

Examining the Relationship between
Customer Satisfaction and
Performance
Supplementary Report

cdi

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Examining the Relationship between Customer Satisfaction and Performance

Supplementary Report

Executive Summary

This report is an additional set of analysis conducted following the delivery of two reports that examined the relationship between customer satisfaction and performance for CrossCountry (XC) services and Manchester (Non-London commuter market using Northern data). This report also incorporates previous data analysis conducted using National Express East Anglia (NXEA) as a London commuter market.

In brief the conclusions of this report are as follows:

- Customers who interchange between trains exhibit the same level of satisfaction with punctuality as those who do not interchange.
- On average, satisfaction with performance reduces by between 2-3% with every minute of lateness when looking at up to 30 minutes of lateness.
- Commuters are the least tolerant of late trains, and are also less satisfied with the service in general. Commuters generally travel over shorter distances (less than 50 miles) and are 20% less satisfied than business and leisure travellers. Both business and leisure users are far more satisfied with the service, with customers on business travel the most tolerant of train delays.
- The overall satisfaction is lowered by the effect of commuters who are a high proportion of rail users and who appear to respond to lateness after just 1 minute of delay, where after their satisfaction falls by 5% per minute of lateness between 3 - 7 minutes of lateness. By comparison, other passengers only start to change their level of satisfaction after suffering between 4-6 minutes of lateness.
- TOCs with high concentrations of commuters (such as NXEA or Northern) will exhibit a different overall relationship between performance and satisfaction than TOCs with high business or leisure travel (such as Cross Country) as commuting is skewed towards shorter journey distances.

1 Effect on Satisfaction of Interchange

To examine the effect of interchanging on satisfaction XC NPS and train lateness data was used, as this was the non-commuter market and which showed higher proportions of passengers interchanging between trains.

There are many different theories as to whether or not passengers are generally less satisfied if they have to interchange. In order to test this we looked at the XC NPS respondents and split them into those who interchanged (30% of the sample) and those who didn't.

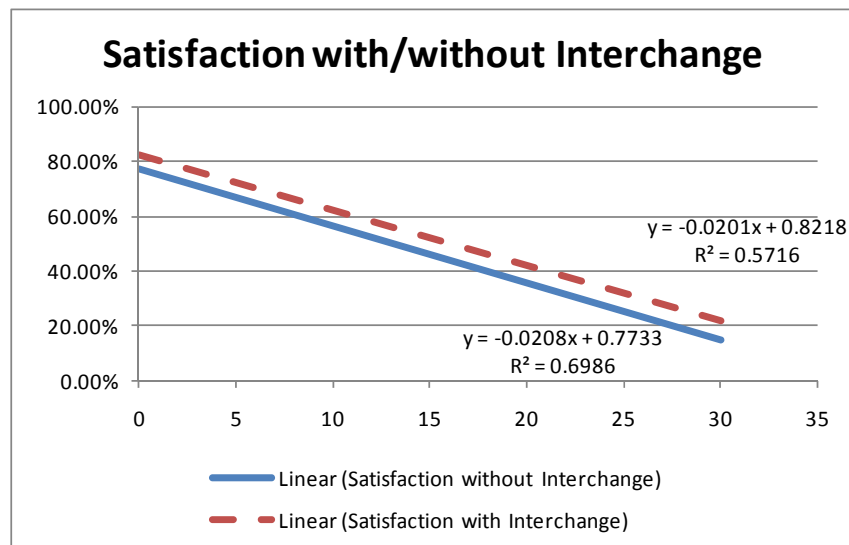


Figure 1

Figure 1 above shows the relationships between satisfaction and lateness for both those who interchange and those who don't. It can be seen that the decrease in satisfaction with lateness is almost identical for both types of passenger.

From this sample customers with an interchange show broadly the same level of satisfaction (within 1%) as customers that have no interchange and this is unaffected by the lateness of their train.

This may be counter-intuitive, but may be the result of questionnaires being completed after the journey has been undertaken (and therefore the interchange generally undertaken successfully).

1.1 Conclusion - Interchange

Customers who interchange between trains exhibit the same level of satisfaction with punctuality as those who do not interchange.

2 Examining the Relationship between Journey Length

CDL have examined the relationship between customer satisfaction and lateness that passengers have suffered on their journey using NPS (National Passenger Survey) data.

In order to assess whether or not journey length is a factor we have classified passengers on CrossCountry (XC) as travelling long distance if their journey was shorter than 50 miles, between 50 and 100 miles or over 100 miles.

Table 1 below shows that for XC there is an even spread in the proportion of passengers travelling in each of these distance bands.

Table 1

Journey Length	Sample Size	% of Sample
0-50 miles	1788	36%
50-100 miles	1563	32%
100+ miles	1566	32%
Total	4917	100%

2.1 Short Distance Passengers

Figure 2 shows the percentage of satisfied customers, which have travelled less than 100 miles on a XC train, in relation to how many minutes their train was late.

