



Train punctuality: the passenger perspective

November 2015

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Foreword

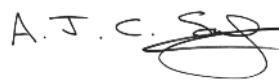
The process to determine what Britain's railways should deliver in the five years from 2019 is already underway. It is vital that passengers' views are at the heart of the process – and with passengers paying over 60 per cent of the cost of the railway through fares, their views must count in decisions on how rail service improvements and investments are prioritised.

As part of this push to give more weight in the process to passengers' perspectives, Transport Focus and the Office of Rail and Road (ORR) have co-funded two studies to understand more about passengers' views on train punctuality. The first is new qualitative research into views about train performance – punctuality and cancellations – and how it should be measured. The second is a quantitative analysis of the relationship between a passenger's actual punctuality and their satisfaction with the journey in question.

The research involved 10 focus groups across England, Scotland and Wales in March 2015 (taking place in Cardiff, Glasgow, London and Manchester). The passengers taking part reflected a cross-section of age, gender and socio-demographics, as well as different segments of the rail market. Meanwhile the quantitative analysis looked at the relationship between actual punctuality experienced and how satisfied 10,849 Abellio Greater Anglia passengers were when they took part in

the National Rail Passenger Survey (NRPS) between 2012 and 2014. It is clear from both studies that greater focus on punctuality will be needed to deliver what passengers expect in the five years from 2019 (railway Control Period 6, or CP6). The key findings of the two studies are set out below, followed by the conclusions and recommendations that Transport Focus and ORR each draw from them.

We hope that this report will help support the process of determining the Control Period 6 passenger performance targets and ensuring that they focus on passengers' needs.



Anthony Smith
Chief Executive
Transport Focus



Richard Price
Chief Executive
Office of Rail and Road

Key findings from the passenger research

The full research report by Illuminas is included in this document as section 5. The key findings are:

- Passengers in the focus groups saw a punctual service as the key success criterion for their journey. They saw performance measurement as an important part of ensuring that rail companies focus sufficiently on punctuality. Punctuality is a vital prerequisite for building trust between passengers and a train company.
- In general, passengers want a tougher Public Performance Measure (PPM) target, but feel that the Cancellations and Significant Lateness (CaSL) target is more reasonable. Once made aware of how PPM is calculated, passengers often regarded a very high target as not unreasonable – given the five minutes ‘grace’ (10 minutes for long-distance trains) for a train to be considered ‘on time’ by the industry. The passengers also suspected that the current target level of 92.5 per cent is regarded as a ceiling rather than a minimum. Some argued that an industry focused on its customers should always aim to deliver 100 per cent, even if it is never achieved.
- Some passengers suggested that a ‘significantly late’ train should be 10 minutes for short-distance and 20 minutes for long-distance, which is a tighter definition than the 30 minutes currently used by the industry. For some, combining cancellations and significant lateness was confusing. Passengers in the Glasgow groups could not understand why there is no CaSL target in Scotland.
- Passengers in the focus groups defined ‘on time’ as being within one minute of scheduled time, although some would accept leeway of one or two minutes. The passengers believed punctuality should be measured at all stations, not just where a train terminates. There was low awareness of the current performance measures and lack of trust in how the rail industry measures punctuality. Once aware of how PPM is calculated, the passengers felt it offered the rail industry too much flexibility in meeting targets they already regarded as too low; it also confirmed their suspicions about statistics generally, in that a train that is late can count as ‘on time’.
- The research explored if it would be better to measure the proportion of passengers who arrive on time, rather than the proportion of trains that are on time. Some commuters in the focus groups found this attractive, recognising that there would be greater incentive for train companies to run their trains punctually. On balance, however, passengers in the focus groups felt that all trains should count equally towards punctuality targets. There was a strong view that passengers travelling on a lightly-loaded train should not be treated as less important when it comes to focus on punctuality.





Trade-offs

Various 'trade-offs', described below, were explored in the research. Significantly, passengers in the focus groups felt that if the railway is properly-planned, properly-maintained and properly-run it should not be necessary to make trade-offs between the quality of different aspects of their journey. Many passengers felt that not striving to deliver on all fronts is an example of the customers interest being insufficiently to the fore of rail industry thinking. Three key points emerged:

- Punctuality versus speed and frequency. Overall, the preference expressed was for trains to be more punctual rather than faster or more frequent. There were exceptions: on very long-distance trips journey time reduction is important, as is frequency to some leisure passengers.
- Punctuality versus fewer cancellations and days of widespread disruption. Commuters regarded punctuality as the priority because it affects them twice a day every day, whereas leisure and business passengers felt that a short delay has less impact on them than a cancellation.
- Punctuality versus running an extra train. Most saw punctuality as more important than seeking to run an extra train. This was particularly true of commuters, unless they experienced crowding that prevented them from getting on the train at all.

Other findings

- Many passengers taking part in the research felt it is not acceptable for train companies to add extra time into the timetable on approach to the destination station. Those who thought managing expectations in this way was acceptable often observed that it would be more honest if the extra time was distributed throughout the journey.
- On very high frequency routes, for example with 10 trains per hour or more, the idea of measuring the interval between trains (rather than measuring each train at its destination) found favour with most passengers. However some still felt that trains should be measured against the timetable even in these circumstances.
- Passengers in the research favoured the current approach by some train companies of adjusting the timetable in the autumn leaf-fall season to deliver a predictable, reliable service, even if journey times are slightly extended.
- There was strong opposition to the current practice that a train cancelled before 22:00 the day before does not count as a cancellation in official statistics.

Passengers were presented with what some regarded as a tricky dilemma. Namely, whether – on a day of widespread disruption – the rail industry should seek to reinstate the normal timetable as quickly as possible, even if there is short-term disadvantage to some passengers as a result. The sort of things that might be done include: trains missing out stations so the next journey runs on time; cancelling a train so the next one runs on time; and terminating trains before the normal destination so most of the next trip runs on time. While the effect of the focus group environment may have influenced the responses given in front of peers, many participants felt it was fairer to 'spread the pain' than cause disadvantage to some for the 'greater good'. However, passengers in London felt that short-term disruption to restore the timetable was reasonable because alternatives are more likely to exist for those affected.

Key findings from analysis of the relationship between punctuality and passenger satisfaction

The executive summary of the report by consultants GHD is included as section 6.

This analysis updated work Transport Focus published in 2010¹ examining the relationship between actual train performance and passenger satisfaction. The 2015 work looked at the actual punctuality experienced by 10,849 Abellio Greater Anglia passengers who took part in the National Rail Passenger Survey (NRPS) between 2012 and 2014. We are grateful to Abellio Greater Anglia for their co-operation in providing detailed train performance information for the three years in question.

The key findings are:

- 82 per cent of passengers were satisfied with punctuality when their train arrived early or within 59 seconds of the time given in the public timetable. This varies by journey purpose: 75 per cent of commuters were satisfied with punctuality when on time or early, while 94 per cent of leisure passengers and 91 per cent of business passengers were satisfied with punctuality when on time. A possible reason for the variation is that commuters' assessment of punctuality 'today' is affected by past experience – and, put simply, commuters have more 'past experience' than leisure and business passengers. The effect of cancellations may also have a marginal effect. For example where a passenger's intended train is cancelled and they catch the next one – the passenger is late but the train they travelled on is on time.
- For every minute of lateness (that is, after scheduled arrival time), passenger satisfaction *with punctuality* declined by three percentage points. This also varies by journey purpose: commuter satisfaction declined by five percentage points per minute of lateness, while among leisure passengers the decline was one percentage point per minute. Therefore a significant degree of passenger satisfaction is 'lost' when trains are officially 'on time' according to the industry measure of PPM, but late in passengers' eyes. For example, passengers travelling on a train

that arrives four minutes 59 seconds late – 'on time' according to PPM – will record satisfaction with punctuality over 12 percentage points lower than had that train been truly on time.

- For every minute of lateness, *overall* satisfaction declines by one and a half percentage points. Among commuters the decline in overall satisfaction is steeper at three percentage points per minute of lateness. Therefore *overall* satisfaction on a train that is four minutes 59 seconds late – that is, on time according to PPM – will have fallen by over six percentage points.
- On trains leaving London (where the majority of passengers are likely to get off before the train's terminating station), 56 per cent of passengers arrived at their station on time or early. This compares with 69 per cent of trains reaching their destination on time.



Transport Focus

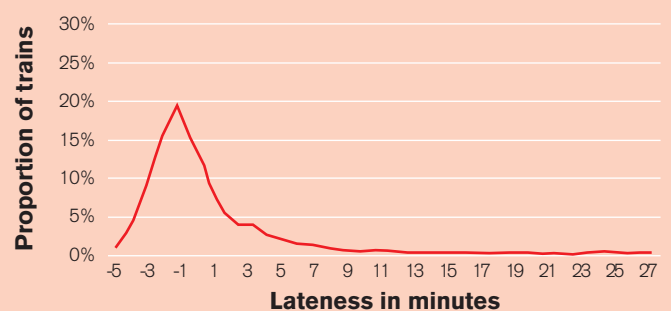
conclusions and recommendations

The overall conclusion Transport Focus draws from this research and analysis is that a key strategic focus for Control Period 6 must be on delivering a railway that is markedly more punctual than at present. That is, markedly more punctual in the way passengers understand punctuality – on time to within a minute of the timetable ('right time', as the rail industry calls it). Unless an incident is specifically disrupting the service, passengers should arrive 'right time' significantly more often than now *wherever* they get off. Trains which never run on time, or which are late more often than not, must become a thing of the past. And we note that it can be done: Arriva Trains Wales, Chiltern Railways and c2c regularly achieve a 'right time' arrival score of over 80 per cent.

The research shows that passengers want a robust, dependable timetable so they arrive on time at their destination. It appears that passengers – particularly commuters – are more interested in arriving punctually than in how long the journey takes or in the industry striving to run extra trains. There are exceptions: there is appetite for reduced journey time on very long-distance trips; for having more trains on routes with low frequencies; and for extra trains among commuters who struggle just to get on the train – never mind getting a seat. It should be kept in mind that this is qualitative research, but it suggests that passengers do not want a 'fudge' where the timetable just about works on paper, but rarely if ever in practice. This should be explored further in quantitative research.

It is clear that punctuality measured by the Public Performance Measure (PPM) does not accurately reflect passengers' experience, mainly because of the five or 10 minute leeway and because trains are measured only at their destination. PPM also undermines trust: counting trains as on time when they are late plays badly to passengers, many of whom are already suspicious of statistics from their train company. Transport Focus therefore advocates a move away from PPM as the single regulatory measure of train punctuality. Continuing for another five years with a regime where late is considered 'OK' is simply not tenable. But Transport Focus recognises that moving instead to a single pass/fail measure of 'arrival within 59 seconds' could have unintended consequences. Might the answer be targets to encourage movement of the whole 'arrivals curve' (example below) to the left on the graph, incentivising better 'right time' performance, but also giving incentives to achieve a three minute delay rather than a four minute delay, or a nine minute delay rather than an 11 minute delay and so on?

Example of an 'arrivals curve'



The industry needs to determine how punctuality should be measured at intermediate stations and then reflected in the regulatory targets. A new metric could try to combine punctuality at destination with that at some or all intermediate stations. It would be more difficult to explain, but it might focus attention on what really matters to passengers. If accompanied by complete transparency about performance, passengers would still be able to see how their trains performed, but the metric would be difficult to explain to passengers and staff – potentially limiting its effectiveness as a tool to drive improvement.

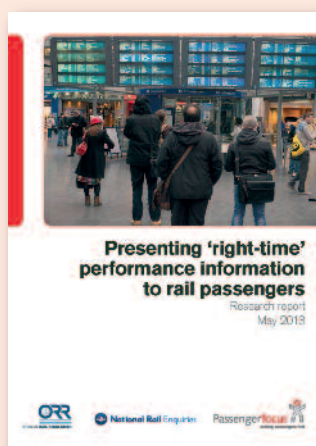
Control Period 6 should seek to deliver better punctuality for commuters – but not at the expense of giving train companies less incentive to run off-peak trains on time. The fact that poor peak punctuality can currently be off-set by good off-peak performance *should* be addressed, but not by creating the opposite problem. Would setting a target for peak trains, as well as for the timetable as a whole, be a way to increase focus on trains carrying a large numbers of commuters, without risking perverse incentives elsewhere?

A single pass/fail measure does not paint a full picture. A train with a 'right time' record of zero might arrive within two minutes on every occasion - but equally it might always be nine minutes late. It should therefore be made easy for a passenger to see a graduated picture of how often their train is 'right time', arrives within two minutes, three minutes, four minutes and so on. This would give a richer, more rounded view of train punctuality to both passengers and commentators.

The definition of 'significant lateness' within the Cancellations and Significant Lateness (CaSL) measure should be reviewed for Control Period 6. To passengers, particularly those making short journeys, a train becomes significantly late after less than 30 minutes delay. Separately, the target for CaSL should be reduced further for long-distance operators. Passengers making long-distance leisure and business trips said cancellations cause them more trouble than late running, yet the target for Virgin Trains (that is, Intercity West Coast) and Virgin Trains East Coast is more forgiving than for other operators. A CaSL target should also be considered for Scotland.

The industry should consider how underlying punctuality can be measured and better understood – that is, on days when there have been no specific incidents. Perhaps this could be achieved by tracking 'right time' performance on the nine best days in every 10 (with the least good removed)? Or perhaps by tracking 'right time' punctuality on days when there are very few cancellations or significantly late trains (as a proxy for the absence of disruption)?

Finally, in looking forward to 2019 the industry should consider if the level of punctuality required by previous High Level Output Specifications has been insufficiently ambitious to drive radical thinking and innovation. If the governments and regulator were to seek substantially higher performance in Control Period 6 and beyond, could it be the catalyst for fundamental change that would ultimately lead to exceptionally high levels of punctuality and highly efficient use of track, station and fleet capacity?



Summary

- When it comes to performance, a main objective for 2019-2024 should be to markedly improve true 'on time' punctuality across the rail network, including at intermediate stations. That means robust timetables that are neither overly heroic nor excessively padded. It means accurate sectional running times and accurate station dwell times.
- Transport Focus advocates a move away from PPM as the sole measure of success. It is not trusted by passengers and does not drive sufficient focus on punctuality as passengers define it.
- Whatever replaces PPM must strongly incentivise 'right time' punctuality, but seek to avoid unintended consequences of having a different, more demanding, sole measure of success. The industry should investigate if targets could be developed that would incentivise better performance *generally*, including 'right time'. How can the industry be incentivised in Control Period 6 to move the whole 'arrivals curve' to the left on the graph?
- Whatever the chosen metric, there should be a separate punctuality target for peak services to incentivise the industry to get commuters to and from work on time. Given passengers' concerns about reducing the incentive to run off-peak trains on time, this is preferable to weighting trains by volume of passengers within punctuality statistics.
- To give a more meaningful picture of punctuality, the industry should make it easy for passengers to see a graduated picture of how often their train (or group of trains) is 'right time', within two minutes, three minutes, four minutes and so on.
- The industry must become properly transparent and granular with all performance information – and through the 'front door' via train company websites and apps. If a passenger uses only the '07:29' and the '18:17', data for those trains alone should be readily available to them. The industry did not respond effectively to recommendations following research in 2013² (funded jointly by Transport Focus, ORR and National Rail Enquiries) and it should now do so.
- There should be a review of the Cancellations and Significant Lateness (CaSL) measure and targets with a view to: reducing the definition of 'significant lateness', particularly for short-distance journeys; further tightening the target for long-distance train companies; and Transport Scotland should consider specifying a CaSL measure in Control Period 6.
- The industry should tackle causes of distrust in statistics by: eliminating differences between the public timetable and the working timetable; reforming the system whereby cancellations made before 22:00 the day before do not count as cancellations in statistics; and being transparent about the number of days on which a formal amended timetable (one involving fewer trains running than normal) operated and about the number of trains involved.

Office of Rail and Road

conclusions

As the regulator for rail in Great Britain, we want to ensure that passengers are at the heart of Britain's railways and we are keen to see improvements in the levels of punctuality and reliability for passengers achieved by the industry to the greatest extent possible with the funding available. These studies are an important starting point as part of our preparations for Control Period 6 (CP6).

The qualitative study reflects the views of 80 passengers using the rail network. Their views provide us and the industry with a valuable insight into the priorities of different passenger groups, their level of awareness of performance targets and how they understand and interpret the existing performance measures. The quantitative analysis is useful in helping the industry better understand the real relationship between actual train performance and passenger satisfaction, although it must be noted that the results for Abellio Greater Anglia passengers may not be reflective of all train passengers, especially those using different types of services, e.g. long distance.

ORR is working to get the best deal for passenger and taxpayers. ORR's role is to create incentives and set targets for passenger

punctuality and reliability that reflect the interests of both government and the passenger (and recognising also the role of freight operators). We must develop a framework that genuinely encourages Network Rail and the industry to deliver improvements in punctuality, and which also aligns the objectives of train operators and Network Rail.

We are pleased that the industry National Task Force (NTF) is leading a review of the existing measures and generating alternative options for CP6 and that it has found these studies useful in that process. We would like the industry to deliver an outcome that provides the industry with measures which drive the right behaviours, which government would feel comfortable using for setting its high level targets for the industry and for its train operator franchises, and which we could then also use to set the regulatory targets for holding Network Rail to account.

We particularly welcome that the industry has taken on board the need to provide passengers with more accessible and transparent information about punctuality. The National Task Force has endorsed a "My Journey" work stream to make additional information available



to passengers about the reliability of their individual journeys. We will monitor progress with this work.

Before introduction of any new industry punctuality and reliability measure, there are a range of options and features now under discussion, in part informed by these studies and also from industry discussion and debate. This includes measurement to 'right time' (arrival within one minute of scheduled time), measurement at every station, use of banding, and some sort of passenger weighting. We consider that it is likely that we will need to achieve a balance of these desirable features across a small number of measures, rather than seeking to achieve one single measure which reflects all the features identified.

The assessment by the industry, by government, and by us of any potential new industry measures must be a carefully considered one and so we do not propose to make recommendations as to particular measures at this stage. We particularly want to understand how any new measure would translate into management behaviour in the day to day operation of the railway, and also in how the railway is planned

and timetabled, so that any unwanted outcomes are avoided. For example a 'right time' measure has the potential to result in extended journey times as a result of longer station dwell times to enable greater volumes and different types of passengers to get on and off the train. We must take into account the impact of any changes to passenger punctuality measures on the freight market (and vice versa).

There is merit in continuing to measure PPM for comparison and continuity purposes, as this is a measure that has been in place for a number of years. New measures, which may help the industry address the issues raised by these studies, could require improvements in technology (or the availability or distribution of technology on the network). We believe we must not be limited by the current technology but set the industry on a path that enables the important new technology on the horizon, such as GPS train fitment and smart ticketing, to be utilized to further improve measures over time.

We are acutely aware that there is a very difficult balance to strike between a comprehensive measure that captures all elements of punctuality and one that is transparent and easy for users to understand.

The NTF is leading an industry trial of a selection of new measures over the coming months, and we are eager to see the outcome of this trial. We consider that there needs to be flexibility to develop a strong set of measures that would meet the criteria set out above. We do not consider it necessary to wait until the next Control Period to implement a new measure or set of measures.

In terms of next steps, we will continue to engage with the NTF workstream, while developing our views on what the regulated outputs will be. This will inform our initial Periodic Review 2018 (PR18) consultation early in 2016, and wider consultation which we intend to carry out in relation to outputs around that time.

We look forward to continuing to work with the industry to develop proposals in this area.





Punctuality performance measurement

Research Debrief

Prepared for: Transport Focus

Date: 8th April 2015

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Background, objectives and methodology



Background

- Train performance in Britain is subject to a number of quality service targets covering a range of aspects of the service which the railways provide
- These targets are set by a process involving the Office of Rail and Road (ORR), the rail industry itself and the Westminster and Edinburgh governments. These bodies are about to begin a review process that will lead to the production of a set of High Level Output Specifications that will include targets for train performance from 2019 to 2024
- To help inform the development of these targets, Transport Focus and the ORR have commissioned research to ensure that passengers' priorities for train performance are clearly understood and inform the above process



Objectives

- The objectives of the research are to establish what passengers know about rail performance measurement and to identify their aspirations for how (and what elements of) performance should be measured in the future
- Key objectives for the research are to understand:
 - How passengers judge train companies' 'performance'
 - Passengers' experience of disruption including delays, cancellations, diversions, short-formations, etc
 - How these experiences translate into passengers' assessment of the railway's 'performance'
 - Passengers' knowledge and understanding of how performance is currently measured officially
 - Passengers' understanding of and reactions to the Public Performance Measure and the general concept of 'lateness'
 - Passengers' understanding of and reactions to the Cancellations and Significant Lateness Measure
 - The extent to which passengers understand and are prepared to make allowances for the inter-relationship of service frequency, journey time (speed), capacity (availability of seats) and performance
 - Interest amongst passengers in having official performance measures published and available for public scrutiny
 - Differences in understanding and expectations by passenger type, journey purpose, journey distance, service frequency, etc
 - The impact of poor performance on passengers' trust in the railways and/or specific Train Operating Companies (TOC)
 - What criteria should form the basis of any quantitative assessment of passenger perceptions of TOC performance.



Methodology

- Ten qualitative focus groups were conducted across four locations:
 - London
 - Derby
 - Glasgow
 - Cardiff
- Four focus groups were conducted in London and two in each of the other locations:
 - Two of the groups in London sampled Abellio Greater Anglia passengers only. This was so that the findings of these groups can be considered alongside a separate study that Transport Focus and ORR have commissioned looking at the impact of actual delay experienced by passengers on how they answer particular National Rail Passenger Survey questions. For that exercise Abellio Greater Anglia has been used as a case study.
- Each focus group contained eight respondents who used the train for either commuting or business/leisure purposes
- Respondents were also categorised by age and socio-demographics.



Group discussion programme

- The focus group discussion programme is detailed below:

LOCATION	DEMOGRAPHICS & TRAIN USAGE	TRAIN USAGE
London	Younger, C1C2D	Commuter
	Older, ABC1	Business/Leisure
London (Abellio Greater Anglia passengers)	Younger, ABC1	Business/Leisure
	Older, C1C2D	Commuter
Manchester	Younger, C1C2D	Business/Leisure
	Older, ABC1	Commuter
Cardiff	Younger, ABC1	Commuter
	Older, C1C2D	Business/Leisure
Glasgow	Younger, C1C2D	Commuter
	Older, ABC1	Business/Leisure

- Focus groups took place weeks commencing 9 and 16 March 2015.

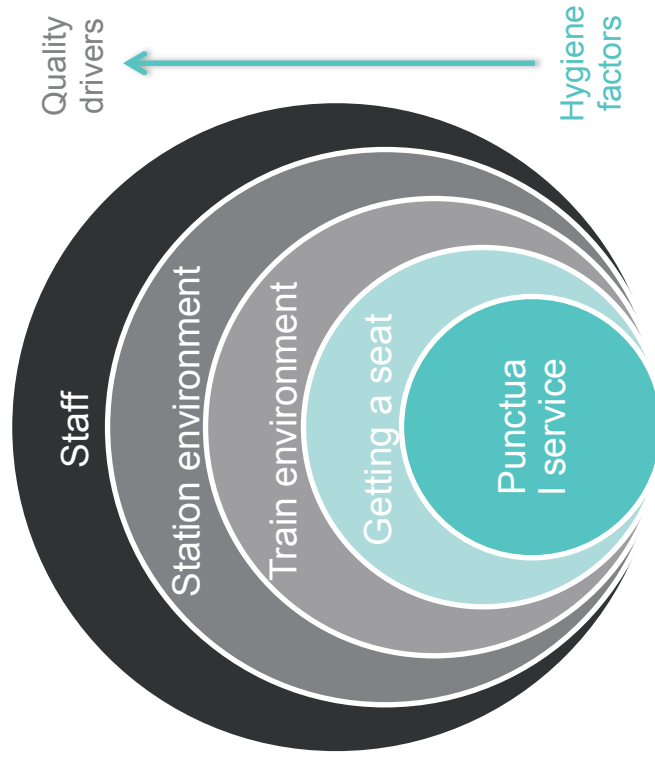


Passengers' top of mind views on train performance



What makes for a “successful” journey?

- Reliability is passengers’ *minimum* requirement from their train service
- Passengers define reliability primarily in terms of punctuality and secondarily in terms of not being cancelled or disrupted (reflecting the frequency with which these issues are typically experienced)



- Other than a reliable service, a range of additional factors inform passengers’ assessment of what makes for a successful journey
- These factors, such as getting a seat as well as a clean and safe environment on the train and at the station, can enhance the extent to which the journey is rated positively
- But these factors alone (i.e. in the absence of a punctual service) will not result in a successful journey

- The importance of these factors of course varies by journey type
- For example on a longer distance business/leisure journey, getting a seat is almost expected and the lack of it can severely influence satisfaction
- However, on a shorter commuter trip in peak hours passengers do not necessarily expect to get a seat, so getting one can create considerable delight.



