to group the starting points (which again gave realistic context).
- Piloting and cognitive testing: We were concerned that the questions may be difficult to answer for respondents due to their hypothetical nature, or that they may generate a large number of "protest" responses where a respondent gives an unrealistically high or low value. We therefore carried out a pilot study of 100 people and carried out detailed cognitive testing of a number of the more complex questions with 6 people.

  i. The pilot study showed no evidence of a significant number of protest responses, although we did adjust the starting values for the dichotomous choice question as the results showed a small amount of variation between the first and second question. We also noted that there was around a 20% non-response rate, but decided that we would still have sufficient sample size.

  ii. The cognitive testing showed that a number of test interviewees found the original wording of the questions confusing, so the wording was simplified. We also found that a number of test interviewees though that they were being asked whether they would be willing to pay additional tax, when our wording was supposed to convey that they were being asked how much of their existing tax bill they would be happy to pay towards the rail network. We altered the wording to make this clearer.

Endnotes

[1] Report: At a cross-roads – travel adaptations during Covid-19 restrictions and where next?
[2] Rail Delivery Group Press Release: More room for passengers as rail industry boosts timetable to boost confidence
[3] Visit Britain, 2019. *The value of tourism in England.* Available here: https://www.visitbritain.org/value-tourism-england (Accessed 30/06/2021).
[4] Department for Digital, Culture, Media & Sport, 2021. *The Tourism Recovery Plan.* Available here: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/992974/Tourism_Recovery_Plan__Web_Accessible_.pdf (Accessed 18/06/2021).
[5] Visit Britain, 2019. *England Domestic Tourism Day Visits.* Available here: https://www.visitbritain.org/sites/default/files/vb-corporate/england_all_trips_2019.pdf. Accessed 30/06/2021.
[6] Department for Digital, Culture, Media & Sport, 2021. *The Tourism Recovery Plan.* Available here: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/992974/Tourism_Recovery_Plan__Web_Accessible_.pdf (Accessed 18/06/2021).
[7] Visit Britain – 2021 tourism forecast
[8] Visit Britain – 2021 tourism forecast
[9] EY, 2021. *Future Consumer Index Forecast.* Available here: https://www.ey.com/en_uk/consumer-products-retail/four-ways-to-make-the-most-of-consumers-post-lockdown-spending (Accessed 30/06/2021)
[10] EY, 2021. *Future Consumer Index Forecast.* Available here: https://www.ey.com/en_uk/consumer-products-retail/four-ways-to-make-the-most-of-consumers-post-lockdown-spending (Accessed 30/06/2021)
[11] Centre for cities, 2020. *Too much of a good thing in the role of UK tourism in a post covid world.* Available here: https://www.centreforcities.org/blog/too-much-of-a-good-thing-the-role-of-uk-tourism-in-a-post-covid-world/ (Accessed 30/06/2021)
[12] Centre for cities, 2014. *Delivering change: Making transport work for cities.* Available here: https://www.centreforcities.org/reader/delivering-change-making-transport-work-for-cities/transport-essential-growth-cities/ (Accessed 09/07/2021)
[13] Department for Digital, Culture, Media & Sport, 2021. *The Tourism Recovery Plan.* Available here: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/992974/Tourism_Recovery_Plan__Web_Accessible_.pdf (Accessed 18/06/2021).
[14] Visit Britain Research – Internal modes of transport
[15] UK Tourism statistics 2019. Tourism Alliance. https://www.tourismalliance.com/downloads/TA_408_435.pdf
[16] National Travel Survey
[17] Data for Scotland and Wales on trip rates by purpose has not been identified
[18] Leisure travellers are more likely to spend on non-essential items as they have more time to browse shopping options. Rail can provide the opportunity to visit multiple locations over several days, which can increase inter-modal methods of travelling, which explains expenditure on 'other travel'.
[19] It is challenging to estimate what proportion of the overall valuation of rail is attributable to leisure passengers. To make an estimate we use data from the National Travel survey on the average miles travelled by rail split by journey purpose. This data was kindly collated for us by the Department for Transport, and required collating data from 2010-2019 to create sufficient sample sizes. Using these results, we calculated an estimate of the proportion of rail travel that is for leisure purposes (purposes included are shopping, visit friends at private home, visit friends elsewhere, sport / entertainment, holiday / day trip) in each region and combined authority. Finally, we had to use the average England estimate for the proportion of leisure rail travel for Wales and Scotland due to lack of comparable data. Using these figures, we are able to calculate a total estimated valuation of the external benefits of rail due to leisure travel, under the assumption that respondents total valuations can be apportioned by journey purpose in proportion to the amount of travel by those purposes.
[20] https://www.gov.uk/government/statistics/business-population-estimates-2020/business-population-estimates-for-the-uk-and-regions-2020-statistical-release-html
[21] The proportion of people in our survey saying they live in a seaside town is roughly double the number following the Office for National Statistics definition of seaside town (https://www.ons.gov.uk/businessindustryandtrade/tourismindustry/articles/coastaltownsinenglandandwales/2020-10-06). If this lower estimate is used then the the social value of the rail network to seaside locations would be worth £175 million per year.

[22] Oxera for the Rail Delivery Group (2014) *What is the contribution of rail to the UK economy?*
[23] Rail Delivery Group (2021) The role and value of rail freight in the UK
[24] Source: UK Government GHG Conversion Factors for Company Reporting 2020. An average car figures has been calculated using the proportion of the car fleet that uses different fuel types (Source: DfT Vehicle Licensing Statistics Table VEH0203) and average car occupancy (Source: DfT National Travel Survey Table NTS0905)
[25] Oxera
[26] How public transport contributes to inclusive communities
[27] Church, A., Frost, M., & Sullivan, K., 2000. Transport and social exclusion in London. Transport Policy, 7(3), 195-205.
[28] NERA for PostComm (2009) The Social Value of the Post Office Network
[29] YouGov / London Economics for BEIS (2016) The Social Value of the Post Office Network
[30] NERA for PostComm (2009) The Social Value of the Post Office Network
[31] YouGov / London Economics for BEIS (2016) The Social Value of the Post Office Network
[32] YouGov / London Economics for BEIS (2016) The Social Value of the Post Office Network
[33] NERA for PostComm (2009) The Social Value of the Post Office Network
[34] NERA for PostComm (2009) The Social Value of the Post Office Network
[35] NERA for PostComm (2009) The Social Value of the Post Office Network
[36] NERA for PostComm (2009) The Social Value of the Post Office Network