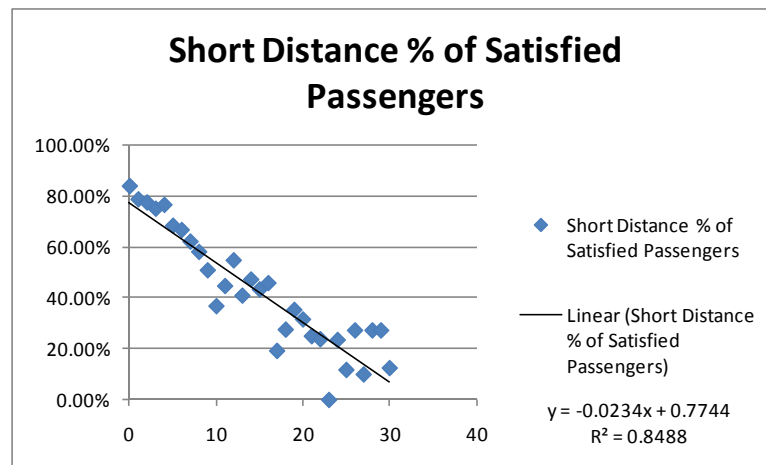


Figure 2

As can be seen the customer satisfaction starting at 77% for punctual trains drops to 13% when their train is 30 minutes late. This represents a drop of just over 2% per minute the train is late.

This is a similar pattern of satisfaction with lateness that has previously been found for XC overall shown below in Figure 3.

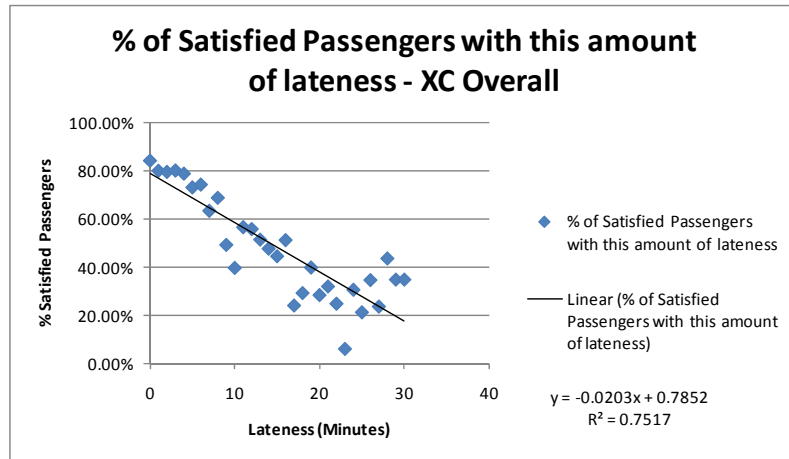


Figure 3

2.2 Long Distance Passengers

Figure 4 shows the percentage of satisfied customers, which have travelled over 100 miles on a XC train, in relation to how many minutes their train was late.

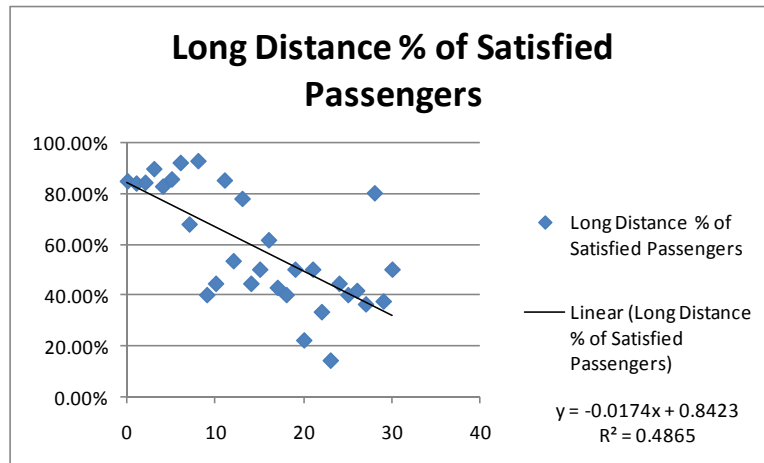


Figure 4

It is clear from the low R-squared value that there is a poor correlation between how satisfied a customer is and their lateness for longer distance passengers.

Long distance passengers are also more satisfied in general with 85% of passengers being satisfied when trains are on time in comparison to XC overall which is only 79%.

2.3 Comparison of distances

In Figure 5 below we have further classified journeys into short, medium and long distance.

It can be seen that customers that travel long distance on trains are more satisfied with the service than people only travelling a short distance for the same level of delay. This difference becomes more pronounced the later the train is, although it should be noted that the sample size for customers travelling on long distance trains that are more than 15 minutes late is low (less than 5% of the sample) and the correlation is poor.