Experience of delays, disruption and cancellations is mixed

- Overall, passengers' satisfaction with the level of delay, disruption and cancellations is not especially poor
- However, experiences do vary by passenger type

COMMUTER

- Delays tend to be minor but frequent
 - For example, 2-3 minute delays several times per week
- Few cancellations, but short formations not uncommon
- NB: Due to the group environment an element of over claim may exist*

BUSINESS/LEISURE

- Delays, cancellations and disruption are rare
- Most can recall at least one "horror story" of a journey, though this was not necessarily recent

RURAL LINES

- Delays and cancellations occur more often during 'bad' weather
- Instances of trains not stopping at scheduled stations
- Weekend service often non-existent or reduced in frequency

GLASGOW

- Passengers in Glasgow feel the number of minor delays and cancellations is high and that the service is inferior compared with other parts of Britain
- Long delays are rare, with trains either 2-3 minutes late or cancelled outright
- NB: other Transport Focus research in Scotland showed a belief that ScotRail is too cautious and inclined to cancel services at the 'first sign of a snowflake'*

"The board will say that the train is delayed by three minutes, and then it will just change to cancelled, there is nothing in between."

Glasgow group, Commuter, Younger



Limited knowledge of how performance is *actually* measured

- Passengers assume that performance is measured primarily in terms of punctuality, although they have no definitive knowledge of this
- Most struggle to recall having heard or seen anything about performance measurement

LITTLE/NO KNOWLEDGE

- Refer to/make comment on media stories e.g.:
 - Kings Cross Christmas debacle
 - Southern commuter service from Brighton to Victoria that was 'late every day'

SOME KNOWLEDGE

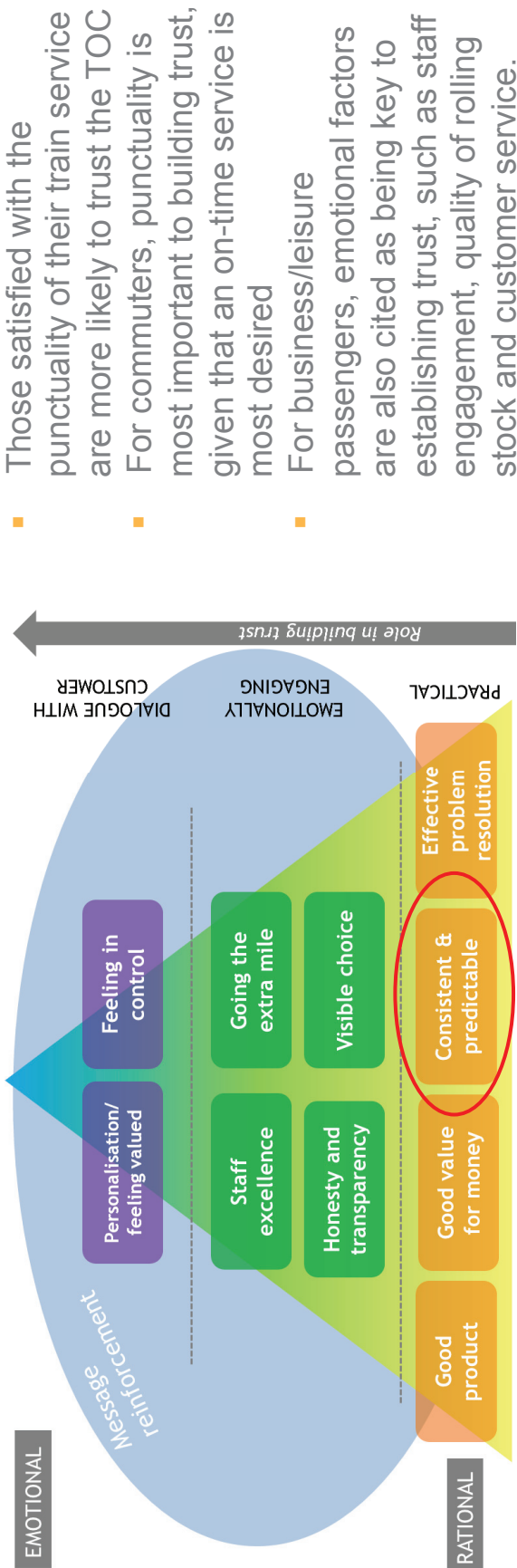
- Some mentions of posters in rail stations showing 'numbers of some sort' about punctuality
 - Particularly in London, passengers query the reliability of these numbers as often seem high

- There is no clear understanding of who sets performance targets
- It is presumed that this is done by the train companies themselves, the 'Government' or 'something official'.



Reliability is key to TOCs building trust

- Previous research* has highlighted the importance of reliability for train companies in attaining and building trust
- There are other factors in addition to reliability and many of these are lacking amongst train companies
- Therefore passengers are often cynical when talking about the extent to which they trust their train company
- Consequently, they are also pessimistic when talking in terms of rail targets; how they are set, who sets them and the extent to which they are achieved



- Those satisfied with the punctuality of their train service are more likely to trust the TOC
- For commuters, punctuality is most important to building trust, given that an on-time service is most desired
- For business/leisure passengers, emotional factors are also cited as being key to establishing trust, such as staff engagement, quality of rolling stock and customer service.

“In terms of quality of the actual train carriages I think Virgin are way ahead and that influences my trust in them.”
Derby group, Business/Leisure, Younger

“I trust the one that I use because they get me to work on time, and it’s very important that I get to work on time otherwise I’m late for court.”
Derby group, Commuter, Older

* <http://www.transportfocus.org.uk/research/publications/passengers-relationship-with-the-rail-industry>



Reaction to PPM and CaSL performance measures



Overview: reactions to train performance measures

- Passengers know little about how train performance is measured - knowledge of PPM and CaSL non-existent
- However, measuring performance is seen as important and there is an appetite for learning about how it is measured
- That said, most passengers expect that targets will not be particularly demanding and tend to give low estimates when asked what they believe targets will be
 - For CaSL, the headline target of 2.2 per cent was seen as reasonable
 - 98 per cent not cancelled was typically suggested as an aspiration
 - Accepted that 'things happen' meaning some cancellations inevitable
 - PPM less well received
 - 98 per cent - 99 per cent punctuality often the typical target suggested
 - As such, 92.5 per cent target falls well short of ideal (although not altogether unexpected)
 - On reflection, around 95 per cent seen as 'realistic' target
- However, once the detail of targets is revealed, many feel that their 'worst suspicions' have been confirmed
 - Do not believe that measures accurately reflect true performance
 - Figures 'massaged' by generous targets and 'loopholes'
- Furthermore, many passengers struggle to understand how targets impact on their journey
 - Whether achieved or not, what are the consequences?
- Some make an explicit link between compensation for delay or cancellation with performance targets or with fines and performance targets
- While there are calls for more stringent rules in respect of fines and compensation, this is also seen as a double-edged sword – perception that ultimately 'the passenger always pays'

"It's a bit of a con, they're measuring those figures in a way that makes them show what they want them to show, rather than measuring it to identify and fix problems, to make it actually a good service."
London group, Commuter, Younger

"And at the end of the day if that was okay, they would tell you wouldn't they? It would be "Here's how we are measured..." but they obviously don't want to tell you that because everybody is going to say that's not right."
Cardiff group, Commuter, Younger



Performance measurement: initial expectations

- Passengers expect punctuality to be measured in detail and believe that the technology can/should facilitate this

TOC

- Every service operated by every TOC should be measured and published

JOURNEY

- All journeys should be monitored and published

STATION

- Departure/arrival times should be measured for every train stopping at every station

- Some suggest a sampling approach as long as the sample still measured the train's entire route (not just end destination station).

"I know we've got the technology to do it but if you can get a big enough sample, it's statistically valid anyway."
Cardiff group, Commuter, Younger

"Every station it stops at because it's all very well if it leaves Glasgow and gets to Edinburgh at the right time but if somewhere along the line, say it's delayed and you arrive late or miss your connecting train?"
Glasgow group, Commuter, Younger



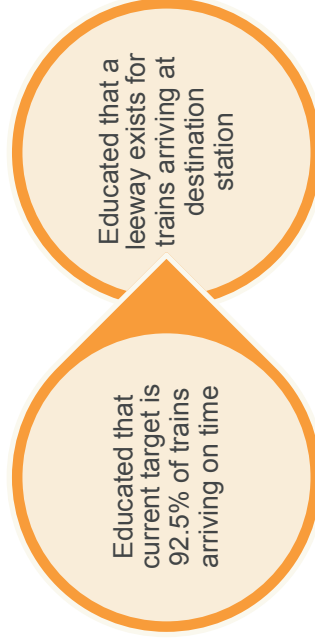
Unveiling of PPM to respondents

- Passengers were educated about Public Performance Measure (PPM) in the following way
 - Their reactions were sought after each piece of information was given

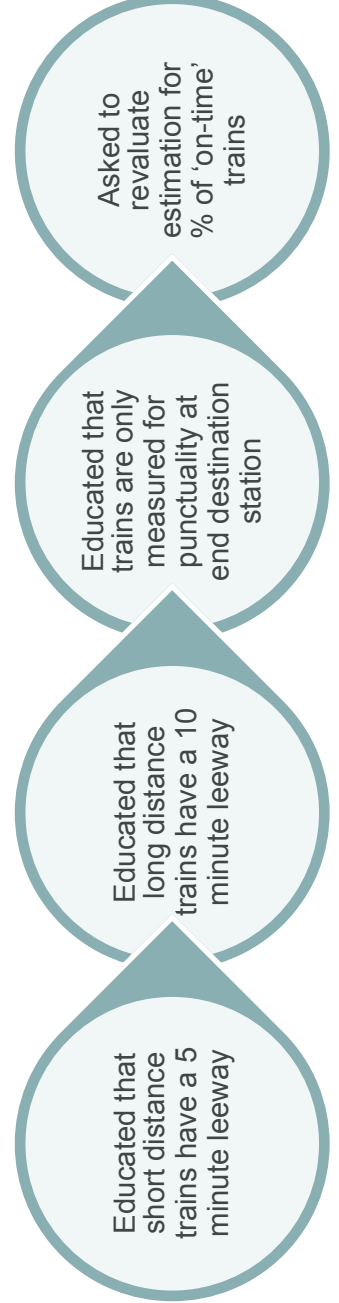
First stage



Second stage



Third stage





Overview: reactions to PPM

The Public Performance Measure (PPM) shows the percentage of trains which arrive at their terminating station on time.

Initial reaction

- Initial reactions are that PPM should measure punctuality firmly and stringently
 - Broad consensus that >95 per cent of trains should be arriving 'on time'
 - 'On time' should mean to the minute
 - Punctuality at every stop should be measured

Considered reaction

- Initial stringency softens as educated more about what PPM measures
 - Understanding that a very small element of 'leeway' may be needed around 'on time' measure

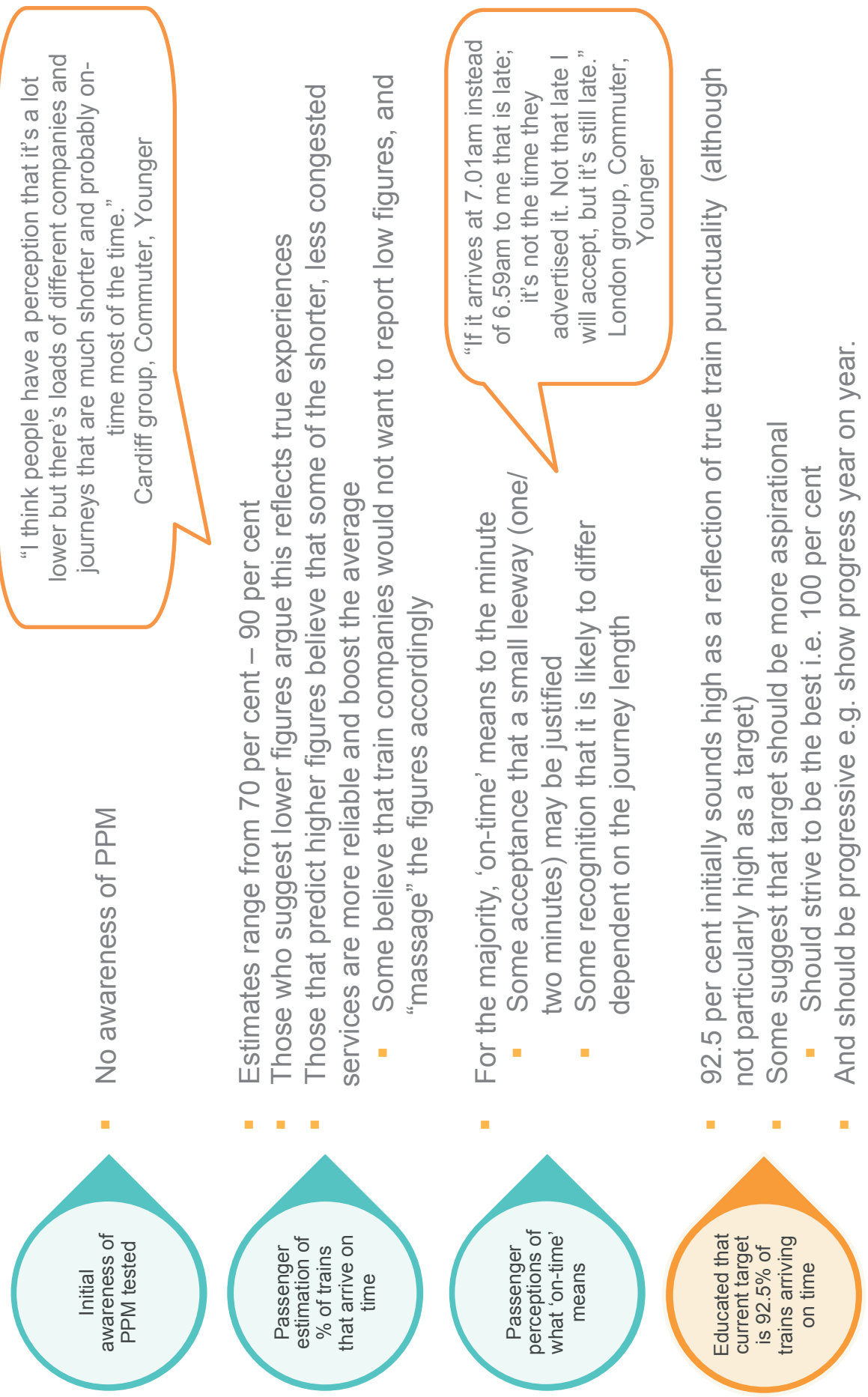
Reaction after detailed explanation

- Scepticism sets in and passengers question the value of the measure
 - 92.5 per cent target feels far too low (NB - target tends to be seen as a ceiling rather than a base level)
 - Leeway considered overly generous i.e. 10 minutes 'late' considered too long to still be counted as 'on time'
 - That trains are only measured at destination station further compounds cynicism

- Awareness of how PPM measure is calculated further undermines trust in train operators.

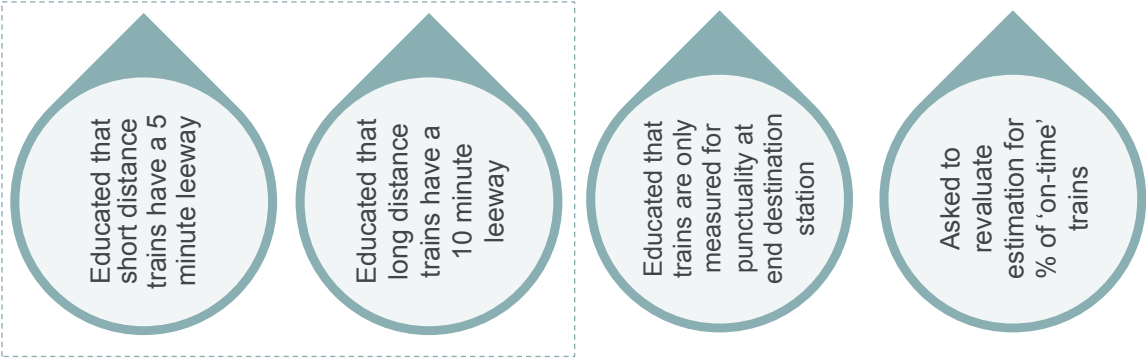


Detailed view: reactions to PPM





Detailed view: reactions to PPM



- Passengers often 'outraged' at industry's definition of 'on-time'
- Also disbelief that this is not more widely communicated
- Some suggest alternatives:
 - Leeway calculated as a percentage of train journey
 - Leeway built in to the timetable, particularly for long distance journeys (as per airlines)

"If you're given a time and it gets past that time, then in my opinion that's late – how can you say it's on time if it arrived 10 minutes late?"
Glasgow group, Business/Leisure, Older

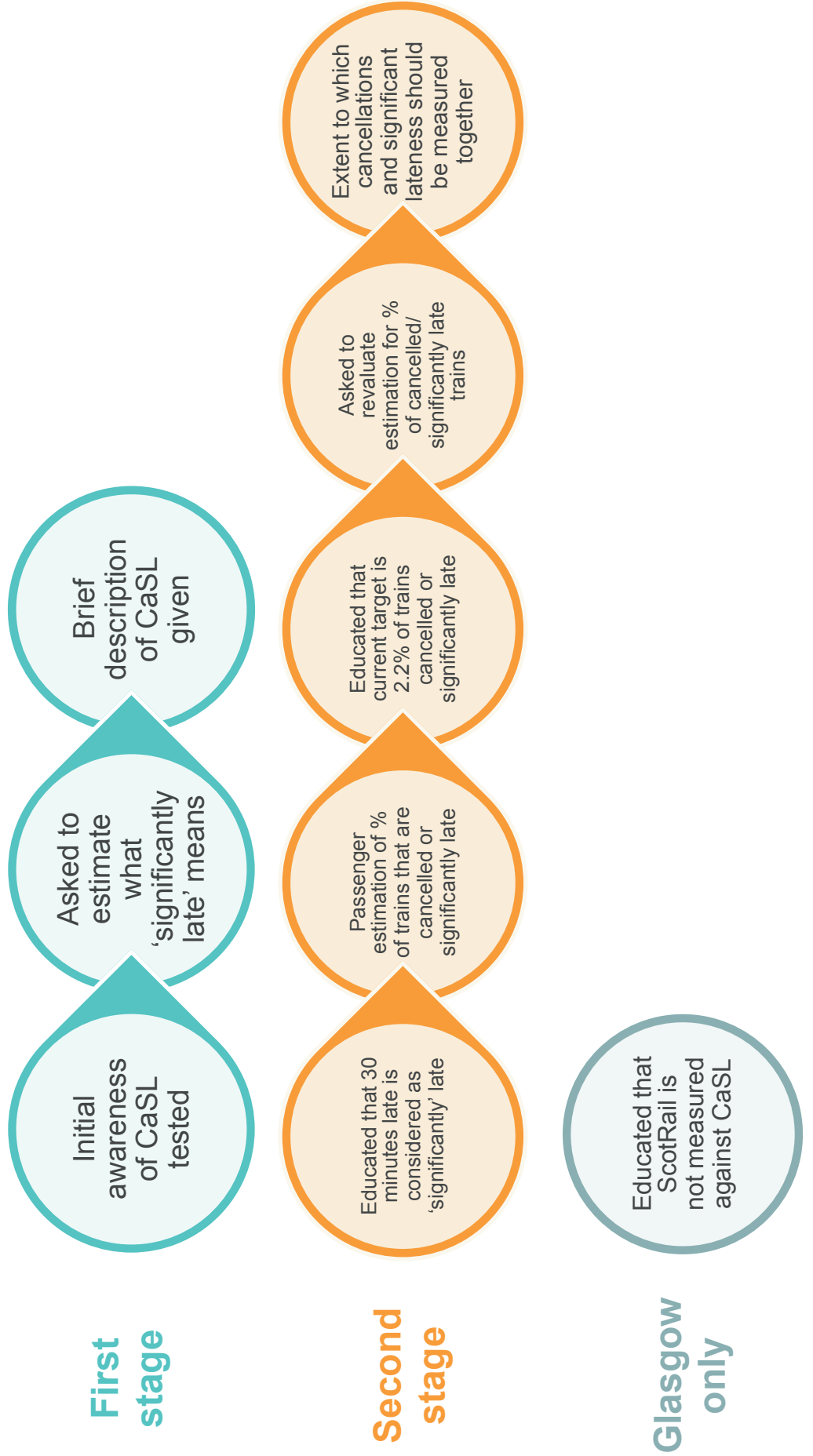
"We all said that we care about if it gets to our station on time, so this isn't really telling us anything about that, it's just telling us whether it gets to whichever the end station is."
Cardiff group, Commuter, Younger

- Passengers further irritated by this
 - Adds to the perception that train companies 'massage' the figures
- Consensus that punctuality should be measured at every station
 - Otherwise not accurate given many people will disembark before final destination
- A perception that 92.5 per cent is not a true reflection of train punctuality
 - Given all of the caveats, a score of 99 per cent is not seen as unreasonable.



Unveiling of CaSL to respondents

- Passengers were educated about Cancellations and Significant Lateness (CaSL) in the following way
 - Their reactions were sought after each piece of information was given





Overview: reactions to CaSL

CaSL is defined as the number and percentage of passenger trains (franchised and open access operators) which are cancelled in part or full, or which arrive at their final destination 30 or more minutes later than the time shown in the public timetable.

Initial reaction

- Passenger definition of 'significantly late' considerably more stringent than the industry measure
 - 10 minute 'cut-off' for short distance and 20 minutes for long distance trains
 - Cancellations seen as requiring a more stringent target than lateness – 98 per cent not cancelled emerges as consensus figure.



Reaction after detailed explanation

- Some indignation at industry definition of 'significantly late' - 30 minutes considered too generous
- However, 2.2 per cent as headline figure considered a reasonable target for cancellations albeit more detail regarding reasons for cancellation often desired
- Measuring significant lateness and cancellations together is confusing for some.



Detailed view: reactions to CaSL

“I can’t understand why it is 30 minutes and I would aim to reduce that. I think they have given themselves quite a lot of leeway actually with 30 minutes.”
 Glasgow group, Business/Leisure, Older

Initial awareness of CaSL tested

- No awareness of CaSL

Asked to estimate what ‘significantly late’ means

- Passengers estimate that ‘significantly late’ would include short distance trains that are more than 10 minutes late and long distance trains that are more than 20 minutes late
 - i.e. double the allowances that PPM makes for late trains

Educated that 30 minutes late is considered as ‘significantly’ late

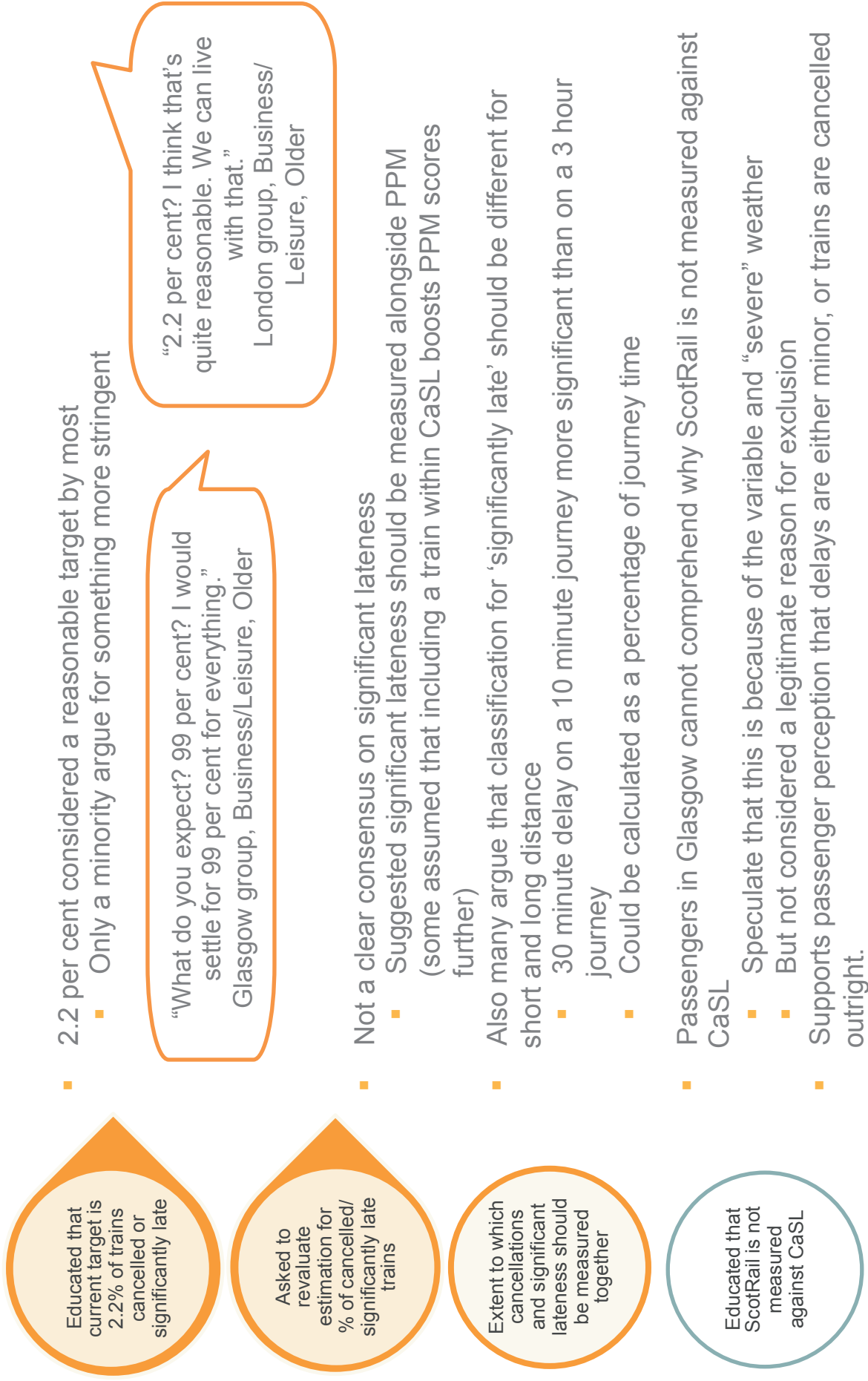
- Including significant lateness within cancellation figures causes some confusion
 - Some agree that 30 mins delay is as bad as a cancellation and so should be counted as such
 - Others suspect it may be a way of ‘hiding’ lateness

Passenger estimation of % of trains that are cancelled or significantly late

- Estimates are 95-98 per cent of trains are not cancelled or significantly late
 - Passengers speak in terms of the numbers of trains that are **not** delayed or significantly late
 - Rather than the number that **are** cancelled or significantly late.