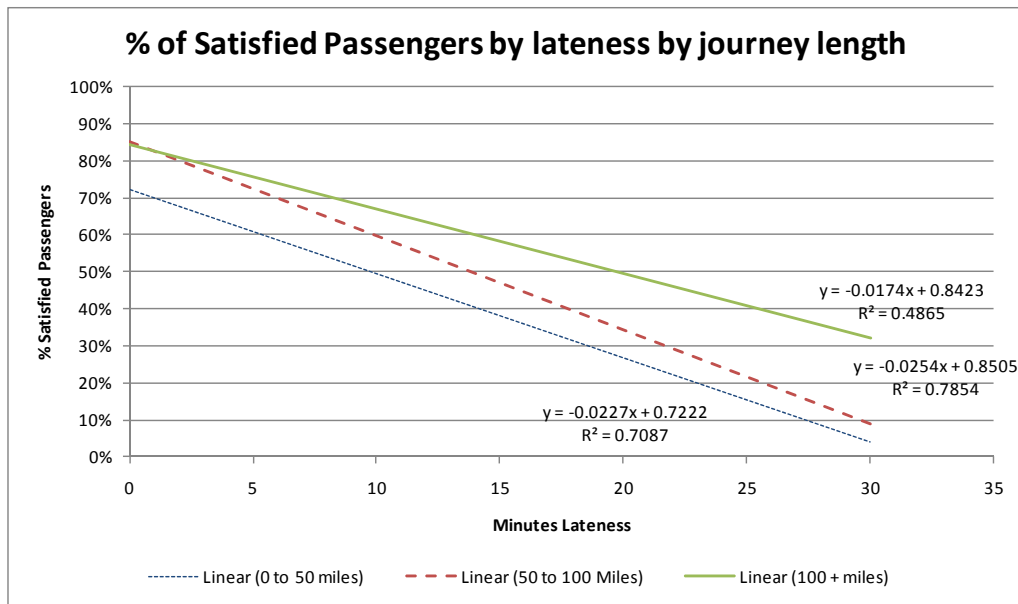


Figure 5

2.4 Conclusion – Journey Length

Short distance travellers are more sensitive to lateness than long distance passengers.

Satisfaction with performance reduces by 2% with every minute of lateness which is consistent with previous findings.

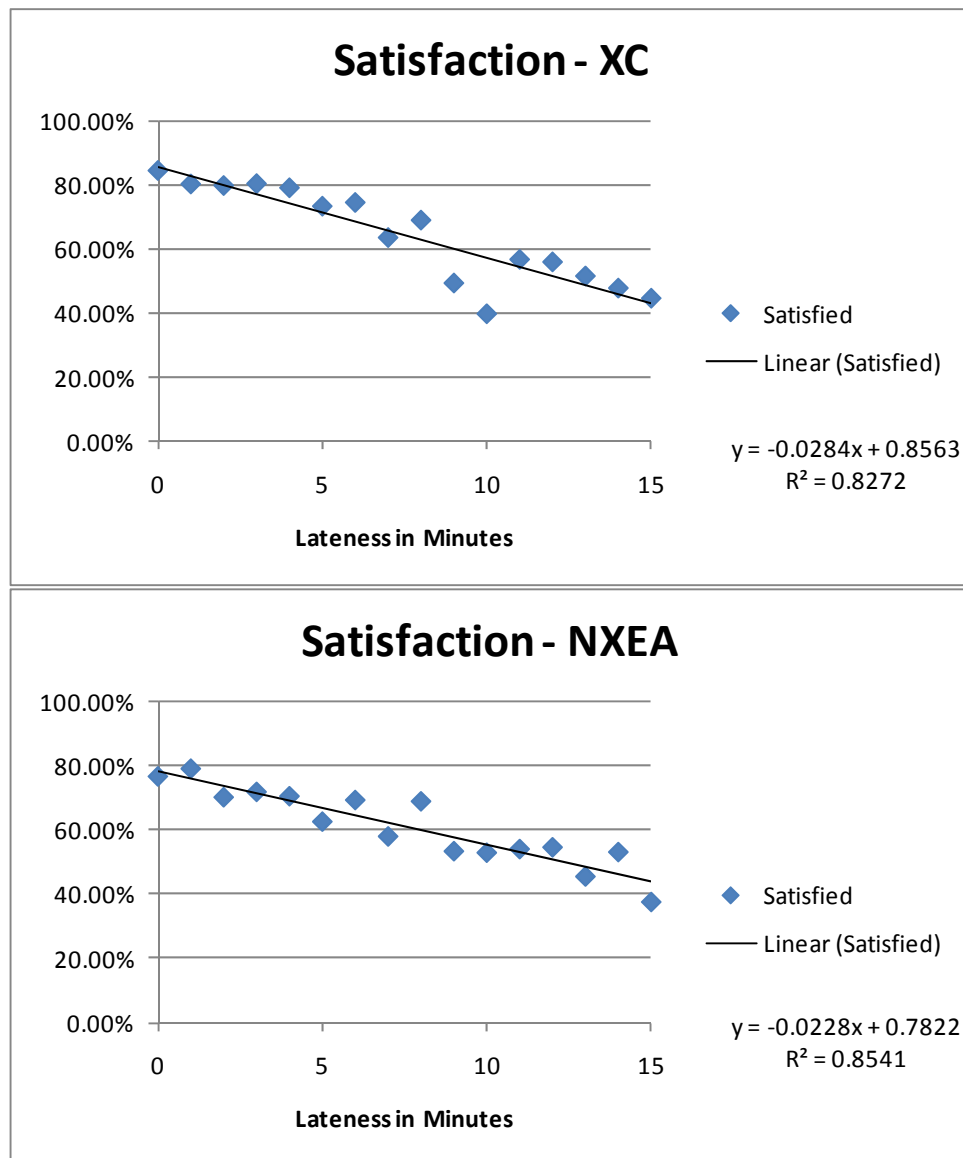
3 The Relationship between Satisfaction and Lateness

The analysis presented below is based on combined NPS data from NXEA, Northern and XC. We examined satisfaction where passenger lateness is up to 15 minutes, this was to ensure there is a good sample size for all customers.

3.1 All journeys

When examining the relationship between customer satisfaction and lateness, Northern exhibits different results from NXEA and XC (see Figure 6 below).

XC has more satisfied customers on early and punctual trains than on both NXEA and Northern. These results also suggest Northern's customers become less satisfied faster as lateness increases.



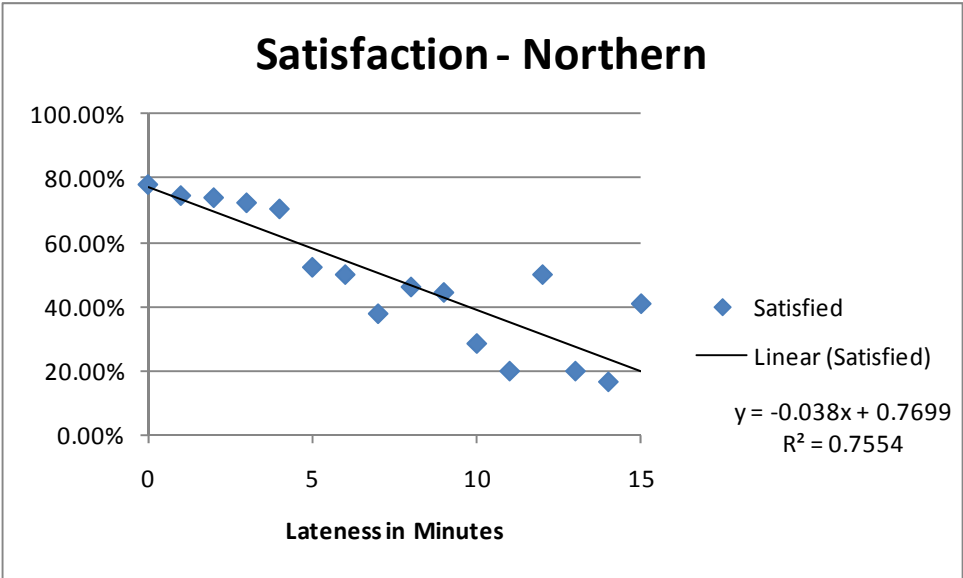


Figure 6

When we combine the data for all sets of NPS data then the following observations are made.

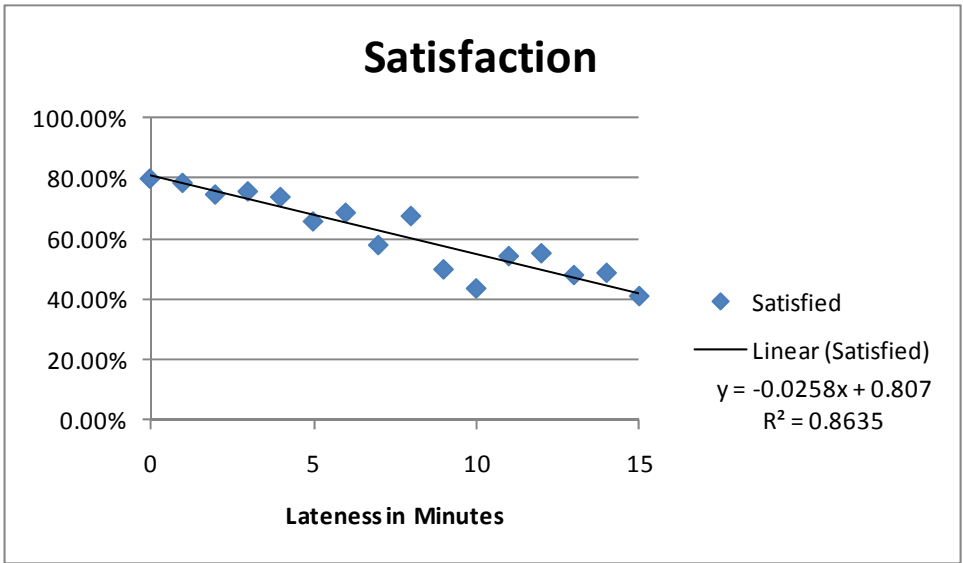


Figure 7

Figure 7 above we can see that overall 81% of customers are satisfied with their service when it is on time or early and this reduces by over 2.5% for every minute of lateness.

3.2 Business

Previous analysis has shown that journey purpose is an important consideration when interpreting these results, and that different types of passengers react very differently to the same level of delay.

Combining data from different TOCs has reinforced this, as can be observed in the following results.

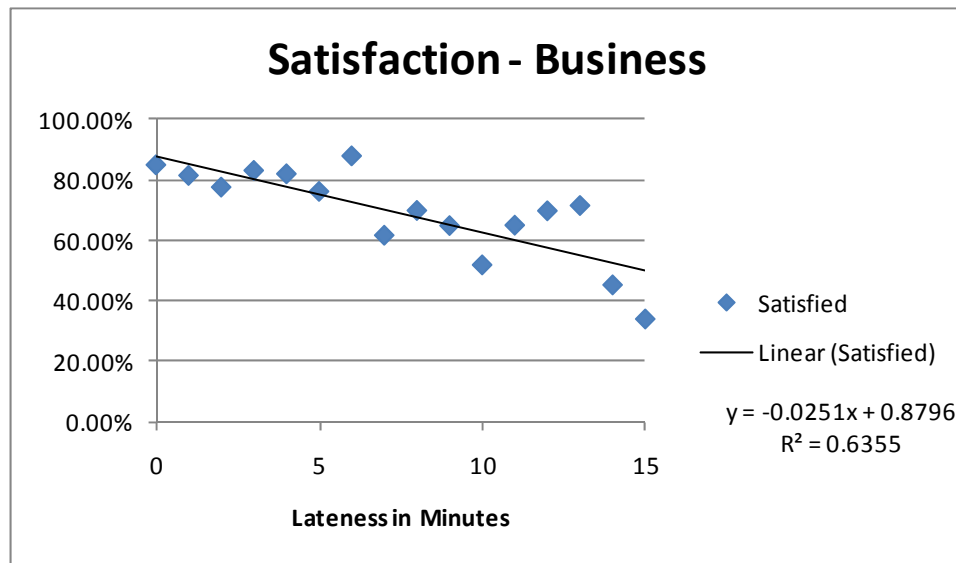


Figure 8

The data for customers on business shows the weakest correlation between satisfaction and how late a train is.