Detailed view: reactions to unveiling of CaSL





Detailed view: reaction to calculation of punctuality targets

Currently, all trains count equally towards punctuality targets – each individual train either does or doesn't arrive within 5 or 10 minutes of scheduled time. There is therefore exactly the same incentive, from a performance target perspective, to run a train on time that has 1,000 passengers on it as one with 20 passengers.

- On balance, most passengers believe that all trains should count equally towards punctuality targets
 - They argue that everyone has made the same contract with the TOC and each journey should have the same weight
- There is some argument (particularly by commuters) that journeys should be weighted by passenger numbers
 - And some suspicion that targets might be massaged by operators running trains on 'easy' services to 'up' the average
- However, also believe that weighting by passenger numbers might introduce perverse incentives
 - If targets are skewed to busy trains, it is feared that the train companies may drop service standards on quieter services and not strive to ensure optimum punctuality.

"I don't think they should or otherwise they will end up making all the trains for leisure four hours late, and the rest on time!"
London group, Business/Leisure, Older

"But are they looking at that saying there's only 20 people on it so let's cancel it because it's not economical to run it?"
Glasgow group, Commuter, Younger



Effect on trust

- Knowledge of PPM/CaSL and how each measure is calculated further undermines passengers' trust in the railway for a number of reasons:
 - Belief that targets are not stretching enough overall
 - Targets seen as containing numerous loopholes and caveats that allow the industry to massage the figures
 - Expectation that targets will be treated as a *ceiling* for service performance and that operators are only incentivised to 'get over the line'.

"You trust them less, knowing the detail behind the measure now, it's like not what we would expect, our perception of 95 per cent on time is not actually accurate."

London group, Business/Leisure, Older

"I said before that I trust if I had a complaint but now I think they'd probably do the same with their complaint figures and say "oh well, this complaint doesn't count for this reason", whatever."

Glasgow group, Business/Leisure, Older

"A bunch of thieving rogues!"

London group, Business/Leisure, Older



Speed, punctuality,
frequency trade-offs



Punctuality most desired over speed, frequency

- Most passengers (and commuters in particular) desire more punctual trains
 - This is because passengers' primary aim is to arrive at their destination 'on time', regardless of how long that journey takes
 - Also, reflects belief / experience that delays occur more frequently than cancellations
- There are a few exceptions:
 - **Speed** desired on very long distance journeys (London – Glasgow), to reduce journey time
 - **Frequency** desired on rural journeys, to ensure trains run more regularly
 - **Frequency** desired by some leisure travellers, as this should result in more seats and therefore less crowding
- A widespread belief from passengers that there is no reason why the train companies can't deliver an improvement in terms of all three factors: speed, frequency and punctuality
 - The industry's argument that all three can't be achieved further compounds a view that passengers' best interests are not prominent enough
- Passengers also argue that a 'one size fits all' approach is inappropriate and that different journeys require different improvement priorities.

“That is a ridiculous argument. I think because we give them so much leeway that is why they can then say these things.”

London group, Commuter, Younger

“To me it's too top down, it's a general question in general terms, what would you like? But the specific issues are specific routes so why can't they address them rather than just saying we can have frequency, speed or ...?”

Glasgow group, Commuter, Younger



Task 1

1. When you are making a long distance journey, for example London to Manchester, what is more important to you?

More trains arriving at their destination 'on time' (within 10 minutes of scheduled time)	60%
A reduction in the amount of train cancellations or days of widespread disruption	40%

Base: .80

CAUTION: These figures should be used only as an indication, due to the low sample size

- Commuters more likely to desire more 'on time' trains, reflecting more frequent experience of delays and more limited impacts of cancellations given service frequency
- Those choosing fewer cancellations (more often business/leisure travellers) argue that a 10 minute delay is not hugely significant for a longer journey, but a cancellation could be a 'disaster'.

"If I was doing a journey, say I was going Glasgow to Manchester for a trip away, if your train's cancelled, that's your trip ruined."

Glasgow group, Commuter,
Younger

"I put the first one just because I think there's not as many cancellations as there are late trains. But a cancellation at the wrong time could be terrible but they rarely get cancelled, compared to the amount that are late."

London group, Commuter, Younger



Task 2

2. On some routes it may be theoretically possible to run an extra train. This would mean a higher frequency of trains and less crowding, but it could mean that punctuality suffers. Which is more important?

To run an extra train, even if punctuality suffers	30%
Ensure that trains run to schedule even if there are more passengers on the train	70%

Base: 80

CAUTION: These figures should be used only as an indication, due to the low sample size

- Commuters, again are more likely to desire more 'on time' trains
 - Accustomed to crowding and not getting a seat
 - Punctuality and getting to work/meetings on time is more important
- Business/leisure passengers desire more comfort – crowding/lack of seating is a more significant issue
- Some commuters argue in favour of additional trains on grounds that services often severely overcrowded
 - Not a question of not getting a seat, but of not being able to get on the train at all.

“But then you don't really mind standing on the train for 15 minutes every morning, you wouldn't want to be standing from Glasgow to London.”
Glasgow group, Business/Leisure, Older

“I'd rather get squashed for a little bit. Because we're used to getting squashed.”
London group, Commuter, Younger



Task 3

3. On some routes it may be possible to reduce journey time, but it might come at the cost of more erratic punctuality (one day it runs fine, the next it is late). Would you rather...

A service that gets you to your destination quicker, but an increased chance of delays	10%
Ensure that trains run to schedule even if there are more passengers on the train	90%

Base: 80

CAUTION: These figures should be used only as an indication, due to the low sample size

- Little desire for a faster service in exchange for more erratic punctuality
 - Passengers do not mind how long a service takes, providing it arrives at the scheduled time
 - Allows them to plan/schedule
 - Belief that faster doesn't mean significantly faster and is likely to be only one/two minutes quicker.

"If they tell me it's going to take 10 minutes, I'm happy for it to take 10 minutes, don't really care if it takes eight."

London group, Commuter, Younger

"Yeah, if your train journey takes normally 20 minutes and they can reduce it to 10 minutes but they could be 10 minutes late, then you're still getting from your house to your ultimate destination at the same time. I'd rather they were more accurate."

London group, Business/Leisure, Older



Task 4

4. What is the most important objective that Government should set for train companies to achieve?

More trains arriving on time	73%
Fewer cancellations	17%
Fewer days of major disruption	10%

Base: .80

CAUTION: These figures should be used only as an indication, due to the low sample size

- The majority desire more trains arriving on time – reflects belief / experience that delays occur more frequently than cancellations
- Those who opt for fewer days of major disruption argue that this will reduce the number of people stranded/unable to get somewhere, particularly on longer journeys
 - Whereas cancellations/delays may still allow arrival at destination, just late.

“I think generally more trains are delayed than they are cancelled or disrupted so if you’re taking an average, I would rather that they were more on time and a couple of cancellations.”

London group, Commuter, Younger

“I put number three again because if you can’t get there at all, if you have a day of major disruption, if you can’t get there at all it could really mess up a holiday or whatever, whereas being slightly late isn’t the end of the world.”

London Group, Business/Leisure, Older



Performance measurement trade-off exercises



Further learning on PPM/CaSL

- Learning about some of the criteria against which PPM and CaSL are measured further erodes passengers' perceptions of the credibility of these measures
 - Passengers are, again, left 'outraged' at some of the tactics that the train companies can employ, specifically:
 - Adding extra time to the timetable between the penultimate and last stop
 - Cancel trains by 10pm the night before they are due to run and they don't count as cancelled
 - Miss out stations to save time and get subsequent trains running to schedule
- This further strengthens the perception that PPM/CaSL does not provide a representative view of the train service as too many 'loopholes' exist.

"I think the figures they seem to publish are certainly published to pull the wool over our eyes. If they just told us what was happening, we could say "Yeah, that's okay, we understand it's a difficult job you've got to do, we understand there's going to be delays and cancellations", we understand all that, if you just told us the truth then we'd be able to deal with that."

Glasgow group, Business/Leisure, Older



Task 1

- Some train companies add extra time to the timetable between the penultimate and terminating station, while others print a publicly-advertised arrival time that is later than the actual arrival time in internal timetables.

To what extent do you agree that this is an acceptable thing for train companies to do?

5 = strongly agree, 1 = do not at all agree

1	2	3	4	5
28%	22%	25%	15%	10%

Base: 80

CAUTION: These figures should be used only as an indication, due to the low sample size

- Not a clear consensus
 - Some see this as acceptable providing they arrive at their destination at the scheduled time – expectations are managed
- Many feel it is unacceptable
 - Another way that the figures are manipulated
 - Not a fair/genuine reflection of how the service has performed

“If it said a couple of minutes from when it actually arrives at its destination, you know I would rather personally that than it arrive two minutes late and I miss my connection.”
Glasgow group, Commuter, Younger

“It’s not fixing the problem. It’s just lying and saying that it is on time, but it’s not.”
Glasgow group, Business/Leisure, Older

- Viewed as more acceptable if additional time is added on at every station the train stops at
 - E.g. one/two minutes
- But not just between penultimate and end station.

“If a train said it added an extra minute on the time between each stop and it actually took that time, whether that meant it was going slightly slower or whatever, that I wouldn’t have a problem with.”
London group, Commuter, Younger



Task 2

- On some 'metro' type train routes service frequency is similar to London Underground. Imagine a route like that with 10 trains per hour - in other words a train every 6 minutes. One train gets delayed and arrives at your station 6 minutes late. If all the trains for the rest of the day arrive at your station 6 minutes late the train punctuality score (PPM) would be zero percent, but no passengers will actually be late - except those on the very first train.

In this situation, what would be better to measure performance?

Via the current method i.e. PPM	20%
To measure the interval times between trains i.e. the amount of time between each train	80%

Base: 80

CAUTION: These figures should be used only as an indication, due to the low sample size

- Large majority agree that an interval measurement system would be more appropriate
 - Perception that this would provide a more accurate reflection of punctuality experienced by the majority of passengers.

“It’s still going to inconvenience the first people at the platform or some people on one train, but for the majority it’s probably going to improve their experience.”
 London group, Commuter, Younger



Task 3

3. In the autumn train companies will run amended timetables to account for trains having to brake more slowly when leaf mulch makes the rails slippery. Should the timetable be amended so that...

The service provided is predictable and reliable, even if it takes slightly longer than normal	90%
Or should train companies try to run the normal timetable and if some trains run late some days, so be it	10%

Base: 80

CAUTION: These figures should be used only as an indication, due to the low sample size

“People just need to plan their journey, people accept different times of year that you might not get the same level of service, it’s knowing in advance so you can take other action to get there.”
 Glasgow group, Commuter, Younger

- Mixed feelings exist on leaf mulch
 - Some recognise that it is a genuine problem
 - Others struggle with the concept and don’t believe other countries have such problems
- Passengers desire a predictable service rather than uncertainty and do not oppose an amended timetable
 - Safety is paramount
- Any amended timetable would need to be in place for a limited period i.e. two/three months
 - With advance notice about its introduction
- Those against the idea argue that the TOCs receive enough leeway as it is
 - Whilst a lack of trust results in passengers believing that TOCs would introduce the timetables too early or when leaf mulch isn’t a problem.



Task 4

- 4. In times of extreme weather, train companies can run an amended timetable. This timetable may have a reduced frequency of trains running or there may be no trains at all on particular lines or stopping at particular stations.

Should train companies be allowed to introduce an amended timetable	60%
Or should they always have to attempt to deliver the full timetable	40%

Base: 80

CAUTION: These figures should be used only as an indication, due to the low sample size

- Passengers divided on the introduction of an amended timetable

“I think that they should attempt to do it. In my experience there’s like literally a couple of snowflakes and that’s it the whole network goes off. To be honest they would bring in an amended timetable too soon, they’d say right that’s it.”

Glasgow group, Commuter, Younger

Support an amended timetable

- Safety is paramount
- An amended timetable is likely to be more punctual
 - But, any amended timetable should be communicated well in advance

- Performance should be measured against the amended timetable, providing passengers are given notice of this and it is not introduced at very short notice.

Oppose an amended timetable

- TOCs should at least attempt to deliver the full timetable
 - Rather than admitting defeat straightaway
- Passengers’ perceptions of extreme weather likely to be significantly different from TOCs’
- Passengers stranded at non-stopping stations



Task 5

5. Currently, if a train company cancels a service by 10pm the day before it is due to run, it doesn't count as a cancellation in terms of industry targets.

To what extent do you agree that this is a fair way to measure performance?

5 = strongly agree, 1 = do not at all agree

1	2	3	4	5
66%	30%	4%	1%	0%

Base: 80

CAUTION: These figures should be used only as an indication, due to the low sample size

- Almost unanimous agreement that this should not be allowed to happen
 - More acceptable if the cut off point was earlier than 10pm and passengers were given more warning e.g. 24 hours.

“I could understand if they had a platform where they could inform everyone “this train’s cancelled” and you're given plenty of notice but if they didn't really provide notice, I'd strongly disagree that this is acceptable.”
London group, Commuter, Younger

“It depends what time the trains are the next day entirely because you can get a six o' clock train and you're sleeping at 10pm, I think it has to be 12 hours' notice or something like that.”
Glasgow group, Commuter, Younger



Task 6

6. On a day when the train service has been dreadful, what should the industry do to get back on track?

Continue to run as many services as possible, even though these are likely to continue to be delayed	81%
Sacrifice the interests of passengers travelling at that moment in return for a better service later in the day. For example, for a period of time (one/two hours), skip stations, stop trains short of their destination and cancel trains outright, in order to get trains in the right positions and 'back on track'	19%

"I think it's the most fair, everyone's going to get delayed and that's just the way it goes. You all get delayed together."
 London group, Business/Leisure, Older

Base: 80

CAUTION: These figures should be used only as an indication, due to the low sample size

- The majority feel that all passengers should be treated equally, regardless of time of travel
 - Unfair to leave passengers stranded
 - And unable to get home
- Most passengers can recall a time when they have been stranded or a train has not stopped at their station
- The only exception is London
 - Some passengers feel that London is better equipped to cope if they cancelled train services for a short period
 - Alternative routes/forms of transport available
- 'Disaster days' should be measured separately in punctuality statistics
 - And measured against how well the 'disaster' was dealt with.

Summary



Performance measures and trust

- Passengers' views on performance targets and measurement are informed by the wider context within which they assess the railways. There are three key issues:
- **Limited trust** - lack of trust is a recurring theme in passengers' assessment of railway performance
 - This study, in line with much previous research, highlights a large degree of cynicism about the motives and behaviour of the railways
 - While this cynicism can often appear ill-informed, it reflects both a (not unreasonable) lack of understanding about how the railway operates and the very limited *emotional* engagement that consumers have with the railways
 - As such, there is a tendency to suspect the worst rather than give the benefit of the doubt – an impression that is reinforced when passenger learn more about the detail that sits behind PPM and CaSL
- **Lack of competition** - while consumers are often sceptical about the claims made by 'big business', this is compounded in the case of the railways by a belief (whether right or wrong) that the industry is not subject to the same level of competitive market discipline as other sectors
 - This has the contradictory effect of increasing the perceived importance of the railways having stringent performance targets, while also reinforcing passengers' suspicions that the railways will do nothing more than the bare minimum to reach such targets
- **Lack of transparency** - for the most part, passengers do not know what targets are set, by whom they are set or how they are monitored. Furthermore, even when they are informed about targets, they struggle to see a link between these measures and their own journey experience or how these measures contribute to service improvement more generally
 - Linking performance more explicitly to compensation and / or fines is seen by some as a better way of reflecting passengers' experiences but some feel such costs will ultimately be borne by the passenger.



Passengers value PPM/CaSL in principle, but question how these measures are implemented in practice

- Passengers' key priority is for *reliability* and as such there is broad agreement that both punctuality (especially) but also cancellations should be stringently measured
- As such, both PPM and CaSL are seen as relevant and useful *in principle*
 - However, in practice, the overall targets are seen as relatively lenient (particularly PPM)
 - The current measures are also considered to contain too many 'loopholes' – this reinforces perceptions of leniency and undermines trust in the whole measurement process
- Passengers' response to the above is to suggest that more – and more detailed – information should be provided. Specifically:

More detail	<ul style="list-style-type: none"> Departure/arrival times should be measured for every train stopping at every station Every service and journey measured Information on cause of delay/cancellation/disruption Separate definitions for 'significantly late' on short and long distance trains Some support weighting by passenger numbers (although the overall consensus was for measurement per train)
Less lenient	<ul style="list-style-type: none"> Amount of 'leeway' determining 'on-time' based on journey length of train TOCs not allowed to add extra time to the timetable between penultimate and terminating station ScotRail to be measured against CaSL Cancellations and 'disaster days' always recorded and measured
Transparency	<ul style="list-style-type: none"> More communication that these measures exist More communication about how these figures are calculated and monitored

- Providing some of the additional detail described above might help to reassure passengers about the relevance and integrity of PPM and CaSL
- However, it has to be acknowledged that suggestions such as these are, in part, a function of passengers having been asked to look at performance measures in a sustained and detailed way in a research setting. In reality, consumers are seldom willing to engage at such a level of detail, although they believe access to such detail should be available if required.



Issues to consider

- Passengers want train punctuality and cancellations to be measured
- Given this, there may be merit in providing additional detail about targets and, indeed, in making targets more stringent
- But in **addition**, consideration should also be given to communicating targets in a way that helps address the bigger, contextual issues – particularly that of trust. The following might therefore be considered:
 - Objectivity and independence
 - More information about who sets and monitors the targets, as well as reassurances that they are managed independently and impartially with passengers' best interests 'at heart'
 - Consequences and incentives
 - Communication of why it is necessary and important for TOCs and Network Rail to meet (or even exceed) targets and the consequences of non-performance
 - Aspirational and progressive
 - Positioning targets as the 'minimum acceptable level' of performance, giving an assurance that the industry strives to exceed these targets and providing evidence that it does so on occasions²*
 - Communicating improvement over time and showing that targets work in supporting continual service improvement
 - Simplicity
 - Consideration might be given to re-framing targets away from purely statistical information (although still very much underpinned by 'hard' data) towards making a small number of simple but definitive promises, cast in 'consumer' language and with a clear indication of the consequences of failure. In this context, targets might be better communicated through Customer Reports, which appear to have significant potential for building dialogue with passengers*
 - For example, 'We will only ever cancel a train for the following reasons...', 'If we make you more than X minutes late we will refund Y per cent of your fare' etc.

*<http://www.transportfocus.org.uk/news/articles/train-company-transparency-welcomed-by-passengers-2015>



Transport Focus

Links between train punctuality and passenger satisfaction:
Journeys across the Greater Anglia franchise in 2012, 2013
& 2014

Executive summary

Transport Focus is the independent transport user watchdog charged with representing the interests of: Britain's rail passengers; bus, coach and tram passengers in England but outside London; and users of the strategic road network in England. Amongst other objectives, Transport Focus seeks to understand the needs and expectations of rail passengers and to secure tangible and measurable improvements for them. To support these objectives Transport Focus commissions and publishes the twice-yearly National Rail Passenger Survey (NRPS), which is the benchmark measure of changes in passengers' attitudes towards all elements of rail travel in the country.

This report, commissioned by Transport Focus in a joint project with the Office of Rail and Road (ORR), provides the results of a study examining passenger satisfaction, as measured by NRPS, alongside rail industry train punctuality data from 2012 to 2014. The principal aim of the study is to further understand the relationships between passenger satisfaction with punctuality and actual train punctuality.

The analysis matched train punctuality data with individual respondents from the survey, establishing how late the train was at the location where the passenger alighted. This allows a direct comparison to be made between the lateness the passenger experienced and their resulting satisfaction with punctuality.

The report focusses on the Greater Anglia (GA) franchise in order to provide comparability with a 2009 report prepared by CDL (now part of GHD), as well as to inform Transport Focus ahead of the East Anglia franchise competition later in 2015.

The document has been prepared solely based on data from:

- NRPS records and corresponding reports, supplied by Transport Focus; and
- Train punctuality and timetable data, supplied by Abellio Greater Anglia (AGA).

In discussion with Transport Focus it was agreed that:

- Due to potential complications resulting from weekend engineering works, NRPS respondents travelling at weekends would be excluded from the analysis;
- Train punctuality data used would be that for weekdays during the NRPS survey periods only; and
- Cancelled services would be excluded from the study.

Findings from the analysis

Impact of lateness on satisfaction with punctuality

The analysis shows the relationship between passenger satisfaction with punctuality as measured by the NRPS and actual lateness experienced by the passenger concerned. Do passengers notice an increase in lateness? How significant is the impact on their satisfaction?

Across all passengers surveyed in the study period:

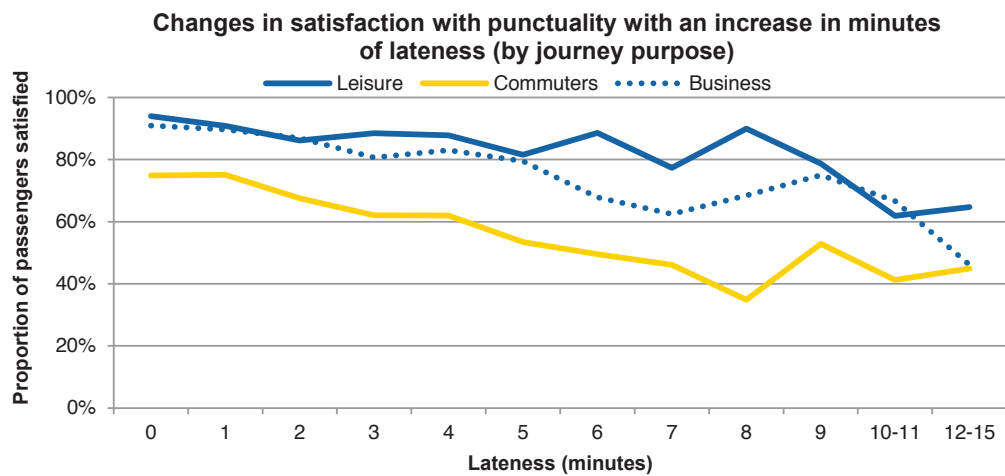
- 82 per cent express satisfaction with punctuality when their service arrives early or on time; and
- For every minute of lateness, satisfaction with punctuality decreases by three percentage points.

The characteristics of a passenger's journey can influence how they perceive lateness. Typically, those passengers who travel more frequently are less satisfied and are more sensitive to worsening punctuality. The following graphs illustrate this for different journey purposes and

travel frequency. Given that these characteristics are clearly linked – commuters travel most frequently – the graphs have similarities.