Figure 8 above shows that 88% are satisfied with the service when their train is early or on time and this goes down by 2.5% with every minute the train is late.

3.3 Leisure

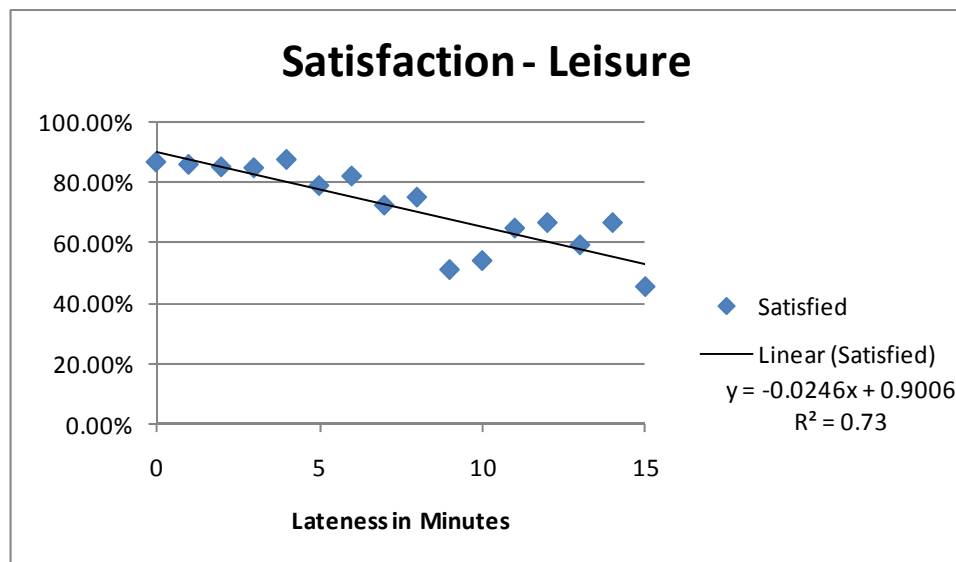


Figure 9

Figure 9 shows that 90% of leisure customers are satisfied when their train is early or on time and for every minute their train is late satisfaction falls by 2.5% which is similar to that of business travellers.

3.4 Commuters

Previous analysis has shown that commuters have much lower levels of satisfaction and are much more sensitive to delay. This finding is reinforced when grouping together data from different train operating companies (TOCs) as can be observed in Figure 10 below.

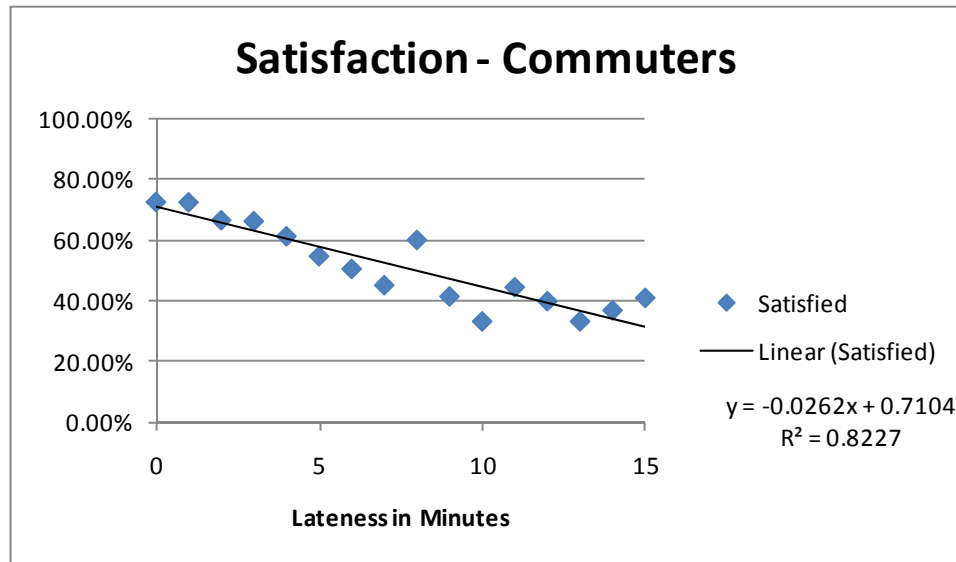


Figure 10

Only 71% of commuters are satisfied with the service for trains that are early or on time and this drops by over 2.6% for every minute their train is late.

The lower level of satisfaction with 'right-time' services may reflect previous experience amongst this group of frequent rail users.

3.5 Conclusion – Combined TOCs

Commuters are the least tolerant of late trains.

Both business and leisure users are far more satisfied with the service with customers on business travel the most tolerant of train delays.

4 Point of Lateness where Satisfaction Changes

There are many arguments as to whether or not the industry measure of punctuality reflects how passengers actually perceive lateness. Currently for long distance operators trains are said to be on time if they arrive at their destination within 10 minutes of its scheduled time, this reduces to 5 minutes for more local operators.

We have looked further into whether or not 5 minutes (or 10 minutes) is the most appropriate measure of lateness. The following section investigates the actual amount of lateness in minutes where passenger satisfaction changes, using combined NXEA, XC and Northern NPS responses. Table 2 below shows the sample sizes used in the following analysis. Note that there are very few long distance commuters.

Table 2

Journey Distance	Business	Leisure	Commute	Grand Total
0 to 50 miles	915	1873	4551	7339
50 to 100 Miles	812	964	907	2683
100 + miles	616	1107	260	1983
Grand Total	2343	3944	5718	12005

Table 3 below shows how the % of satisfied passengers varies across different passenger types and by distance travelled.

Table 3 - % Satisfied

Journey Distance	Business	Leisure	Commute	Grand Total
0 to 50 miles	76%	81%	63%	69%
50 to 100 Miles	76%	77%	59%	70%
100 + miles	73%	81%	70%	77%
Grand Total	76%	80%	63%	71%

Previous analysis has shown that satisfaction falls between 2-3% for every minute of lateness incurred. The following graph shows this change split by passenger types.

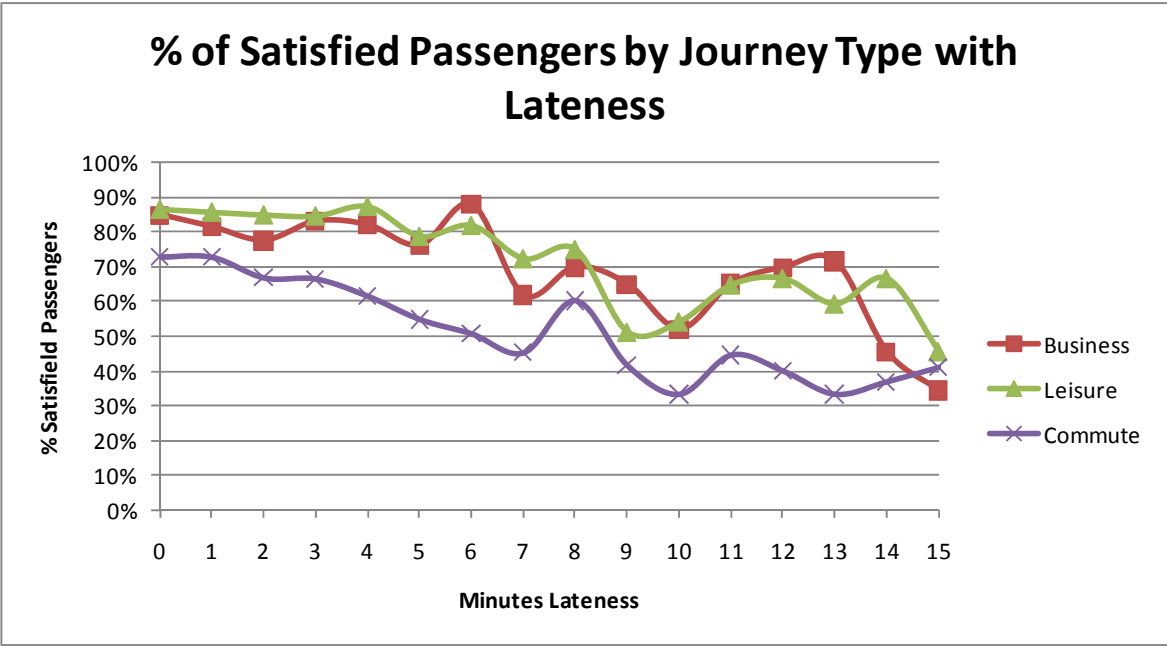


Figure 11

Figure 11 above clearly shows that there is a significant difference in reaction to lateness between commuters and other passenger types.

For leisure and business travellers the level of satisfaction is broadly unchanged for small values of delay, and only changes between 4 to 6 minutes of lateness. By comparison commuter's level of satisfaction appears to fall after just 1 minute of lateness, and then it starts to fall rapidly, by 5% per minute of lateness between 3 - 7 minutes of lateness.

Investigation of the XC NPS data leads us to believe that there is a relationship between the length of journey and the level of satisfaction. Using the combined data sets for NXEA, XC and Northern we get the following result for satisfaction by journey length:

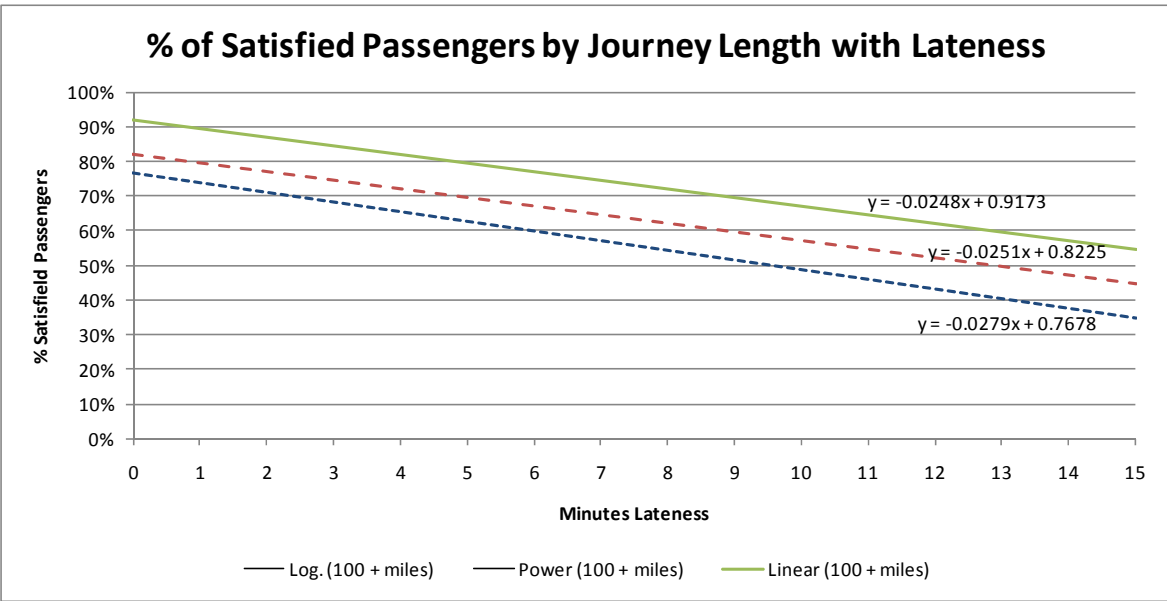


Figure 12

Figure 13 below shows the individual points of satisfaction by minutes of lateness suffered.

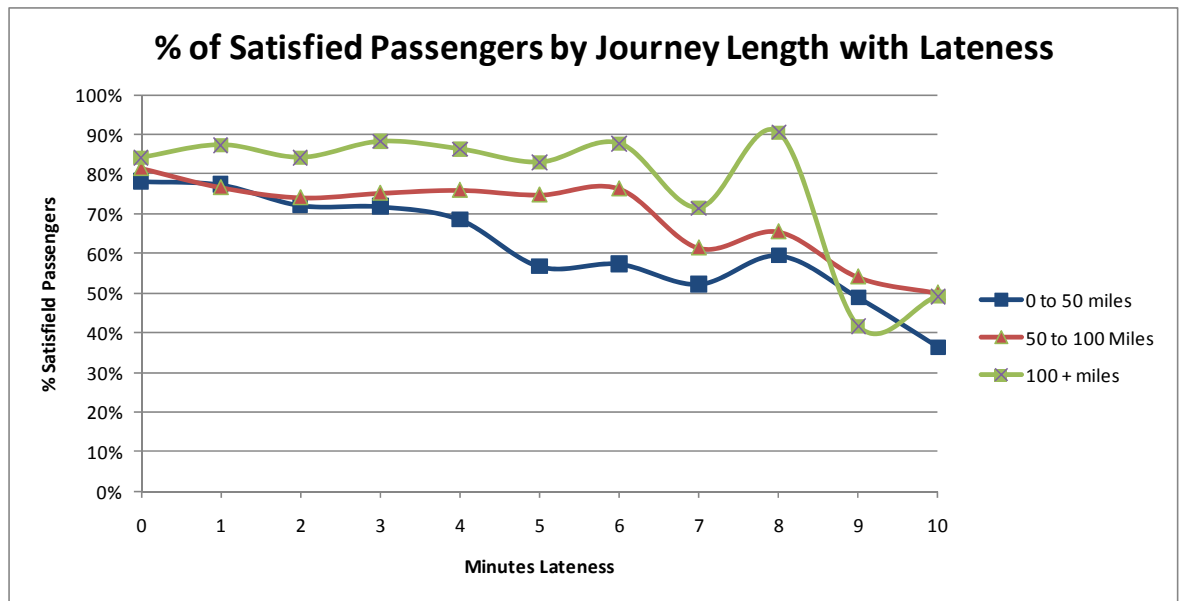


Figure 13

The pattern observed here is similar to that of XC in that the longer the journey the more satisfied the passenger. Also it can be seen that the change in satisfaction occurs at around 6 minutes of lateness for longer journeys whereas for shorter journeys the level of satisfaction falls after 1 minute of lateness, then it starts to fall by 5% per minute of lateness between 3 - 7 minutes of lateness.

Figure 14 below shows that the change in level of satisfaction for leisure and business passengers remains fairly consistent when looking at different journey lengths and that business and leisure passengers do not appear to differentiate their satisfaction based on journey length.