For journey purpose (as shown in the figure below):

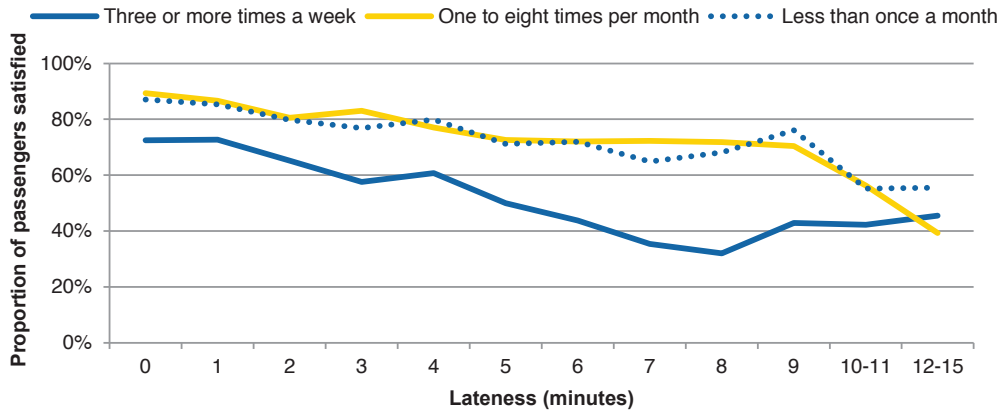
- Commuters are less tolerant of lateness than business and leisure travellers; only 74.9 per cent of commuters are satisfied with punctuality when their train is on time;
- 94 per cent of leisure travellers are satisfied when their train is on time;
- For every minute of lateness, commuters' satisfaction with punctuality declines by five percentage points; this suggests that those passengers who travel most frequently are influenced by previous punctuality experiences when responding to the survey;
- Leisure travellers' satisfaction with punctuality decreases by just one percentage point for every minute of lateness; and
- The rate of decline for leisure travellers increases at the eight minute mark, indicating that leisure passengers have heightened awareness of lateness from this point.



For travel frequency (as shown in the figure below):

- Passengers travelling more frequently express a lower satisfaction rate than those travelling less frequently even when their service arrives early or on time; their reaction to increased lateness is almost identical to that of commuters; and
- Passengers travelling between one and eight times per month respond to lateness in the same way as passengers travelling less than once a month. This indicates that the satisfaction rate of less frequent travellers is defined by their journey purpose rather than their frequency of travel.

Changes in satisfaction with punctuality with an increase in minutes of lateness (by frequency of travel)



Extending this to ticket type, the trend continues. Respondents using weekly, monthly and annual season tickets are less satisfied with punctuality, even when on time. When experiencing delays, their satisfaction with punctuality also declines at a faster rate than those on full and reduced tickets (typically bought by less frequent travellers).

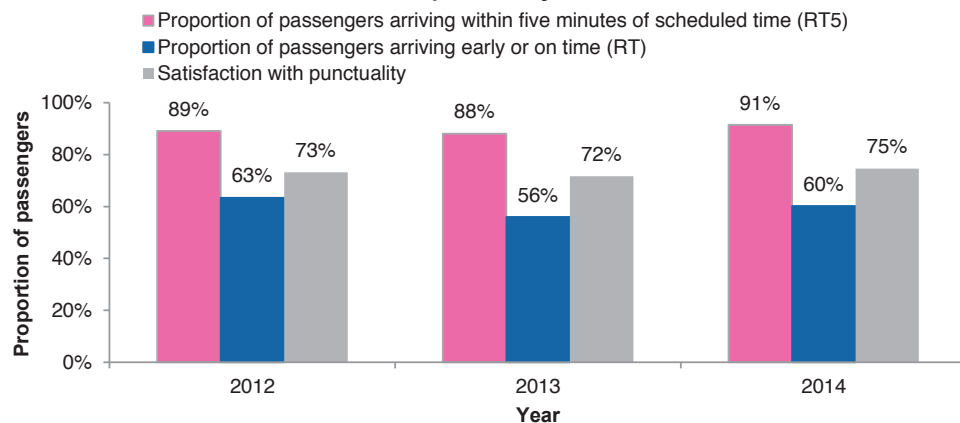
Changes to passenger lateness and satisfaction over time

When a comparison between satisfaction and lateness is considered year by year, conclusions may be drawn about whether passengers' satisfaction with punctuality follows the trend of the punctuality actually experienced. Most notably (as shown in the figure below):

- Of the passengers surveyed, the proportion of passengers arriving within five minutes of their scheduled time increased marginally from 89 per cent (2012) to 91 per cent (2014);
- The proportion of passengers arriving on time or early decreased in 2013, but increased again in 2014; and
- The response of passengers in terms of their satisfaction with punctuality follows a similar trend, with a dip seen in 2013, followed by a recovery in 2014.

Note that the graph below is only representative of the respondents who were successfully mapped to punctuality data.

NRPS matched passenger lateness vs passenger satisfaction with punctuality



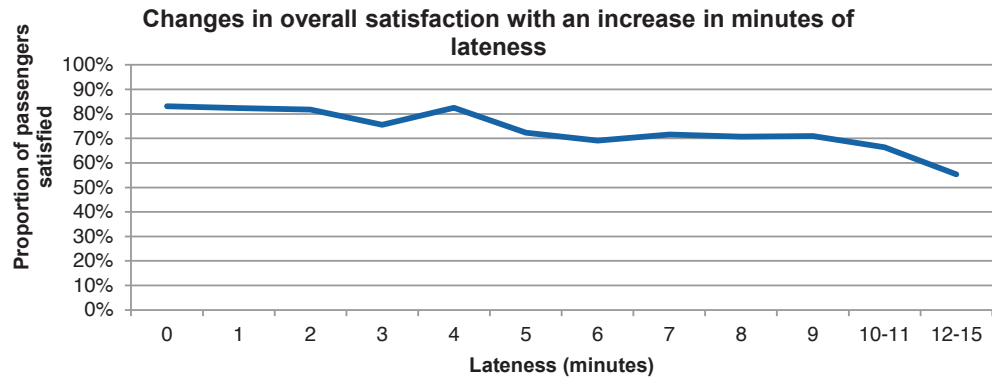
Impact of lateness on overall satisfaction

Many years of NRPS results has enabled Transport Focus to determine that satisfaction with punctuality is the key driver for overall satisfaction. As a result, it is expected that the trend

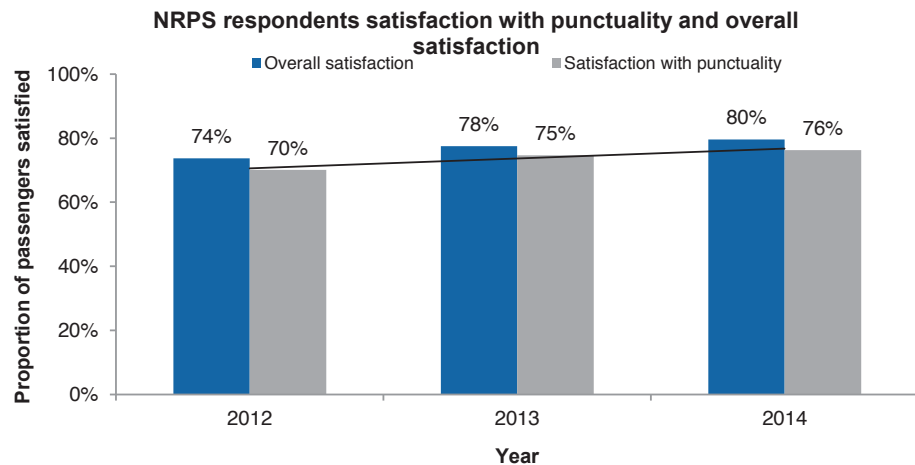
between satisfaction and increased lateness to apply to overall satisfaction as well. While other factors clearly influence a passenger's overall satisfaction, the graph below shows that lateness does play a key part. The key findings are (as shown in the figure below):

- Only 83 per cent expressed overall satisfaction with their service when arriving early or on time; and
- For each minute of lateness, the overall satisfaction reduces by 1.5 percentage points.

This does not prove a relationship, but indicates that passenger's overall responses are influenced by punctuality.



This is supported when considering how passengers' satisfaction with punctuality and overall satisfaction has changed over the three year study period. Both satisfaction with punctuality and overall satisfaction in 2014 improved in comparison with 2012, as shown in the figure below. Note that the data for this graph is taken from the respective NRPS reports and represents the full survey, not just the matched data.



Impact of satisfaction with punctuality on responses to other NRPS questions

The analysis carried out also considers the impact that passenger satisfaction with punctuality has on responses to other NRPS questions, e.g. satisfaction with train cleanliness and crowding. There are three categories of relationship:

- Satisfaction drives satisfaction (satisfaction with punctuality drives positive responses to other questions);
- Dissatisfaction drives dissatisfaction (dissatisfaction with punctuality drives negative responses to other questions); and

- No significant relationship.

The table below allocates NRPS questions to each category, with the strongest relationship at the top of each column. For example, satisfaction with punctuality drives satisfaction with scheduled journey time in a positive direction. Conversely, dissatisfaction with punctuality means passengers are more likely to be dissatisfied with the value for money of their ticket. Note that the relationship with overall satisfaction, discussed earlier, has also been included in this table. The analysis suggests that satisfaction with punctuality drives overall satisfaction, but dissatisfaction with punctuality does not have the same impact on overall dissatisfaction.

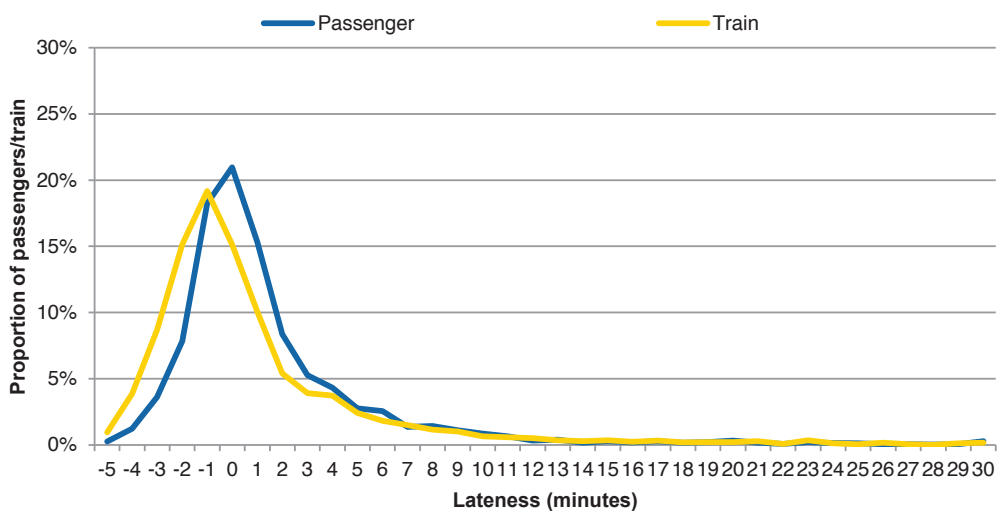
Satisfaction with punctuality drives satisfaction	Dissatisfaction with punctuality drives dissatisfaction	No significant relationship
<ul style="list-style-type: none"> • Overall satisfaction • Scheduled journey time 	<ul style="list-style-type: none"> • Value for money of ticket • Sufficient space to sit and stand 	<ul style="list-style-type: none"> • Ease of getting on and off the train • Train cleanliness

Comparing train and passenger lateness

The analysis reported up to this point is based on the lateness the passenger experiences. It is important to understand that this can be significantly different from the train lateness that is widely reported by the rail industry in the form of the Public Performance Measure (PPM) and 'right-time' arrivals. The graph below highlights this by considering only services travelling away from London. The reason these services have been chosen is because the destination of the passenger and of the train is likely to be different. The graph shows there is a one minute lag between the two lines (as shown in the figure below). This means:

- If a train from London is reported as being on time, the average passenger will be one minute late; and
- On services departing London, 69 per cent of trains arrive at their ultimate destinations on time or early, compared with 56 per cent of passengers arriving at their station on time or early.

Lateness of train at passenger destination vs train destination (departures from London)

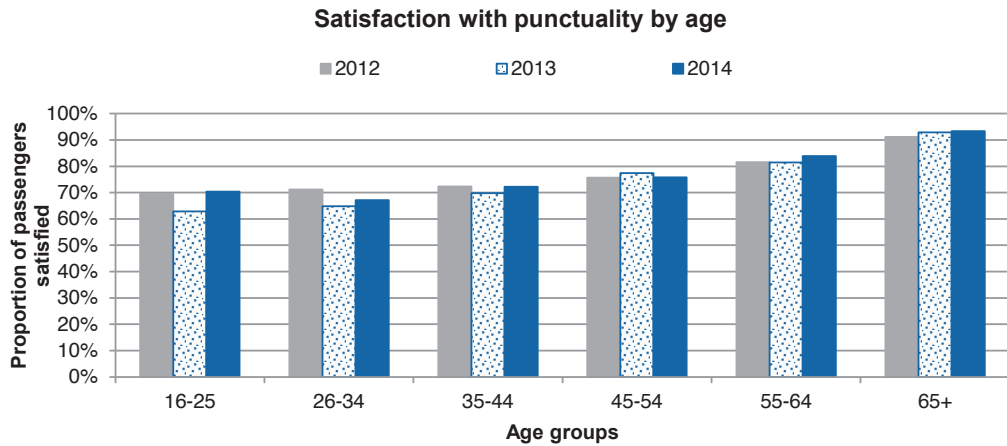


Passenger satisfaction insight

During the analysis, some useful insight was also gained into how passenger satisfaction varies by passenger characteristic.

Satisfaction by gender: In general female respondents show higher levels of satisfaction – both with punctuality and overall – than male respondents; the difference ranging from two to seven percentage points over the past three years.

Satisfaction by age: Older age groups are considerably more satisfied than younger age groups (as shown below).



Satisfaction by route: All routes have generally been improving with respect to satisfaction with punctuality. None more so than Stansted Express which has satisfaction levels 13 percentage points higher than any other route in 2014, although this may be related to changes in the composition of the Stansted Express building block within NRPS.

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1. Introduction

1.1 Background

Transport Focus is the independent transport user watchdog charged with representing the interests of Britain's rail passengers; bus, coach and tram passengers in England but outside London; and users of the strategic road network in England. Amongst other objectives, Transport Focus seeks to understand the needs and expectations of rail passengers and to secure tangible and measurable improvements for them. To support these objectives, Transport Focus commissions and publishes the twice-yearly National Rail Passenger Survey (NRPS), which is the benchmark measure of changes in passengers' attitudes towards all elements of rail travel in the country.

Evidence from a wide range of research, including that of Transport Focus, has highlighted that punctuality and reliability of train services is one of the key measures of each Train Operating Company's (TOC's) NRPS scores. As a result, Transport Focus commissioned this study to further examine the relationship between NRPS results and the punctuality of train services.

The report focusses on the Greater Anglia (GA) franchise in order to provide comparability with a 2009 report prepared by CDL (now part of GHD), as well as to inform Transport Focus ahead of the East Anglia franchise competition later in 2015. The GA franchise is currently operated by Abellio Greater Anglia (AGA).

1.2 Report structure

This report provides insight into satisfaction, train punctuality and passenger punctuality before bringing the elements together. Section 2 details the approach and assumptions made during the data analysis.

The initial focus of the report is on satisfaction among passengers using the GA franchise, with Section 3 presenting NRPS results for satisfaction with punctuality and overall satisfaction. Section 4 considers how these two measures of satisfaction are related, before considering how satisfaction with punctuality influences other NRPS criteria.

The focus then turns to lateness, with Section 5 analysing the punctuality of terminating AGA trains (restricted to those within the NRPS survey dates). Section 6 considers the lateness of services at the passenger's destination, which is often different from that of the train. Train and passenger punctuality are directly compared in this section.

Section 7 brings Sections 3, 5 and 6 together by mapping NRPS respondents against train punctuality data to analyse how passengers' satisfaction with punctuality varies as lateness increases. Section 8 repeats the same process, but for overall satisfaction.

Finally, Section 9 gives a summary of the impact of remapping services to London Overground and Crossrail, to enable Transport Focus to understand how passenger satisfaction may change after remapping.

2. Approach

2.1 Source data

For this study, three main sources of data have been used, each of which are explained in more detail in the following sections. These are:

- NRPS records¹;
- Bugle data (train punctuality data, explained in Section 2.1.2)²; and
- MOIRA timetable data (explained in Section 2.1.3)³.

The datasets used in this study have been obtained either from publically-available sources or directly from Transport Focus or AGA.

2.1.1 NRPS records

NRPS survey results contain the individual responses from each passenger surveyed, including details of the train service they travelled on. From this dataset it is possible to determine the purpose of their journey, the frequency of travel, personal characteristics, as well as scores for satisfaction of a number of attributes relating to their journey. It is important to emphasise that the satisfaction is intended to relate to the single journey they have undertaken and not be influenced by previous experiences.

The NRPS records date back to 1999 and are published on a twice-yearly basis; each survey period is known as a 'wave'. In order to establish a suitable sample, the analysis takes into account the NRPS results from the last six waves, covering 2012, 2013 and 2014. Table 1 summarises details of each wave.

Year	Wave	NRPS Survey Start date	NRPS Survey End date	NRPS sample size	Proportion of Weekday Responses
Spring 2012	26	28-Jan-12	30-Mar-12	2,454	86 per cent
Autumn 2012	27	01-Sep-12	12-Nov-12	2,156	87 per cent
Spring 2013	28	12-Jan-13	24-Mar-13	2,267	87 per cent
Autumn 2013	29	02-Sep-13	11-Nov-13	2,226	86 per cent
Spring 2014	30	02-Feb-14	13-Apr-14	2,313	86 per cent
Autumn 2014	31	02-Sep-14	11-Nov-14	2,226	91 per cent

Table 1 Date ranges and sample size for NRPS datasets

Due to potential complications resulting from weekend engineering works, NRPS respondents travelling at weekends would be excluded from the analysis.

Weighting of survey results

In order to obtain a statistically robust assessment of passenger satisfaction, the NRPS survey obtains results from the whole GA franchise, including different sizes of stations. The results are also obtained at different times of day, and day of week so that the views of a mix of commuters, business and leisure travellers are represented within the published results.

In order that the NRPS results correctly represent the views of all passengers travelling, the individual responses are given a weighting to reflect the significance of the individual response.

¹ Received from Transport Focus on 5th February 2015

² Received from AGA on 31st March 2015

³ Received from AGA on 3rd March 2015

These weightings are used throughout the analysis, except where stated otherwise. A demonstration of the impact of weighting is given in Section 3.1.

2.1.2 Bugle data

DATASYS BUGLE is a rail performance management software tool used widely by the UK rail industry. TOCs use this software to monitor, manage and improve train performance by capturing and analysing train delays and lateness data. The data produced by this software is widely known as Bugle data.

AGA provided the Bugle data for days specific to the NRPS survey. The lateness at every stop for every train service run during these periods has been captured. All cancelled services have been excluded from the Bugle dataset, as they are difficult to quantify in the context of this study. The sample size for each of the waves is as detailed in Table 2.

Period	Bugle sample size (number of stops)
Spring 2012	620,837
Autumn 2012	737,410
Spring 2013	726,516
Autumn 2013	741,760
Spring 2014	728,879
Autumn 2014	745,060

Table 2 Sample size of Bugle data

2.1.3 MOIRA timetable data

MOIRA is a software system designed to predict how changes to timetables will affect passenger revenue. For this study, however, the model is used for the source data contained within it, rather than its ability as a revenue forecasting model. The MOIRA data has been used to obtain the specific timetable information on all train services operated by AGA during the sample date ranges described above. This was supplied by AGA.

2.2 NRPS route definitions

The AGA sample for NRPS is organised into routes (or 'building blocks') so that variation in satisfaction within the franchise can be understood. Table 3, below, identifies the routes within AGA that were used as part of the analysis, as defined in Transport Focus's rail passenger satisfaction 'at a glance' report.

GA Routes	Definition
Intercity	London to Norwich journeys, plus a few shorter workings
Mainline	Journeys on outer suburban Great Eastern services including London to Ipswich, plus branches to Harwich, Clacton, Walton, Sudbury, Southminster and Braintree. Also includes journeys on London to Southend Victoria service and London Liverpool Street to Chelmsford and Colchester
Metro	Journeys on London Liverpool Street to Ilford, Gidea Park and Shenfield
West Anglia Outer	Journeys on West Anglia routes London - Hertford East, London to Cambridge, London to King's Lynn, Cambridge to

	King's Lynn, Cambridge, Bishop's Stortford and Hertford East via Tottenham Hale
Stansted Express	Journeys on Stansted Express, on Greater Anglia trains which start or end at Stansted Airport, where the passenger has an origin or destination of the airport ⁴
West Anglia Inner	Journeys on West Anglia routes London to Enfield Town, London to Chingford, London to Cheshunt and Romford to Upminster.
Rural	Journeys on Ipswich to Felixstowe, Lowestoft, Cambridge and Peterborough rail lines, plus Norwich to Lowestoft, Yarmouth, Sheringham and Cambridge lines

Table 3 GA route categorisation and definition

Due to the proposed remapping of West Anglia (WA) services to London Overground and Great Eastern Metro services to Crossrail and London Overground, the latest round of NRPS results (wave 31) has undergone some remapping. This has resulted in some changes to routes allocated to previous NRPS responses as detailed below.

2.2.1 Creation of West Anglia Inner for remapping to London Overground

Historically, within NRPS, West Anglia has been a route on its own. In wave 31 (Autumn 2014), it has been split into West Anglia Inner and West Anglia Outer, as shown in Table 3. This enables the West Anglia Inner sample to be remapped to London Overground in 2015. For this analysis, to enable consistency, all respondents from previous waves have been allocated to Inner and Outer as appropriate.

West Anglia Outer origin/destination	West Anglia Inner origin/destination
King's Lynn	Cheshunt
Ely	Chingford
Cambridge	Enfield Town
Bishop's Stortford	London Fields
Broxbourne	
Hertford East	
Tottenham Hale	

Table 4 Adjustments made on origin/destination stations for WA remapping

2.2.2 Redefining Metro for remapping to Crossrail and London Overground

Historically, the Metro building block has contained Liverpool Street to Shenfield, Liverpool Street to Southend Victoria, Wickford to Southminster and Romford to Upminster trains. In wave 31 (Autumn 2014), the Southend and Southminster trains have been reallocated to the Mainline building block and Romford to Upminster trains to the West Anglia Inner building block. All

⁴ The composition of the Stansted Express building block has changed in Wave 31 (Autumn 31). Prior to this, the passenger journey was not taken into account, only the origin and destination of the train. No re-categorisation has taken place – in this study – to reflect this change.

respondents in previous waves have been re-categorised to reflect these changes. This enables the Metro route to be remapped to Crossrail in 2015, and the Romford to Upminster services to be remapped to London Overground with the West Anglia Inner services.

2.3 Mapping NRPS respondents to delay data

In order to understand how passengers perceive punctuality, it is necessary to map NRPS respondents to Bugle lateness information. Figure 1 outlines the process undertaken as part of this study.



Figure 1 NRPS and Bugle data matching process

During the mapping process, every NRPS respondent's journey is matched to a MOIRA service from the respective timetable. As part of a separate process, Bugle services are also mapped to MOIRA services. The MOIRA timetables bring the two datasets together, identifying the lateness that each individual passenger experienced on their journey. The outcome from this matching process is the minutes of lateness – or delay – on arrival at the stations where passengers alight.

Matching the NRPS responses with Bugle data through MOIRA timetables maximises the proportion of successful matches, resulting in a success rate of 94 per cent of 2012 NRPS respondents, 94 per cent of 2013 NRPS respondents and 92 per cent of 2014 NRPS respondents. This results in the sample size, as shown in Table 5, for each of the three years, totalling 10,849 respondents. Note that the six waves have been combined into three years, rather than considered individually, because of the common trend for autumn survey results to be more positive than spring survey results.

Year	Sample size
2012	3,714
2013	3,561
2014	3,574

Table 5 Combined NRPS and Bugle sample size for each year

3. Passenger satisfaction observations

This section gives an insight into passengers' responses with respect to satisfaction with punctuality and overall satisfaction.

3.1 Application of weighting – gender and age

Figure 2 outlines the proportion of NRPS survey respondents based on gender and age for the last three years. This is simply based on the number of respondents in each category.

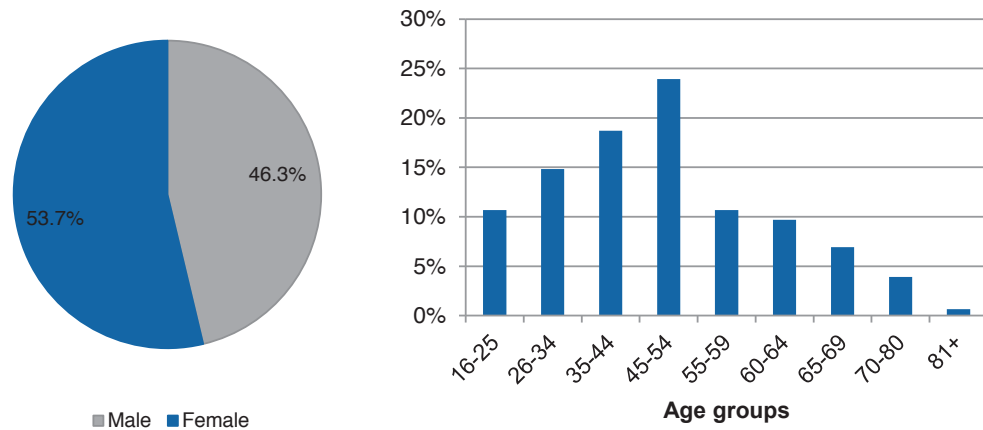


Figure 2 Unweighted NRPS respondent proportion based on gender and age

To illustrate the explanation in Section 2.1.1, if the weighting for each response in NRPS is used, the proportions change slightly. Figure 3 shows the weighted proportion of NRPS respondents based on gender and age, and is more reflective of AGA's passengers. This illustrates that Transport Focus had surveyed too few male passengers, and thus applied a higher weighting to the responses received from males; likewise for 26-34, 35-44, 45-54 and 65-69 year olds.

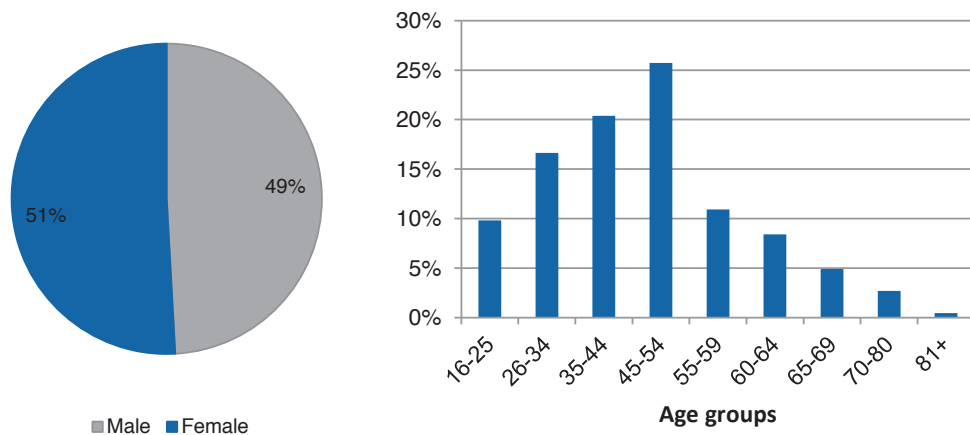


Figure 3 Weighted NRPS respondent proportion based on gender and age

The unweighted results show that 53.7 per cent of survey respondents for the past six waves are female. 23.9 per cent of respondents are between the age of 45 and 54 with respondents over the age of 81 forming less than one per cent of survey respondents.

3.2 Satisfaction by gender and age

This section outlines overall satisfaction and satisfaction with punctuality based on the NRPS respondents' gender and age. In terms of both overall satisfaction (Figure 4) and satisfaction with punctuality (Figure 5), female respondents are more satisfied with punctuality than male respondents. Between 2012 and 2014, overall satisfaction among female respondents remained static whereas male respondents became more satisfied, reducing the gap between the two.

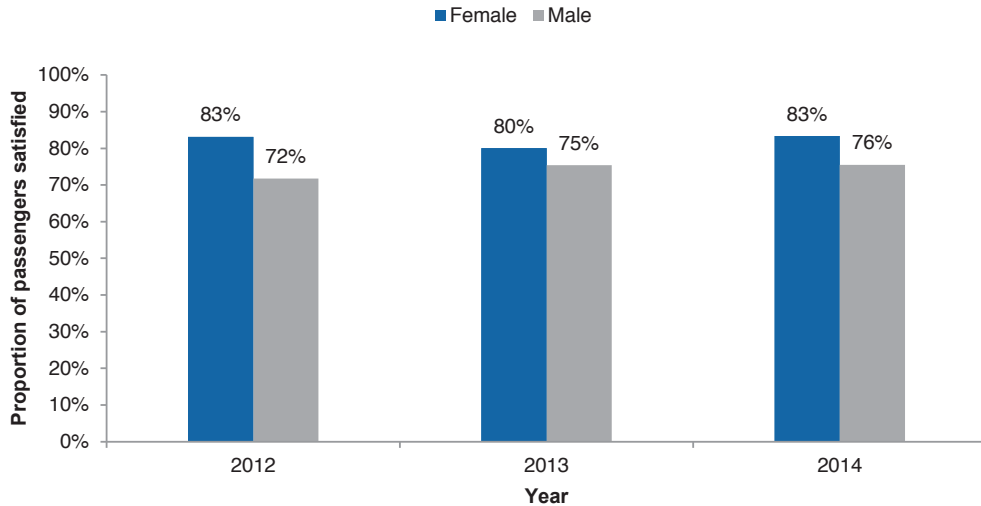


Figure 4 Overall satisfaction by gender

The difference between male and female satisfaction with punctuality is less pronounced than for overall satisfaction; the gap reduced to just two percentage points in 2014.

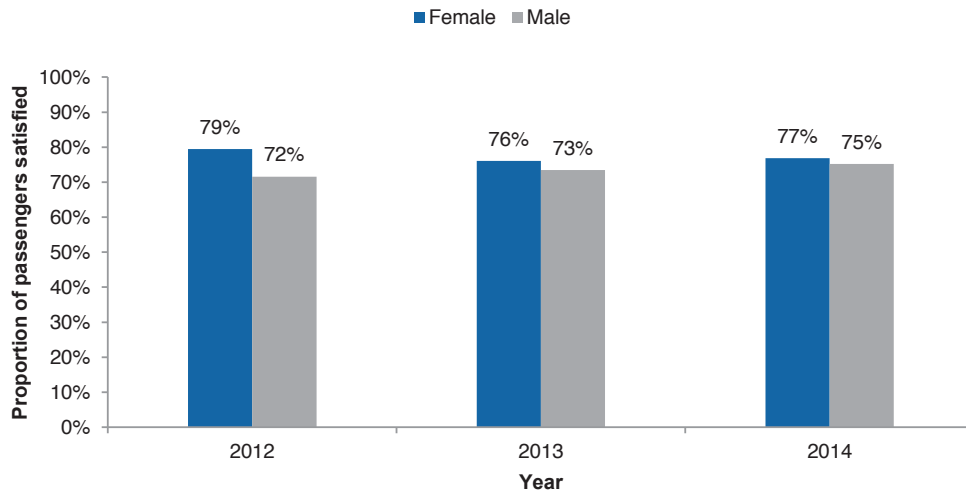


Figure 5 Satisfaction with punctuality by gender

Figure 6 outlines the variations in overall satisfaction by different age categories. For the three years of study, respondents in age categories 26-34, 35-44 and 45-54 are the least satisfied age groups. Respondents in age categories 65+ are generally more satisfied in terms of overall satisfaction.

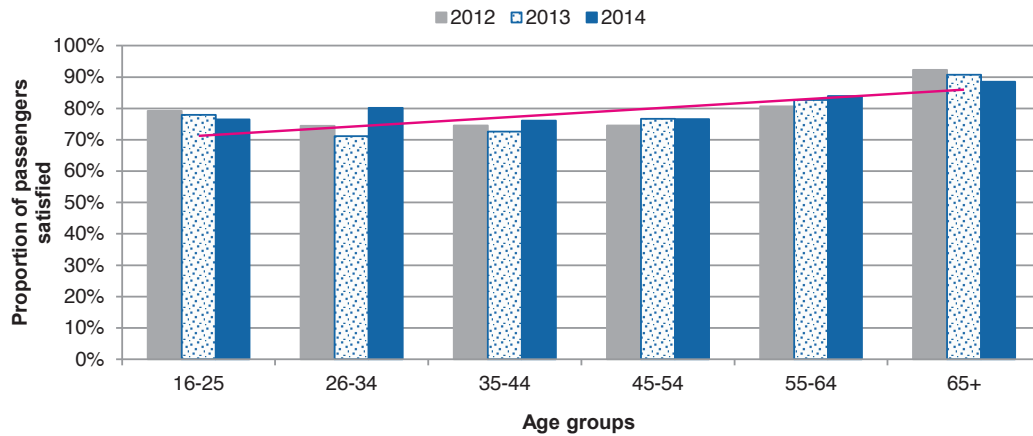


Figure 6 Overall satisfaction by age

Figure 7 shows how satisfaction with punctuality varies according to the defined age group categories. The trend of increasing satisfaction with age is more pronounced for satisfaction with punctuality with each age range taking a distinct step up. The only exception is in 2014, where 16-25 year olds are more satisfied than 26-34 year olds. This does not impact significantly on the observation.

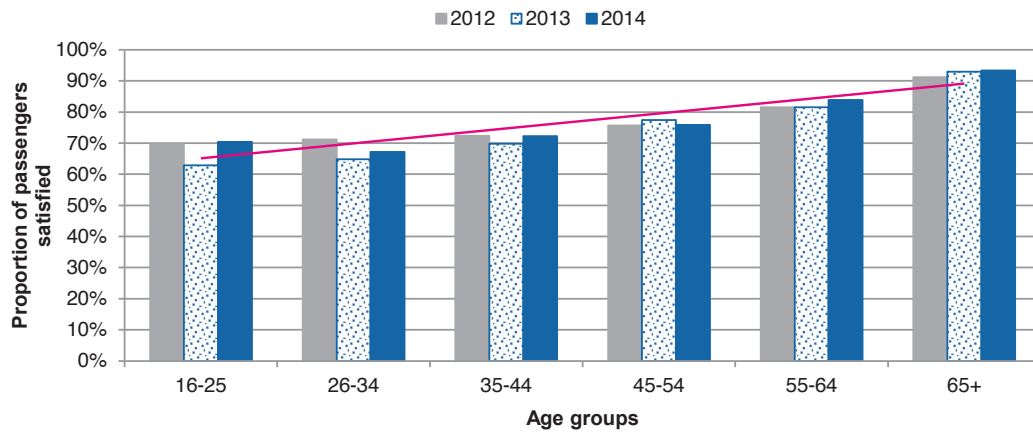


Figure 7 Satisfaction with punctuality by age

3.3 Satisfaction by time of day

This section considers whether time of travel has an impact on satisfaction with punctuality. The results displayed in Figure 8⁵ are based on NRPS respondents' journey departure time. Using departure time makes definition of 'peak' more difficult; AM peak is usually defined by the time of arrival at the train's destination. The term 'peak' in this report refers to passengers departing between 0700 and 1000 and between 1600 and 1900.

Figure 8 shows there is a notable decline in satisfaction during the peak hours. Section 3.5 discusses the difference in satisfaction between commuters and other travellers, stating that commuters are generally less satisfied, which could be the reason for the decline. In order to provide clarity, the train and passenger punctuality needs to be considered. Sections 5.1.1 and 6.2, respectively, look at this.

⁵ Due to significantly lower number of respondents using services before 0600 and after 2000, the outcome displayed is limited to hours between 0600 and 2000.

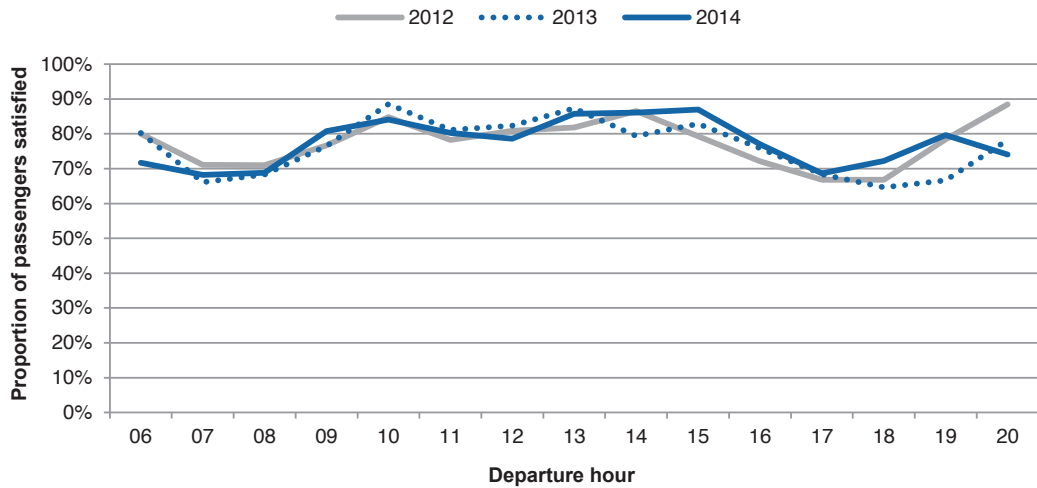


Figure 8 Satisfaction with punctuality by time of day

3.4 Satisfaction by route

In order to better understand the franchise, the NRPS data were categorised according to the routes described in Table 3. For context, Figure 9 shows the distribution of NRPS respondents based on the routes they travel on; over 60 per cent of respondents travel on GE routes. To understand the extent of the remapping, 29 per cent of demand is to be transferred to either London Overground or Crossrail in 2015.

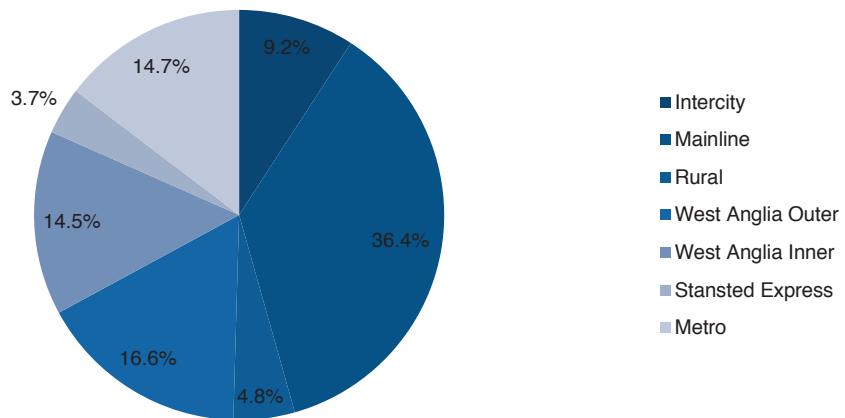


Figure 9 Weighted respondent proportions by route

Figure 10 shows that, in comparison with 2012, overall satisfaction in 2014 increased on all routes, with the exception of Rural. Respondents using Stansted Express services have the highest level of overall satisfaction. This may, however, relate to changes in composition of the Stansted Express building block within NRPS.

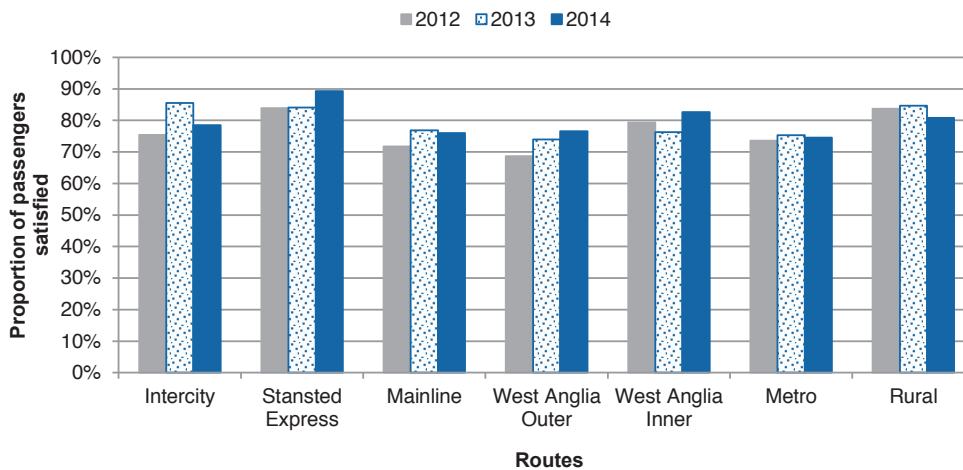


Figure 10 Overall satisfaction by route

Similarly, Figure 11 displays how satisfaction with punctuality across the GA routes changed over the past three years. The results show that respondents using Stansted Express, Mainline, West Anglia Outer, Rural and Metro are more satisfied in 2014 than in 2012. Notably, Stansted Express has seen the greatest rate of improvement resulting in a level of satisfaction some 13 percentage points higher than any other routes.

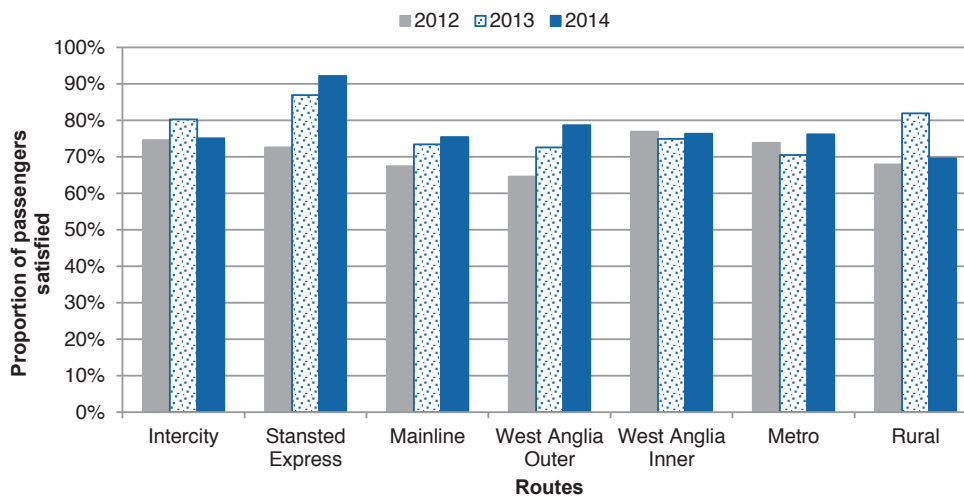


Figure 11 Satisfaction with punctuality by route

3.5 Satisfaction by journey purpose

NRPS respondents can select commute, business or leisure as their journey purpose. The lowest overall satisfaction of the three is recorded by commuters with an average of just 73 per cent satisfied across the last three years, compared with 89 per cent satisfaction amongst leisure travellers. Figure 12 illustrates this, showing a higher rate of overall satisfaction in 2014 than in 2012 across all journey purposes.

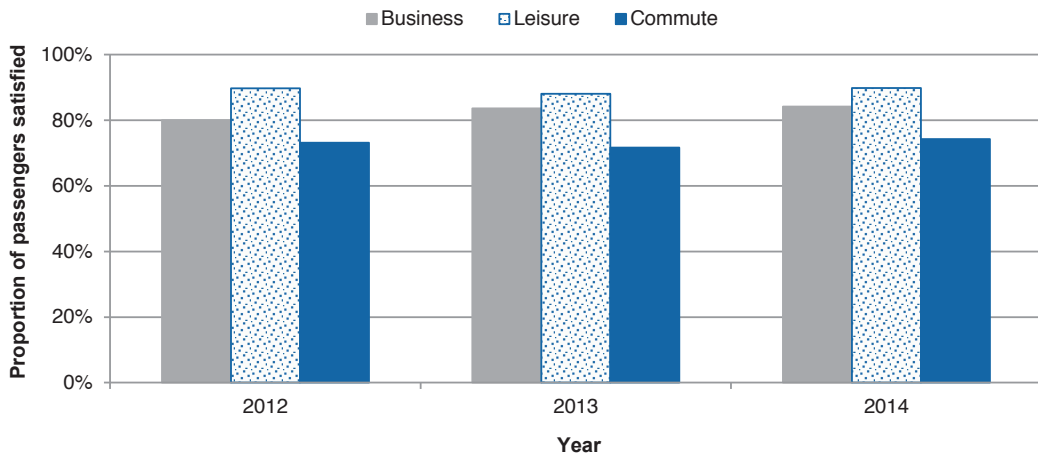


Figure 12 Overall satisfaction by journey purpose

A repeat of the above analysis for satisfaction with punctuality shows that the commuter impact is more pronounced, with 68 per cent of commuters satisfied in comparison with 90 per cent of leisure travellers. When considering satisfaction by time of day in parallel (Figure 8), there is a clear link between poor peak satisfaction and poor commuter satisfaction. The cause of this will become clearer when considering the punctuality data in latter sections.

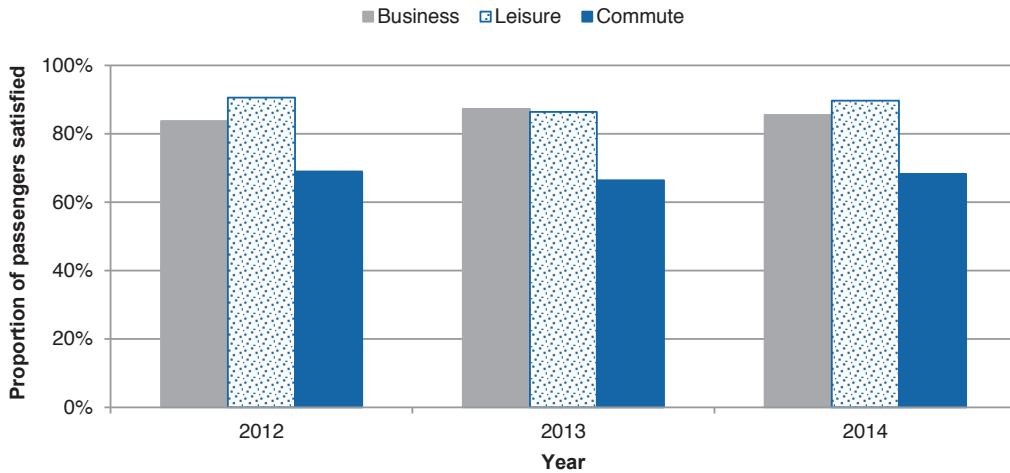


Figure 13 Satisfaction with punctuality by journey purpose

4. Influence of satisfaction with punctuality

As part of each NRPS publication, Transport Focus publishes a supporting document⁶ known as the Multivariate Analysis Report. It outlines the factors that are the biggest drivers of overall satisfaction. The results are summarised in Table 6.

4.1 Influence of punctuality on overall satisfaction

Over the history of the NRPS, the results show that passengers are most likely to be satisfied with their journey if they are satisfied with punctuality/reliability. However, the statistics show a reduction in strength of the relationship between punctuality and overall satisfaction for the Greater Anglia franchise. In Spring 2012, punctuality/reliability contributed 43 per cent as a driver of overall satisfaction. This declined to 31 per cent in Spring 2014. Other factors, such as cleanliness of the inside of the train, are having an increasing impact on overall satisfaction. This is common on routes where punctuality has improved.

Multivariate Analysis Factors	Spring 2012 (Wave 26)	Autumn 2012 (Wave 27)	Spring 2013 (Wave 28)	Autumn 2013 (Wave 29)	Spring 2014 (Wave 30)	Autumn 2014 (Wave 31)
Punctuality/reliability (i.e. the train arriving/departing on time)	42.8%	36.4%	34.2%	36.7%	31.0%	26.0%
The cleanliness of the inside of the train	11.5%	13.2%	19.3%	19.3%	23.1%	21.4%
The length of time the journey was scheduled to take (speed)	6.3%	11.8%	10.7%	11.2%	10.6%	9.2%
The ease of being able to get on and off the train	4.3%	1.8%	5.2%	3.5%	6.8%	12.3%
Sufficient room for all the passengers to sit/stand	4.7%	3.0%	3.2%	3.8%	3.8%	6.3%
Other (5 per cent or less per factor (based on wave 31 results))	30.4%	48.0%	27.4%	25.5%	24.7%	24.8%
Total Variance	100%	100%	100%	100%	100%	100%

Table 6 Influence of NRPS factors on overall satisfaction

Nevertheless, it is clear that satisfaction with punctuality is still the main driver. Therefore a strong relationship between overall satisfaction and satisfaction with punctuality is still expected to be evident in this study.

Figure 14 compares overall satisfaction with satisfaction with punctuality across AGA. As expected, with increased satisfaction with punctuality, overall satisfaction also increases. This does not prove a relationship, but suggests the presence of one. Note that the values in this graph are sourced from the NRPS report, representing the full sample of passengers surveyed.

⁶ Downloaded from <http://www.transportfocus.org.uk/research/rail-research>

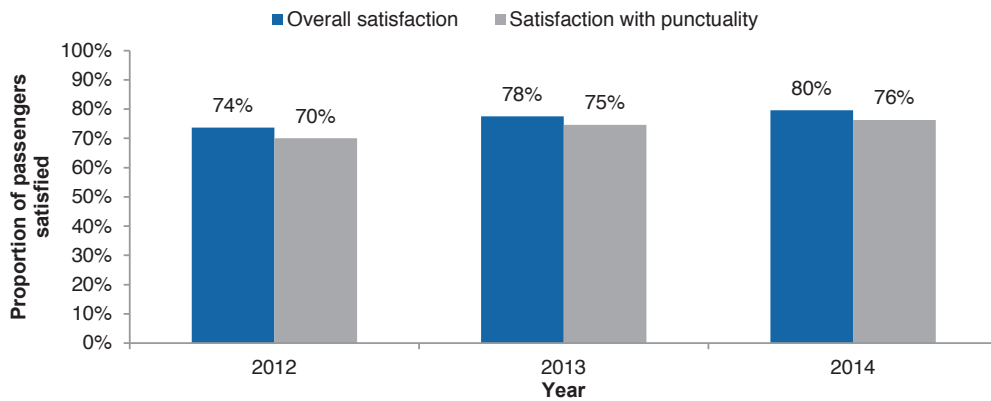


Figure 14 Overall satisfaction and satisfaction with punctuality

To further investigate this relationship, and to draw a conclusion regarding the relationship between satisfaction with punctuality and other NRPS criteria (Section 4.2) the following approach has been applied to compare the responses to two different NRPS questions.

In responding to NRPS survey questions, respondents have five options available to them (excluding the option to ignore the question), namely:

- Very satisfied;
- Fairly satisfied;
- Neither satisfied nor dissatisfied;
- Fairly dissatisfied; and
- Very dissatisfied.

Figure 15 illustrates that each response option is assessed in isolation. This means, for all passengers who answered that they are very satisfied with punctuality, the proportion of these passengers who are very satisfied with the second criteria is calculated, along with the proportion who are fairly satisfied and so on.

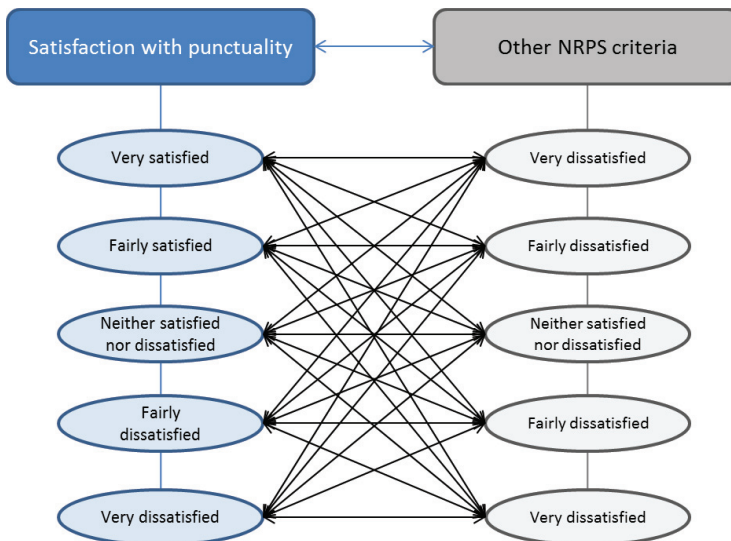
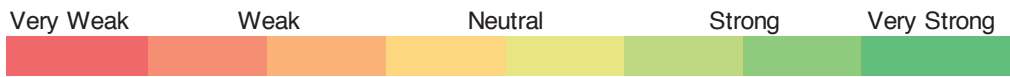


Figure 15 Approach to determining influence of satisfaction with punctuality

The outcome of the analysis is displayed in matrices using a coloured format where any relationship between punctuality and the selected NRPS criteria is defined based on the following.



As an example, Figure 16 is an illustration of a scenario where there is no relationship between satisfaction with punctuality and the other criteria. Note, in this and all matrices, each column adds up to 100 per cent, emphasising that the group of respondents who answered ‘very satisfied’ with punctuality are considered in isolation from those who answered ‘fairly satisfied’ with punctuality. In this example, the split of satisfaction with the second NRPS criteria is identical regardless of the response to satisfaction with punctuality. As a result, regardless of whether a passenger is very satisfied or very dissatisfied with punctuality, they have a 45 per cent chance of being very satisfied with the second criteria. This results in the colours being consistent row by row.

			Satisfaction with Punctuality				
			Very Dissatisfied	Fairly Dissatisfied	Neither	Fairly Satisfied	Very Satisfied
			1	2	3	4	5
NRPS Criteria	Very Dissatisfied	1	5%	5%	5%	5%	5%
	Fairly Dissatisfied	2	10%	10%	10%	10%	10%
	Neither	3	15%	15%	15%	15%	15%
	Fairly Satisfied	4	25%	25%	25%	25%	25%
	Very Satisfied	5	45%	45%	45%	45%	45%

Figure 16 Example of a matrix that indicates no relationship between satisfaction with punctuality and other NRPS criteria

Figure 17, conversely, illustrates an example of a strong relationship. In this example, if a passenger is very satisfied with punctuality, they are more likely to be very satisfied with the other criteria. As a result, if a passenger is very satisfied with punctuality, there is a 75 per cent chance they are very satisfied with the second criteria. However, if they are very dissatisfied with punctuality, there is zero per cent chance of them being very satisfied with the second criteria. This results in a green diagonal across the matrix.

			Satisfaction with Punctuality				
			Very Dissatisfied	Fairly Dissatisfied	Neither	Fairly Satisfied	Very Satisfied
			1	2	3	4	5
NRPS Criteria	Very Dissatisfied	1	75%	15%	8%	2%	0%
	Fairly Dissatisfied	2	15%	60%	15%	8%	2%
	Neither	3	8%	15%	54%	15%	8%
	Fairly Satisfied	4	2%	8%	15%	60%	15%
	Very Satisfied	5	0%	2%	8%	15%	75%

Figure 17 Example of a matrix that indicates a strong relationship between satisfaction with punctuality and other NRPS criteria

Before considering, other NRPS criteria, this approach is applied to Overall Satisfaction to further understand the relationship. Figure 18 provides a comparison between the responses to satisfaction with punctuality and overall satisfaction in the AGA NRPS results for 2012, 2013 and 2014. While the green diagonal is not as obvious as the example above, it is still present, particularly relating to the higher levels of satisfaction. It shows that when passengers are satisfied with punctuality they are more likely to be satisfied overall. However, at low levels of satisfaction with punctuality, the overall satisfaction is spread. This indicates that satisfaction with punctuality drives overall satisfaction, strengthening the view that the two are closely linked. The same cannot be said for dissatisfaction; a passenger dissatisfied with punctuality is not necessarily dissatisfied overall.

			Satisfaction with Punctuality				
			Very Dissatisfied	Fairly Dissatisfied	Neither	Fairly Satisfied	Very Satisfied
			1	2	3	4	5
Overall Satisfaction	Very Dissatisfied	1	19%	3%	1%	1%	0%
	Fairly Dissatisfied	2	32%	19%	8%	3%	1%
	Neither	3	24%	31%	34%	13%	3%
	Fairly Satisfied	4	25%	42%	50%	68%	39%
	Very Satisfied	5	2%	4%	6%	16%	57%

Figure 18 Comparison of satisfaction with punctuality and overall satisfaction

4.2 Influence of punctuality on other NRPS criteria

As demonstrated in Table 6, passengers' satisfaction with punctuality influences their satisfaction with other factors measured by NRPS. This has been tested through the production of a series of the matrices described in Section 4.1 looking at the relationship with:

- Scheduled journey time;

- Value for money;
- Sufficient space to sit and stand;
- Ease of being able to get on and off the train; and
- Cleanliness of the inside of the train.

4.2.1 Influence of punctuality on satisfaction with scheduled journey time

Figure 19 considers how passenger satisfaction with punctuality impacts on satisfaction with the scheduled journey time. The green diagonal axis indicates a reasonable correlation between the two. This says either:

- Passengers cannot distinguish between scheduled journey time and delay; or
- Passenger's view of scheduled journey time is influenced by their views of punctuality.

Given that the highest values are skewed towards the right hand corner of the matrix, it indicates that, for this measure, satisfaction drives satisfaction. As a result, if a passenger is satisfied with punctuality they are also more likely to be satisfied with scheduled journey time.

			Satisfaction with Punctuality				
			Very Dissatisfied	Fairly Dissatisfied	Neither	Fairly Satisfied	Very Satisfied
			1	2	3	4	5
The length of time the journey was scheduled to take (s peeed)	Very Dissatisfied	1	26%	4%	3%	1%	0%
	Fairly Dissatisfied	2	15%	19%	10%	4%	2%
	Neither	3	26%	27%	38%	8%	3%
	Fairly Satisfied	4	27%	42%	43%	73%	17%
	Very Satisfied	5	6%	9%	6%	14%	78%

Figure 19 Comparison of satisfaction with punctuality and journey time

4.2.2 Influence of punctuality on satisfaction with value for money

The relationship with value for money is slightly different (Figure 20). The green diagonal axis is more definitive towards the low satisfaction end of the matrix, meaning passengers are very unlikely to be satisfied with value for money if they are dissatisfied with punctuality. For this, the conclusion drawn is that dissatisfaction with punctuality drives dissatisfaction with value for money.

		Satisfaction with Punctuality					
		Very Dissatisfied	Fairly Dissatisfied	Neither	Fairly Satisfied	Very Satisfied	
		1	2	3	4	5	
The value for money for the price of your ticket	Very Dissatisfied	1	63%	42%	32%	18%	7%
	Fairly Dissatisfied	2	18%	30%	31%	27%	16%
	Neither	3	9%	16%	23%	24%	19%
	Fairly Satisfied	4	6%	11%	10%	26%	31%
	Very Satisfied	5	3%	1%	3%	5%	27%

Figure 20 Comparison of satisfaction with punctuality and value for money

4.2.3 Influence of punctuality on satisfaction with available space

Considering passengers' responses to the question about sufficient space to sit or stand (Figure 21) shows passengers are unlikely to be dissatisfied with space if the train is on time. This may be because a high proportion of these trains are not crowded. It may also be because passengers who board crowded trains tolerate having to stand if the train takes its scheduled time, but become less satisfied if it is late. This is reflected by an increased tendency to be dissatisfied with availability of space when satisfaction with punctuality decreases.

		Satisfaction with Punctuality					
		Very Dissatisfied	Fairly Dissatisfied	Neither	Fairly Satisfied	Very Satisfied	
		1	2	3	4	5	
Sufficient room for all the passengers to sit/stand	Very Dissatisfied	1	31%	20%	13%	7%	2%
	Fairly Dissatisfied	2	16%	16%	14%	10%	4%
	Neither	3	16%	19%	29%	19%	8%
	Fairly Satisfied	4	25%	35%	33%	48%	38%
	Very Satisfied	5	13%	11%	11%	16%	47%

Figure 21 Comparison of satisfaction with punctuality and crowding

4.2.4 Influence of punctuality on satisfaction with ease of getting on and off the train

With respect to ease of being able to get on and off the train, the strength of influence from satisfaction with punctuality is insignificant. In all columns, the level of response is not significantly different to be able to determine a relationship (Figure 22).

			Satisfaction with Punctuality				
			Very Dissatisfied	Fairly Dissatisfied	Neither	Fairly Satisfied	Very Satisfied
			1	2	3	4	5
The ease of being able to get on and off the train	Very Dissatisfied	1	11%	4%	3%	2%	1%
	Fairly Dissatisfied	2	10%	8%	6%	4%	2%
	Neither	3	23%	22%	32%	17%	7%
	Fairly Satisfied	4	40%	51%	49%	59%	42%
	Very Satisfied	5	16%	14%	10%	18%	48%

Figure 22 Comparison of satisfaction with punctuality and ease of being able to get on and off the train

4.2.5 Influence of punctuality on satisfaction with train cleanliness

Comparing satisfaction with punctuality and cleanliness of the inside of the train, there is also no significant relationship. Cleanliness of the inside of the train is noted as the second biggest driver of overall satisfaction in Table 6. In order for it to be a key driver alongside punctuality, it is reasonable to expect the two to have differing characteristics. In all columns, the proportion of people who are satisfied is reasonably consistent in comparison to other criteria (Figure 23).

			Satisfaction with Punctuality				
			Very Dissatisfied	Fairly Dissatisfied	Neither	Fairly Satisfied	Very Satisfied
			1	2	3	4	5
The cleanliness of the inside of the train	Very Dissatisfied	1	17%	10%	6%	4%	2%
	Fairly Dissatisfied	2	23%	21%	16%	13%	7%
	Neither	3	21%	27%	34%	21%	12%
	Fairly Satisfied	4	32%	36%	38%	52%	48%
	Very Satisfied	5	8%	6%	4%	9%	31%

Figure 23 Comparison of satisfaction with punctuality and train cleanliness

5. Train punctuality observations

This section looks at how AGA's train punctuality at terminus has changed over the past three years. This includes analysis of punctuality by route and by time of day, limited to the NRPS survey dates. This section takes into account all the train services that were not subject to cancellation.

5.1 Overview

Within the NRPS survey dates for the past three years, the proportion of trains arriving early or on time ('right-time') has decreased from 70 per cent in 2012 to 68 per cent in 2014, while the proportion within five minutes of scheduled time (RT5) has remained consistent at around 91%. There is, on average, a 23 percentage points difference between the proportion of 'right-time' and the proportion of RT5. This is comparable with the latest information published by Network Rail showing a 91 per cent Moving Annual Average (MAA). Figure 24 outlines the variations in 'right-time' and RT5 services across AGA over the three years of the study.

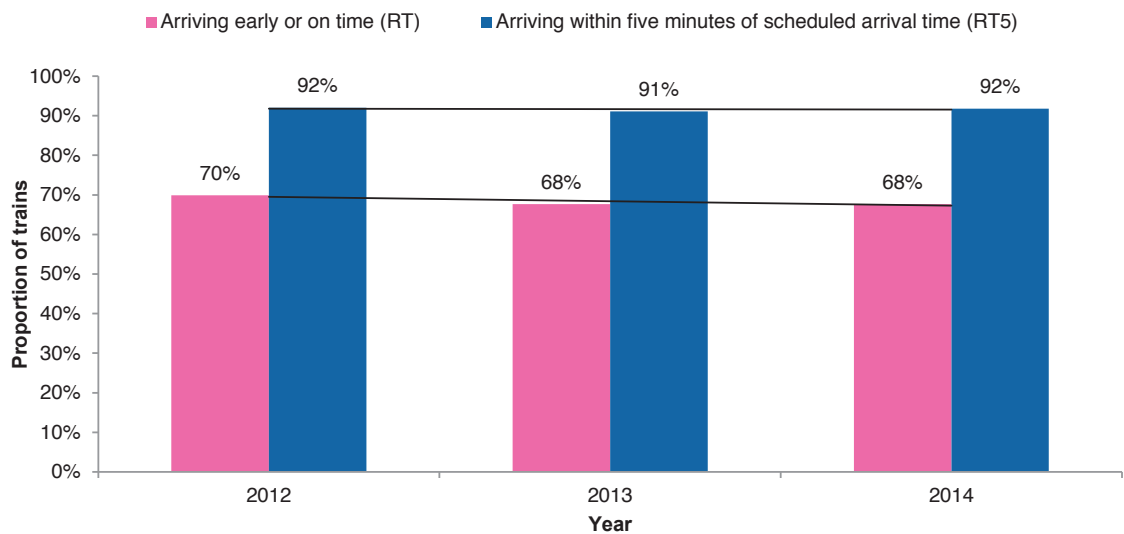


Figure 24 Train punctuality by year

5.1.1 Punctuality by time of day

This section considers how the proportion of services arriving at their destination on time varies by time of day. As shown in Figure 25⁷, the proportion is generally lower in peak departure hours compared with those departing in off peak hours. This conclusion supports the analysis in Section 3.3 on passenger satisfaction, where satisfaction is generally lower in peak hours.

⁷ Due to significantly lower number of respondents using services before 0600 and after 2000, the outcome displayed below is limited to hours between 0600 and 2000.

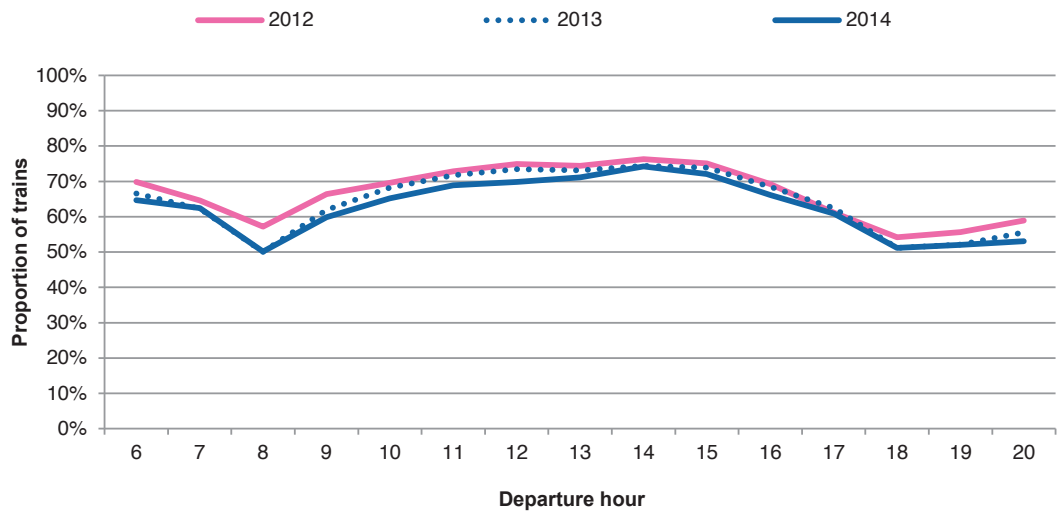


Figure 25 Trains arriving early or on time by departure hour

5.1.2 Punctuality by route

Figure 26 outlines the proportion of services arriving early or on time at their destination across the franchise, illustrating an improvement in punctuality across West Anglia, including Stansted Express. The Stansted Express results reflect the large improvement in passenger satisfaction seen on this route in Figure 10, which may be because of changes to the definition of the NRPS building block. However, Figure 10 also shows improvements in satisfaction on Great Eastern routes, where train performance worsened. The only route that shows worsening train performance and worsening passenger satisfaction is Rural.

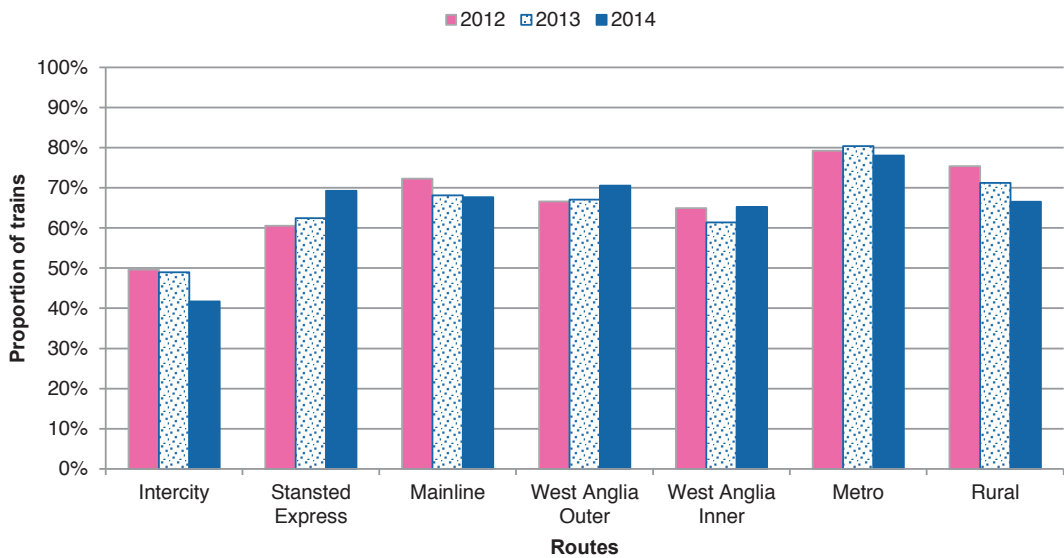


Figure 26 Trains arriving early or on time by route

6. Passenger punctuality analysis

Due to significantly lower number of respondents using services before 0600 and after 2000, analysis by time of day is limited to hours between 0600 and 2000.

This section looks at how the punctuality of the train service at intermediate stations impacts on the punctuality experienced by the passenger. While train punctuality is measured at train destination, a high proportion of passengers do not alight there. This section, therefore, considers the punctuality of passengers when they arrive at their destination.

6.1 Overview

Figure 27 outlines the variations in the proportion of passengers arriving early or on time and those arriving within five minutes of the scheduled arrival time across the franchise for the three years of the study. These follow a similar trend to those for train destination with a decrease in the level of 'right-time' arrivals. The proportion of respondents arriving early or on time declined to 60 per cent in 2014 in comparison with 63 per cent in 2012. However, the proportion of respondents arriving within five minutes of their scheduled arrival time (RT5) improved by two percentage points to 91 per cent.

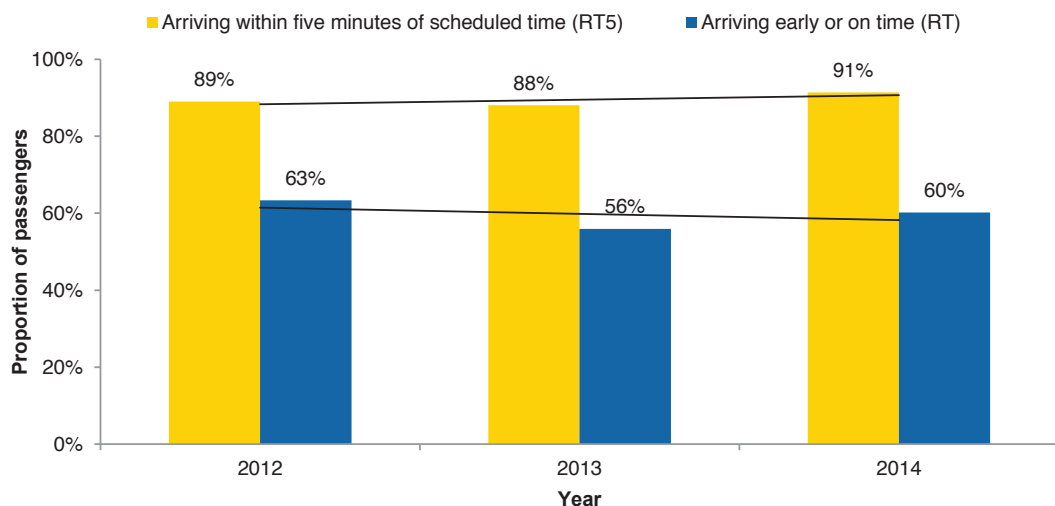


Figure 27 Passenger punctuality by year

6.2 Punctuality by time of day

Sections 3.3 and 5.1.1 showed that both satisfaction with punctuality and actual punctuality of trains are at their lowest in peak hours. Figure 28 is more difficult to draw conclusions from as the sample of passengers is considerably smaller than the sample of trains. On average, for 2014, 57 per cent of passengers arrived on time in the AM peak, 58 per cent in the PM peak and 64 per cent in the off-peak. Therefore, at a high level, punctuality in the peaks is lower for passengers as well as for trains, and explains passenger satisfaction with punctuality being lower in these periods.

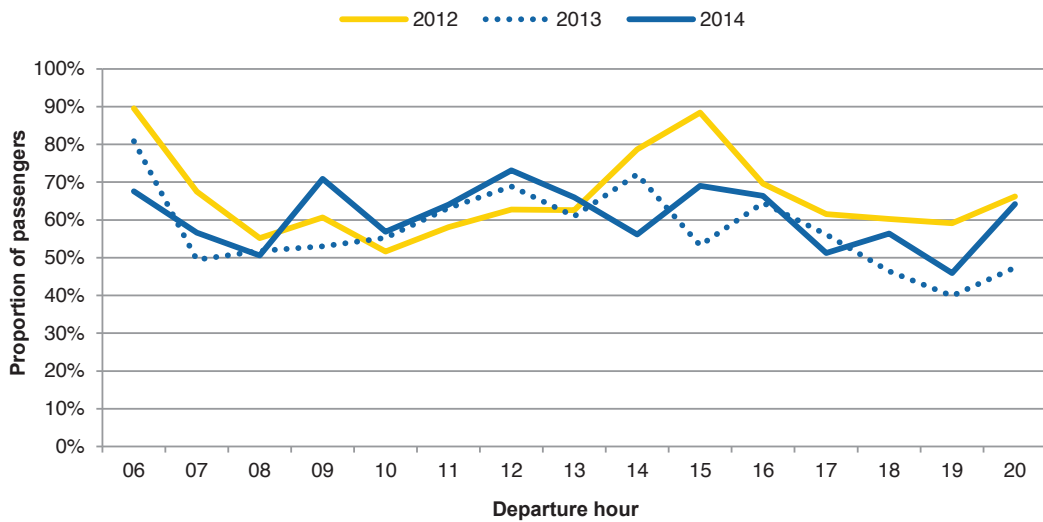


Figure 28 Passengers arriving early or on time by departure hour

6.3 Punctuality by route

When considering passenger punctuality by route, the results are very similar to those seen in Section 5.1.2. Improvements in 'right-time' arrivals have been seen on West Anglia routes; most notably on Stansted Express. The improvements seen on Stansted Express are more significant from a passenger perspective than they are from a train perspective, and are more aligned with the scale of improved satisfaction seen in Section 3.4, which, as noted, may be because of changes in how the Stansted Express building block is defined within NRPS. The worsening punctuality seen on Great Eastern routes is not reflected in passenger satisfaction with punctuality and would require further consideration.

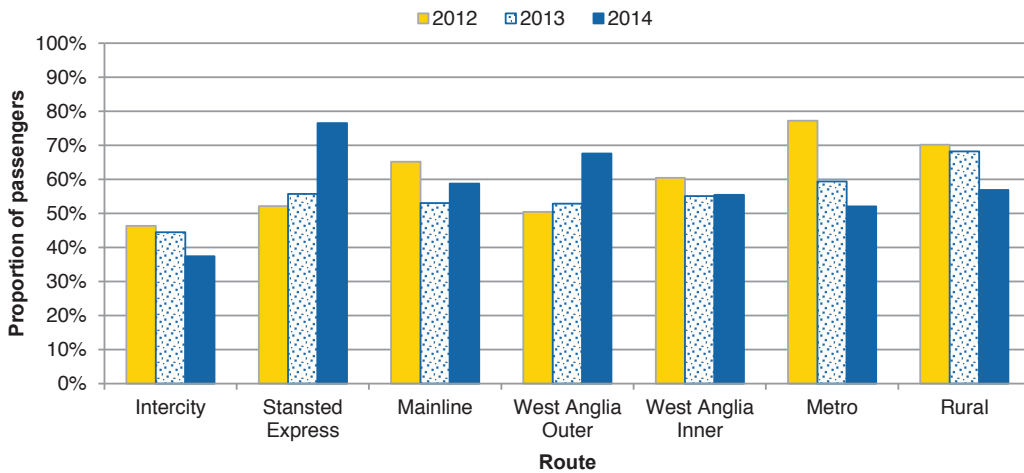


Figure 29 Passengers arriving early or on time by route

Considering the full breakdown of lateness at route level indicates that, on most routes, the proportion of respondents arriving significantly late is notably low, reflecting the PPM levels of around 90 per cent. Exceptions to this are Mainline and Intercity routes which see nearly five per cent of services arrive more than 15 minutes late.

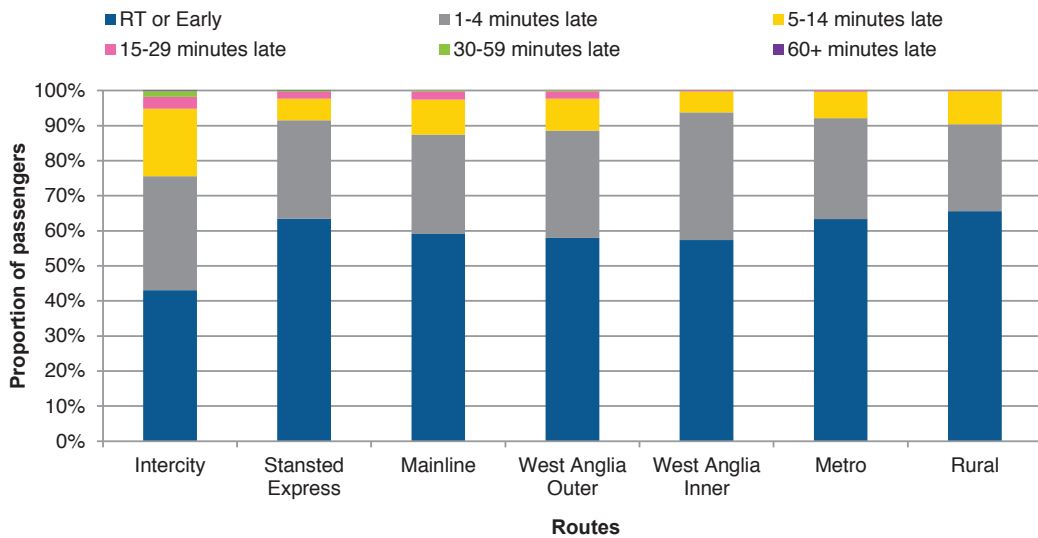


Figure 30 Distribution of passenger lateness by route

6.3.1 Punctuality by time of day and route

Due to small sample size in some time bands, the trends seen by time of day at route level are not presented here. The charts have been retained in the Appendix for reference.

6.4 Passenger punctuality vs train punctuality

The analysis in Section 6 is based on passenger lateness. It is important to note that this can be significantly different from train lateness, whether Public Performance Measure (PPM) or 'right-time'. When comparing the recorded train punctuality with actual passenger experience – as seen in Figure 31 – there is a distinct gap between the two. This demonstrates that, even though a train arrives on time, some passengers do not.

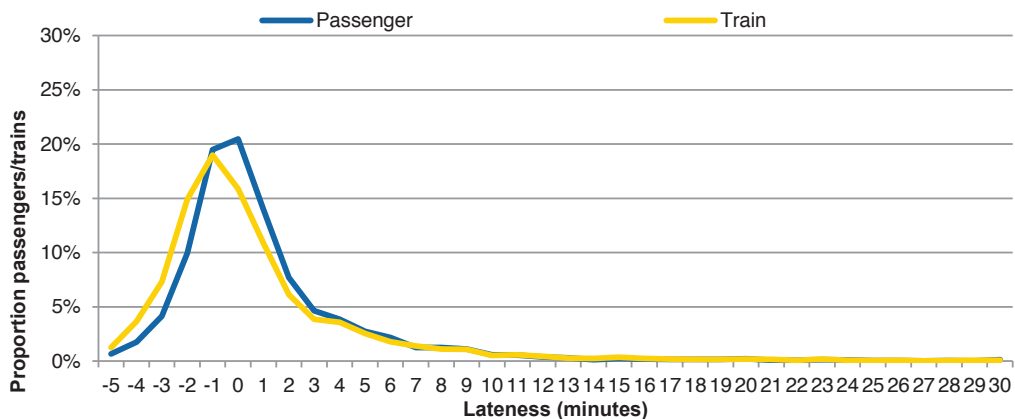


Figure 31 Train lateness vs passenger lateness

Figure 32 further emphasises this by considering only services travelling away from London. These trains are selected because the destination of the passenger and the train is likely to be different. The graph shows a bigger lag, of over one minute, between the two lines. This means:

- If a train from London is reported as being on time, the average passenger is one minute late; and
- On train services departing London, 69 per cent arrive at the ultimate destination on time or early, compared with 56 per cent of passengers.

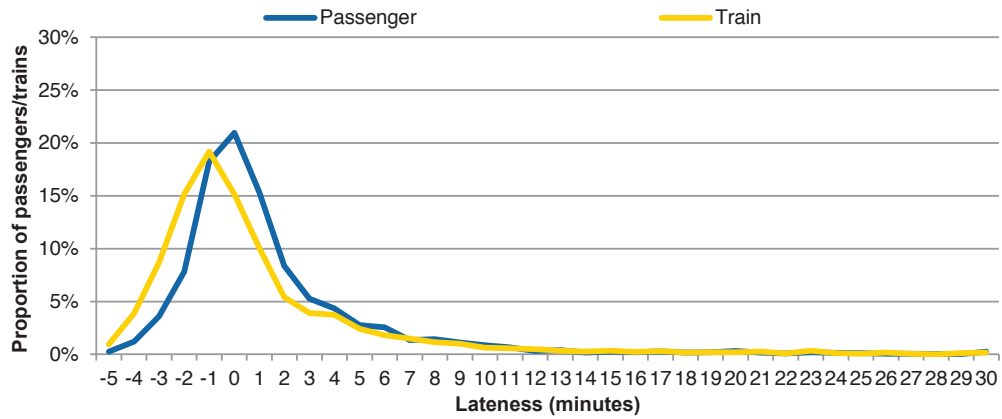


Figure 32 Train lateness vs passenger lateness for services departing London

7. Relationship between satisfaction with punctuality and actual punctuality

The previous sections have considered satisfaction with punctuality and actual punctuality in isolation. This section brings these together to establish how the two are related. The first point to note is that passenger satisfaction with punctuality follows a similar trend for both 'right-time' and arrivals up to five minutes late. As Figure 33 illustrates, all measures increased since 2013.

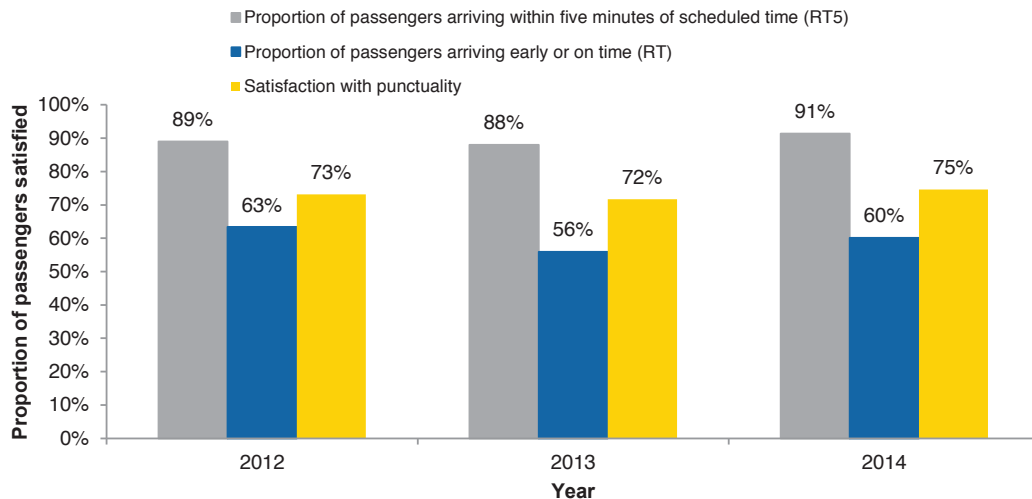


Figure 33 Comparison of satisfaction with punctuality and actual passenger punctuality

7.1 Satisfaction with punctuality by lateness

Using the approach defined in Section 2.3, a dataset was produced with each respondent mapped to the actual level of delay they experienced on the day of the survey. This dataset enables consideration of how satisfaction changes as the passenger lateness – or delay experienced – increases. Note that weighting is not applied as part of this process, so any differences between graphs in this section and those in previous sections should be attributed to weighting of responses.

In the similar study published in 2009, titled “Examining the links between Train Performance Measures and Customer Satisfaction”, graphs similar to Figure 34⁸ were produced demonstrating three defining factors of a passenger’s perception of punctuality.

1. The **intercept** on the vertical axis, which determines how satisfied a passenger is with punctuality, even when the train is on time or early. In Figure 34, below, the value is 83.8 per cent.
2. The **gradient**, which defines by how much satisfaction reduces for each minute of additional delay. In Figure 34 the value is just over three percentage points.
3. The **tipping point**, at which the curve takes a notable increase in gradient. This is the point at which passengers’ sensitivity to delay heightens. Figure 34 does not have a tipping point, implying that passengers perceive delay from the minute they experience it and satisfaction falls consistently as delay increases.

These findings are important to reiterate.

⁸ Due to significantly lower number of respondents experiencing delays in excess of 20 minutes, analysis on these were proved to be not accurate. In this section, results associated with lateness are limited to 20 minutes of delay.

1. Even when passengers arrive at their destination on time or early, not all are satisfied with punctuality; in fact close to 18 per cent of passengers surveyed are not satisfied, even when on time.
2. With an increase in lateness, satisfaction decreases linearly; Figure 34 shows this is three percentage points for every additional minute of lateness.
3. Even at high levels of delay, some passengers are still satisfied; 51 per cent of passengers are satisfied with delays between 12 and 15 minutes.

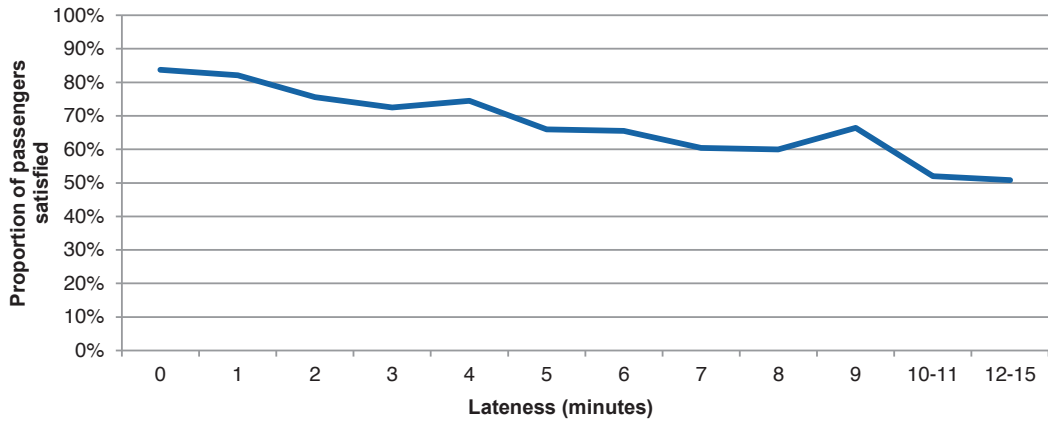


Figure 34 Satisfaction with punctuality vs passenger lateness

7.1.1 By gender

Figure 35 shows how satisfaction with punctuality varies among female and male respondents. Section 3.2 showed that female respondents are usually more satisfied across the NRPS surveys and this is no different. As expected, the analysis in this section shows a close and consistent pattern of satisfaction decline with an increase in lateness experienced, with the gradient of both being at around three percentage points per minute, with no tipping point being evident.

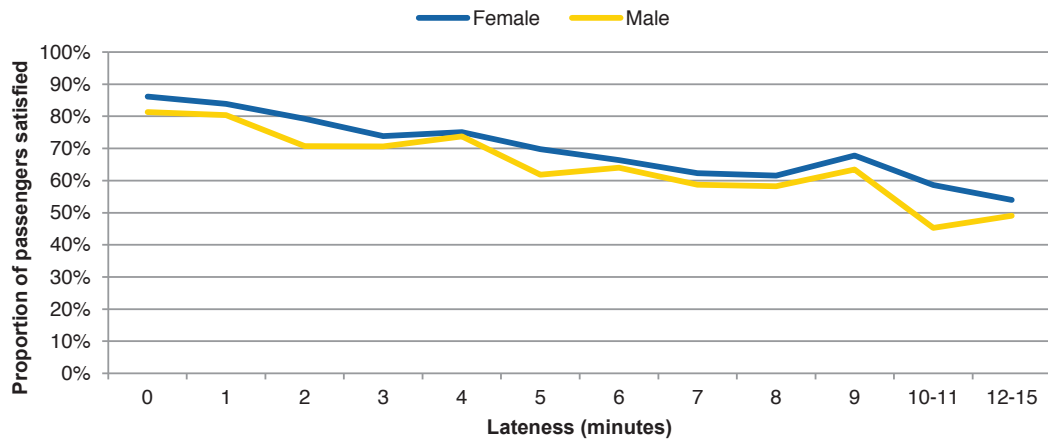


Figure 35 Satisfaction with punctuality vs passenger lateness by gender

7.1.2 By age

The NRPS groups respondents into multiple age categories. However, to maintain sufficient sample for analysis, some amalgamation of groups has taken place, resulting in the following age ranges.

16-25	26-34	35-44	45-54	55-64	65+
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As outlined in Figure 36 and Figure 37, satisfaction with punctuality across the age groups is relatively consistent in terms of decline as lateness increases. The sample size makes inferences difficult, but there appears to be a steeper gradient for 26-34 year olds, indicating a higher sensitivity to increasing lateness. While Section 3.2 shows younger people to be generally less satisfied with punctuality, they are more forgiving of delays in excess of nine minutes.

The following observations are noted on sample size:

- The number of respondents in age category 16-25 who experienced delays in excess of seven minutes is significantly lower (an average of three respondents per minute of lateness in comparison with an average of 49 respondents per minute of lateness overall) which results in an inaccurate representation of satisfaction level; and
- The number of respondents in age category 26-34 who experienced delays in excess of eight minutes is significantly lower (an average of three respondents per minute of lateness in comparison with an average of 72 respondents per minute of lateness overall) which results in an inaccurate representation of satisfaction level.

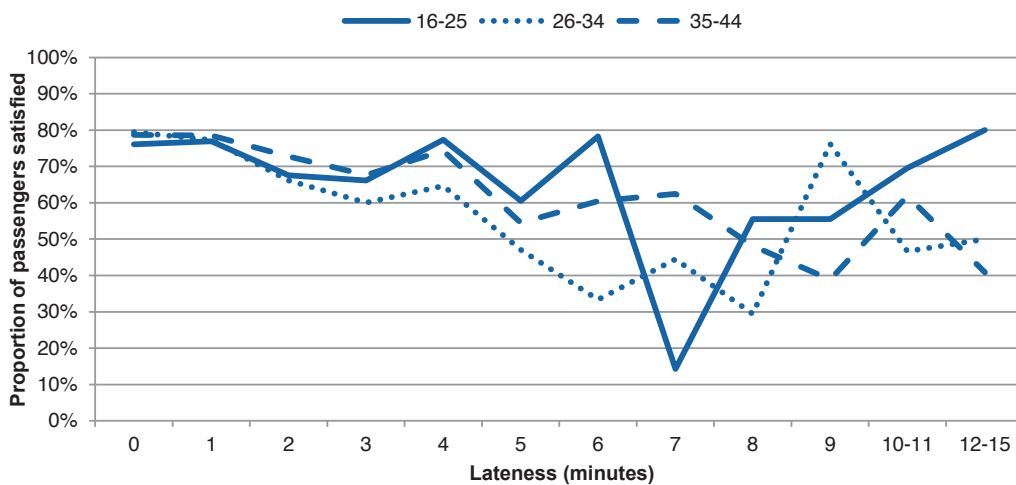


Figure 36 Satisfaction with punctuality vs passenger lateness by age (1)

The following observations are noted on sample size:

- The number of respondents in age category 65+ who experienced five minutes and eight minutes of delays is significantly lower (an average of four respondents per minute of lateness in comparison with an average of 48 respondents per minute of lateness overall) which results in an inaccurate representation of satisfaction level; and
- The number of respondents in age category 55-64 who experienced delays between 12-15 minutes is significantly lower (an average four respondents per minute of lateness in comparison with an average of 51 respondents per minute of lateness overall) which results in an inaccurate representation of satisfaction level.

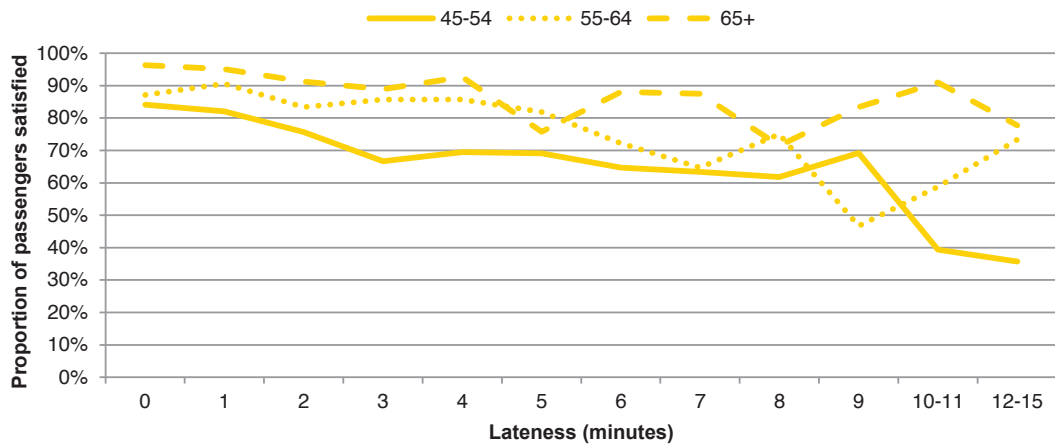


Figure 37 Satisfaction with punctuality vs passenger lateness by age (2)

7.1.3 By journey purpose

An additional parameter that influences satisfaction is the journey purpose (e.g. commuter, business or leisure). Figure 38 outlines the satisfaction with punctuality by journey purpose, as given on the NRPS response.

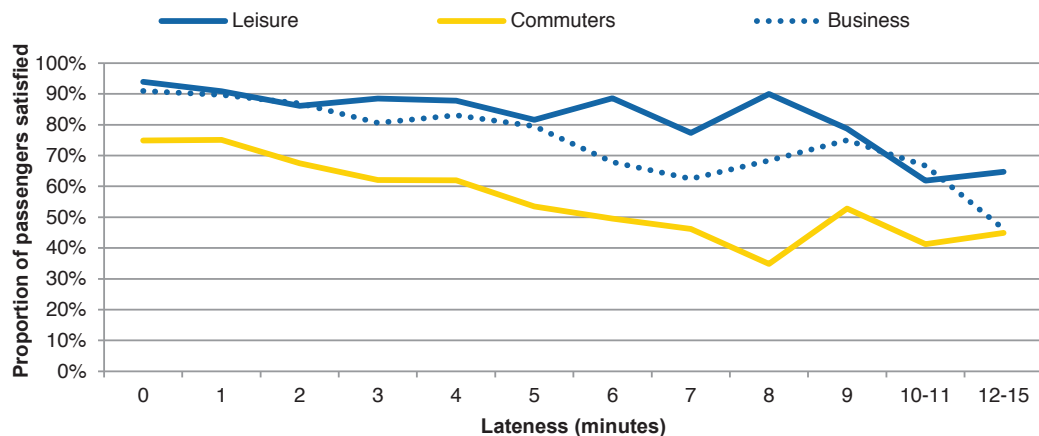


Figure 38 Satisfaction with punctuality vs passenger lateness by journey purpose

There are clear differences between the three journey purposes with the following intercept, gradient and tipping point outlined for each.

Journey Purpose	Intercept	Gradient	Tipping Point
Commuter	74.9 per cent	5 percentage points	None
Business	91.0 per cent	2 percentage points	5 minutes
Leisure	94.0 per cent	1 percentage point	8 minutes
Overall	83.8 per cent	3 percentage points	None

Intercept

This shows that, even when a service arrives on time (i.e. 'right-time' or early), satisfaction with punctuality is just 74.9 per cent for commuters, 91 per cent for business travellers and 94 per cent for leisure travellers.

The 'shortfall' below 100 per cent could provide some indication of the influence that previous journeys has on satisfaction with punctuality 'today'. The finding that leisure travellers are more influenced by today's travel than commuters is consistent with this, given the average frequency of travel for these groups. The National Rail Travel Survey (NRTS) suggests that 77 per cent of commuters travel five-days per week, whereas 70 per cent of leisure passengers travel less than once every month (or have not travelled before).

This could indicate that commuters are not answering the NRPS survey based solely on the experiences of that day. Instead, they may be using the survey as an opportunity to express views on past performance, consciously or otherwise.

Gradient

While commuters are less happy than leisure and business passengers when trains are on time, they are also more sensitive to delay, with each additional minute of delay costing five percentage points in satisfaction. For leisure passengers it is one percentage point per minute of delay and for business travellers, two percentage points per minute.

Tipping point

Where it has previously been difficult to identify a tipping point, it becomes more evident when looking by journey purpose. While satisfaction falls from the first minute of lateness, it is evident that, for leisure passengers, the gradient increases at around eight minutes delay, and around five minutes for business passengers.

7.1.4 By route

The analysis in this section is subject to significantly lower NRPS sample size as delay increases. However, some inferences can still be drawn from Figure 39 and Figure 40. Observations include:

- Respondents using Intercity services are not particularly sensitive to delay; 78 per cent of passengers are satisfied with delays of up to 15 minutes; and
- All other, generally shorter distance, routes have very similar (more aggressive) characteristics regarding the rate of decrease in satisfaction; this could be due to the passenger mix on these routes, or the comparably short journey times meaning that delay is a higher proportion of overall journey time.

The following observations are noted regarding sample size:

- The number of respondents using services in Rural route who experienced delays in excess of five minutes is significantly lower (an average of three respondents per minute of lateness in comparison with an average of 36 respondents per minute of lateness overall) which results in an inaccurate representation of satisfaction level; and
- The number of respondents using services in Metro route who experienced delays between six and ten minutes is significantly lower (an average of eight respondents per minute of lateness in comparison with an average of 50 respondents per minute of lateness overall) which results in an inaccurate representation of satisfaction level.

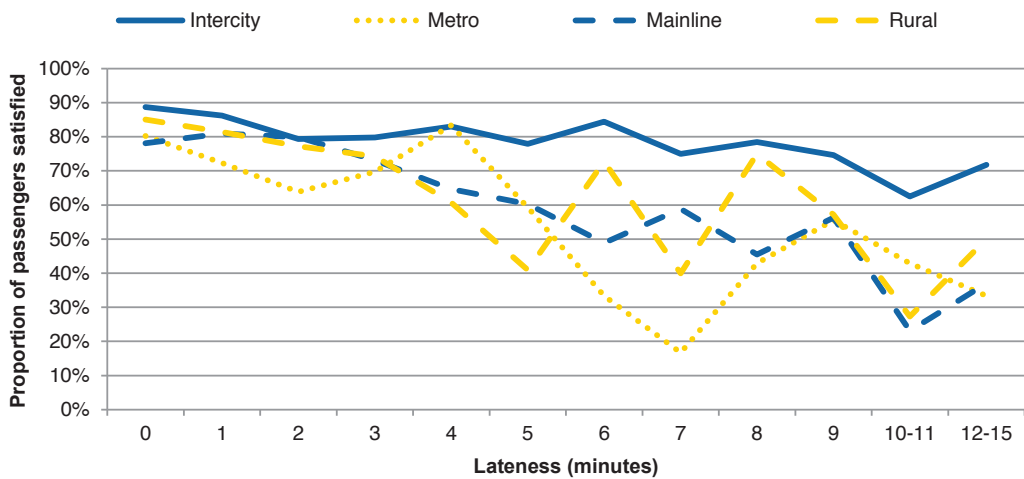


Figure 39 Satisfaction with punctuality vs passenger lateness by route (1)

The following observations are noted regarding sample size:

- The number of respondents using services in West Anglia Inner route who experience delays between five to seven minutes and in excess of 15 minutes are significantly lower (an average of five respondents per minute of lateness in comparison with an average of 50 respondents per minute of lateness overall) which results in an inaccurate representation of satisfaction level; and
- The number of respondents using services in West Anglia Outer route who experience delays between seven to ten minutes is significantly lower (an average of 14 respondents per minute of lateness in comparison with an average of 78 respondents per minute of lateness overall) which results in an inaccurate representation of satisfaction level.

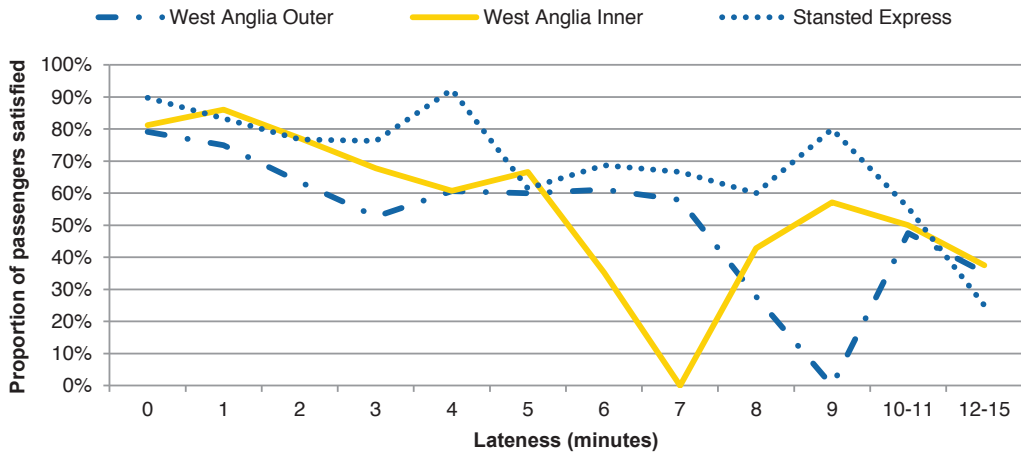


Figure 40 Satisfaction with punctuality vs passenger lateness by route (2)

7.1.5 By ticket type

A parameter that is also known to affect passenger satisfaction is ticket type. This is largely because passengers' journey purpose and ticket type is correlated with frequency of travel. The analysis by ticket type takes into account the majority of ticket types available to passengers. However, due to sample size, they have been grouped as summarised in Table 7. Some ticket types have been excluded from the analysis due to insufficient sample size; they are also detailed in the table below.

Ticket Type	Ticket Type Grouping for Analysis
Anytime single/return (includes standard single/return)	Anytime single/return
Anytime day single/return	
Off-peak/super off-peak single/return	Off-peak/super off-peak single/return
Off-peak/super off-peak day single/return	
Advance	Advance
Day travelcard	Day travelcard
Weekly or monthly season ticket	Weekly or monthly season ticket
Annual season ticket	Annual season ticket
Special promotion ticket	Excluded
Rail staff pass/Privilege ticket/Police concession	
Free travel pass (e.g. Freedom pass)	

Table 7 Ticket type groupings

Figure 41 outlines how satisfaction with punctuality varies based on increased lateness for respondents in possession of anytime single/return, off-peak/super off-peak single/return, advance and day travelcard tickets. Figure 42 covers this for season tickets users.

It is clear that passengers in possession of season tickets are generally less satisfied with punctuality. These passengers reflect commuter characteristics, while advance ticket holders more closely resemble leisure travel.

The following observations are noted regarding sample size:

- The number of respondents using Day Travelcard who experienced delays between six to eight minutes and in excess of 15 minutes are significantly lower (an average of five respondents per minute of lateness in comparison with an average of 29 respondents per minute of lateness overall) which results in an inaccurate representation of satisfaction level; and
- The number of respondents using Advance tickets who experienced delays between 9 to 12 minutes is significantly lower (an average of 14 respondents per minute of lateness in comparison with an average of 45 respondents per minute of lateness overall) which results in an inaccurate representation of satisfaction level.

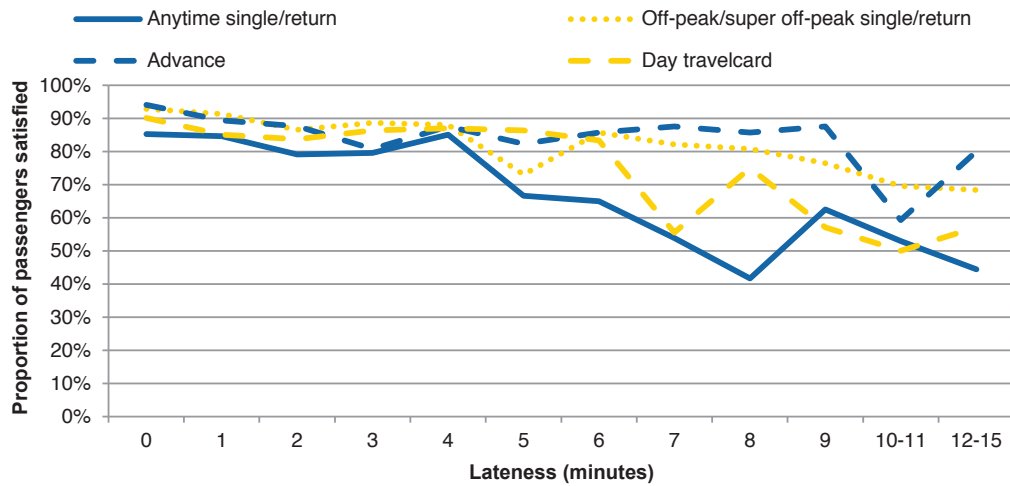


Figure 41 Satisfaction with punctuality vs passenger lateness by ticket type (1)

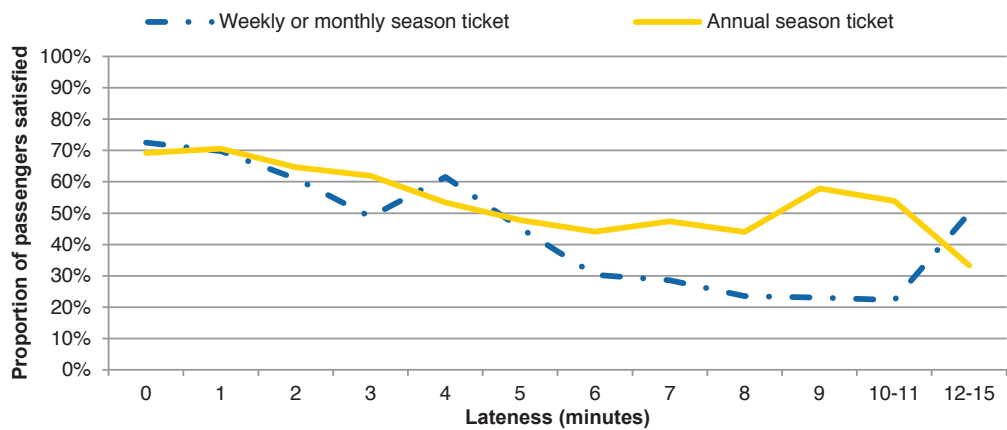


Figure 42 Satisfaction with punctuality vs passenger lateness by ticket type (2)

7.1.6 By frequency of travel

In order to maintain a representative sample across the categories of journey frequency listed in the NRPS, they are grouped together into:

- Three or more times a week;
- One to eight times per month; and
- Less than once a month.

Figure 43 illustrates how satisfaction with punctuality changes with increased lateness. Again, given that there is a natural correlation between frequency of travel and journey purpose, the patterns are as expected, with only 73 per cent of passengers travelling three or more times a week being satisfied with punctuality. As has been seen for commuters, this reduces by

approximately five percentage points for every minute of lateness.

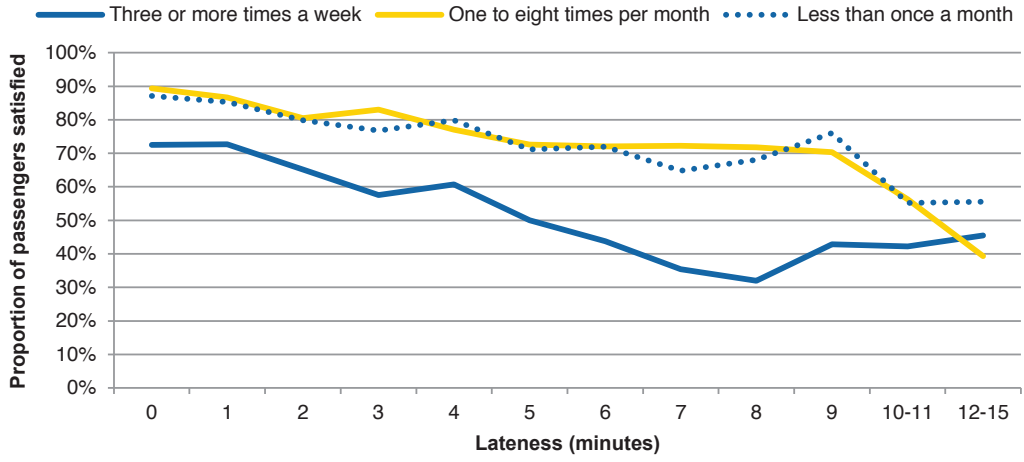


Figure 43 Satisfaction with punctuality vs passenger lateness by frequency of travel

8. Relationship between overall satisfaction and actual punctuality

As outlined in Section 7, there is a clear decline in satisfaction with punctuality as lateness increases. This section looks at the relationship between passenger lateness and overall satisfaction. If punctuality does have a substantial bearing on overall satisfaction, similar relationships should be apparent in this section.

Before beginning the analysis, it is important to note that some of the relationships shown below may be circumstantial. Overall satisfaction can be affected by many factors. As a result of this, only a selection of the analysis from Section 7 is repeated.

Figure 44 shows a clear reduction in overall satisfaction with increased lateness. In this graph overall satisfaction starts to reduce after two minutes of lateness, falling by 14 percentage points by six minutes lateness, and then stabilising until nine minutes of lateness, at which point there is an obvious tipping point. While the intercept with the vertical axis is at approximately the same level as for satisfaction with punctuality, the rate of decline is less aggressive.

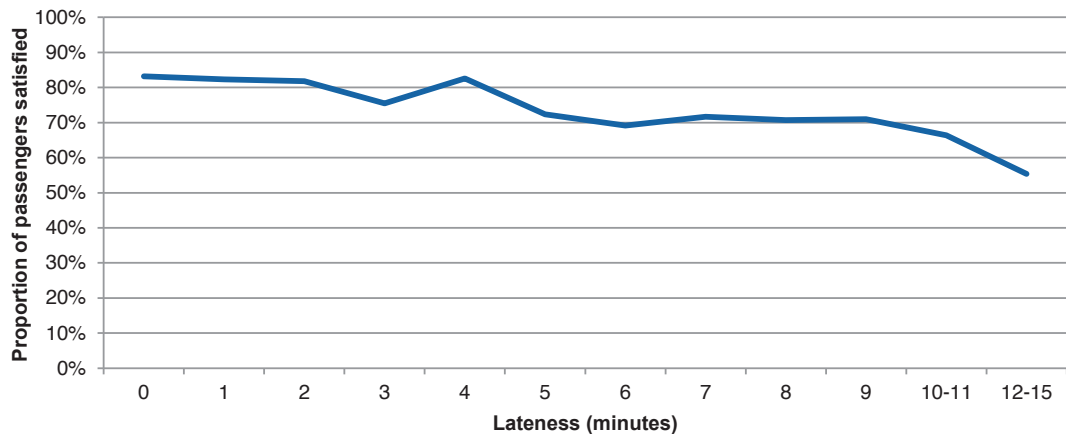


Figure 44 Overall satisfaction vs passenger lateness

8.1 Overall satisfaction by length of delay and gender

Following a similar pattern to satisfaction with punctuality by gender (Figure 35), the overall satisfaction also declines with increased lateness (Figure 45). However, the rate of decline is lower than that for satisfaction with punctuality. Both male and female respondents react to increased lateness in the same way, with overall satisfaction reducing at approximately the same rate.

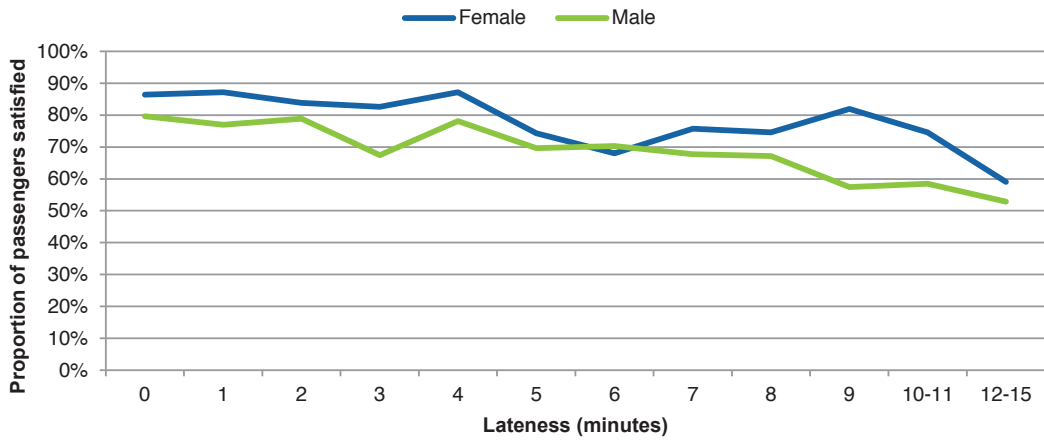


Figure 45 Overall satisfaction vs passenger lateness by gender

8.2 Overall satisfaction by length of delay and journey purpose

For journey purpose, overall satisfaction trends are consistent with those seen for satisfaction with punctuality. In the case of overall satisfaction (Figure 46), the rate of decline as lateness increases is not as aggressive as for satisfaction with punctuality (Figure 38). However, this is consistent across all journey purposes, allowing little inference to be drawn about the strength of relationship between overall satisfaction and satisfaction with punctuality by journey purpose.

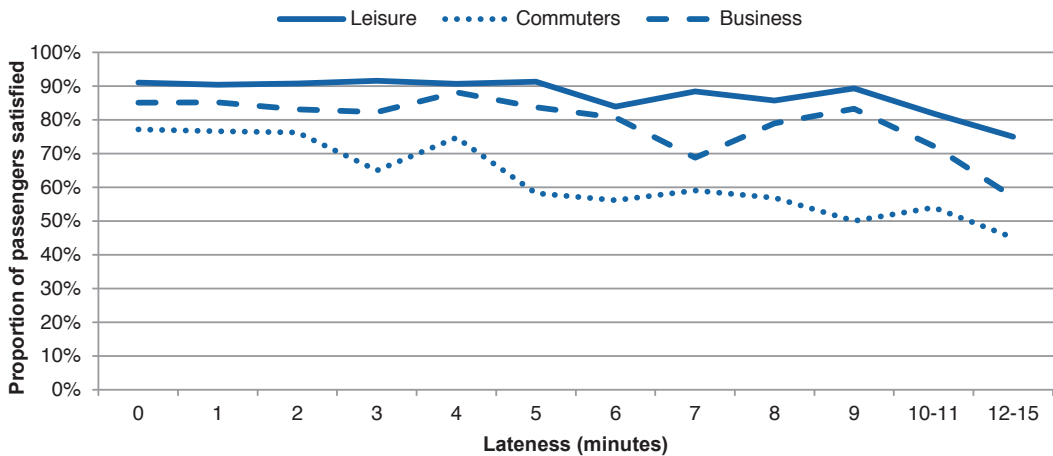


Figure 46 Overall satisfaction vs passenger lateness by journey purpose

9. Impact of remapping

While, historically, Metro and West Anglia routes had lower levels of satisfaction with punctuality and overall satisfaction, our analysis suggests that they have improved sufficiently to close the gap on other routes. As a result, the remapping of these services will not result in a significant difference between the NRPS results for Abellio Greater Anglia before and after 31 May 2015. Figure 47 outlines the overall satisfaction for each year, considering the franchise as it has been, and then with the remapped routes excluded. In 2014, had Metro and West Anglia Inner routes been excluded, overall satisfaction would have been unchanged in comparison with 2013, while satisfaction with punctuality would have been one percentage point higher.

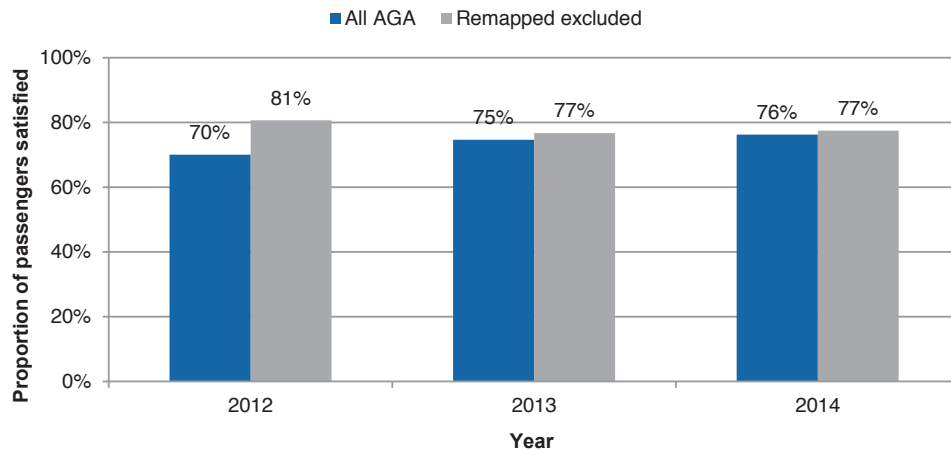


Figure 47 Overall satisfaction - route remapping comparison

Figure 48 shows satisfaction with punctuality for 2012, 2013 and 2014 considering the franchise as a whole and with the exclusion of remapped routes

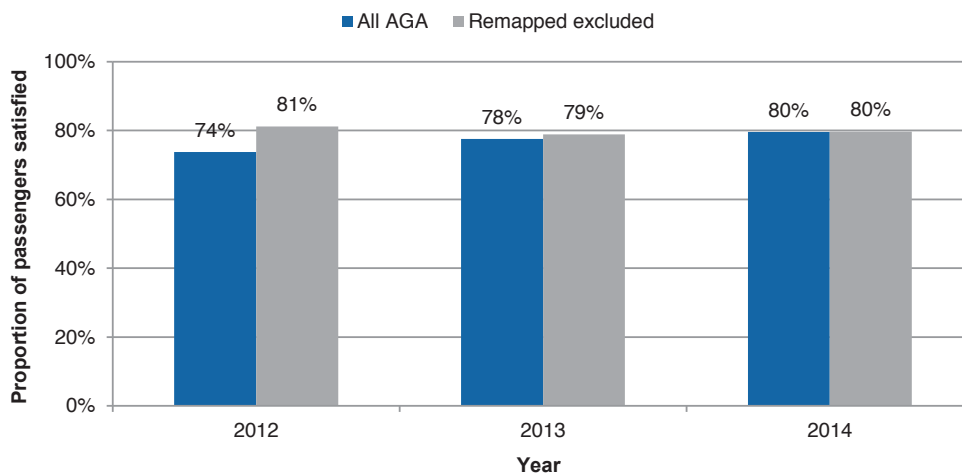


Figure 48 Satisfaction with punctuality - route remapping comparison

Appendix 1 – Passenger punctuality by time of day and route

Figure 49 and Figure 50 show respondents arriving to their destination early or on time on GA routes on the Great Eastern and West Anglia routes.

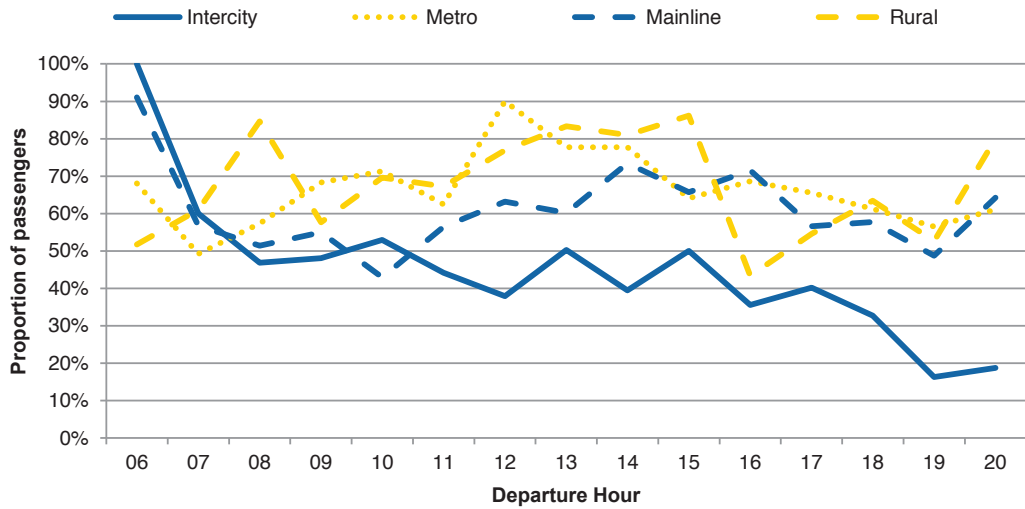


Figure 49 Passengers arriving early or on time by hour and route (1)

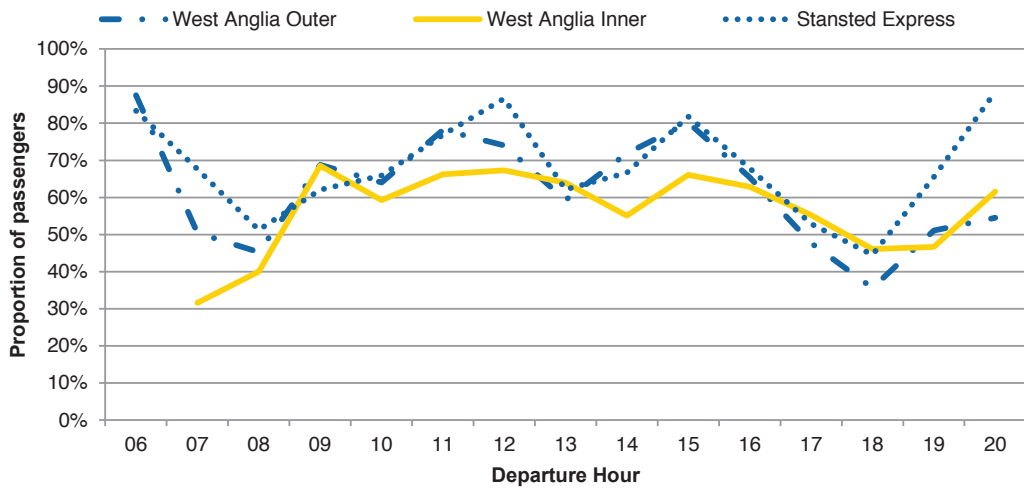


Figure 50 Passengers arriving early or on time by hour and route (2)



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