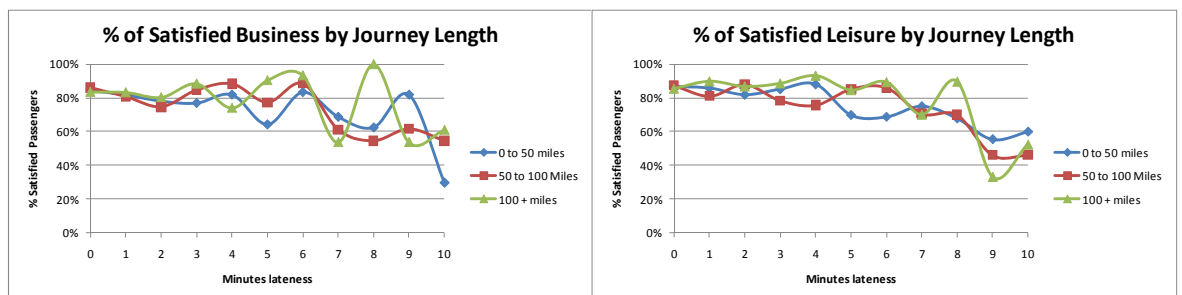


Figure 14

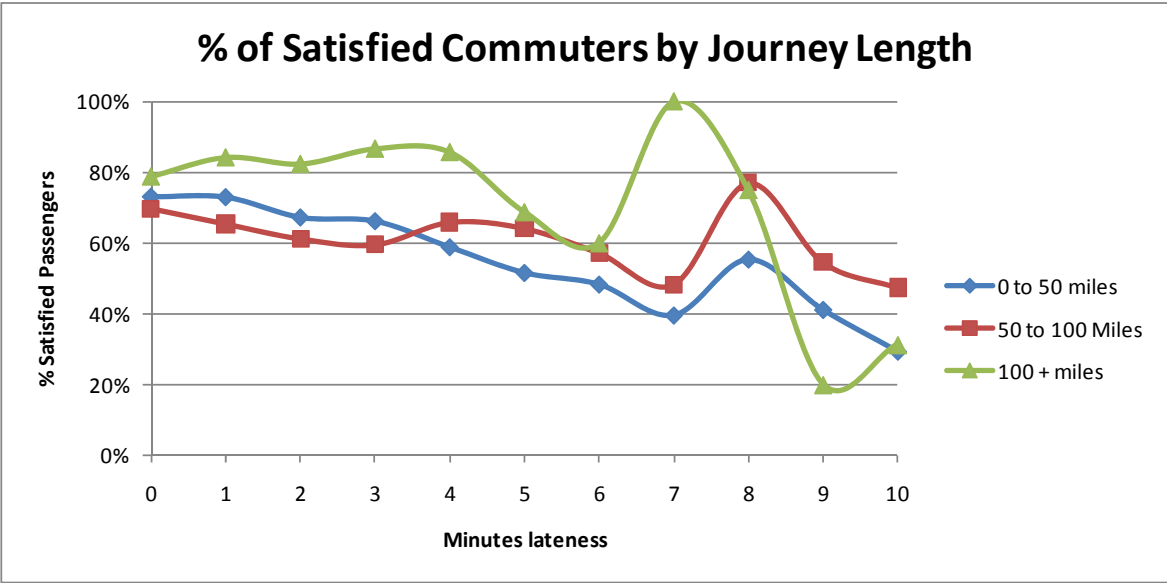


Figure 15

When we examine the type of customers travelling over these distances it can be seen that commuters have the largest level of influence over shorter journeys. This can be seen in Table 4 below.

Table 4 - % Market Share

Journey Distance	Business	Leisure	Commute	Grand Total
0 to 50 miles	12%	26%	62%	100%
50 to 100 Miles	31%	56%	13%	100%
100 + miles	30%	36%	34%	100%
Grand Total	20%	33%	48%	100%

Therefore if we remove commuters and re-examine the relationship for business and leisure passengers there is little or no difference between journey length and lateness.

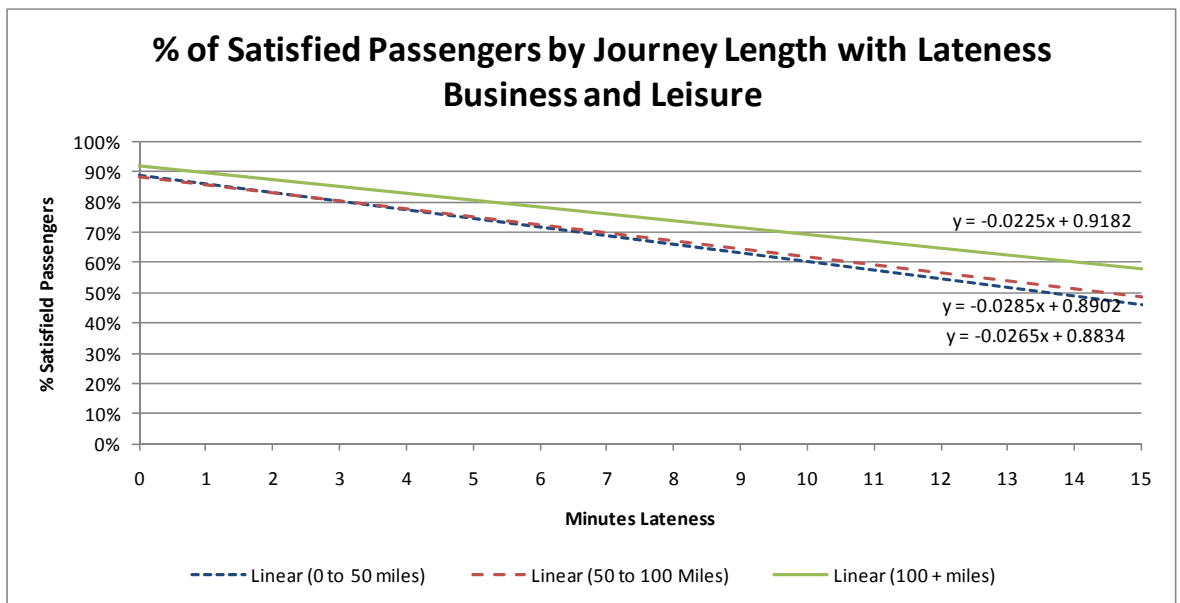


Figure 16

When undertaking the same exercise for commuters a similar result is found:

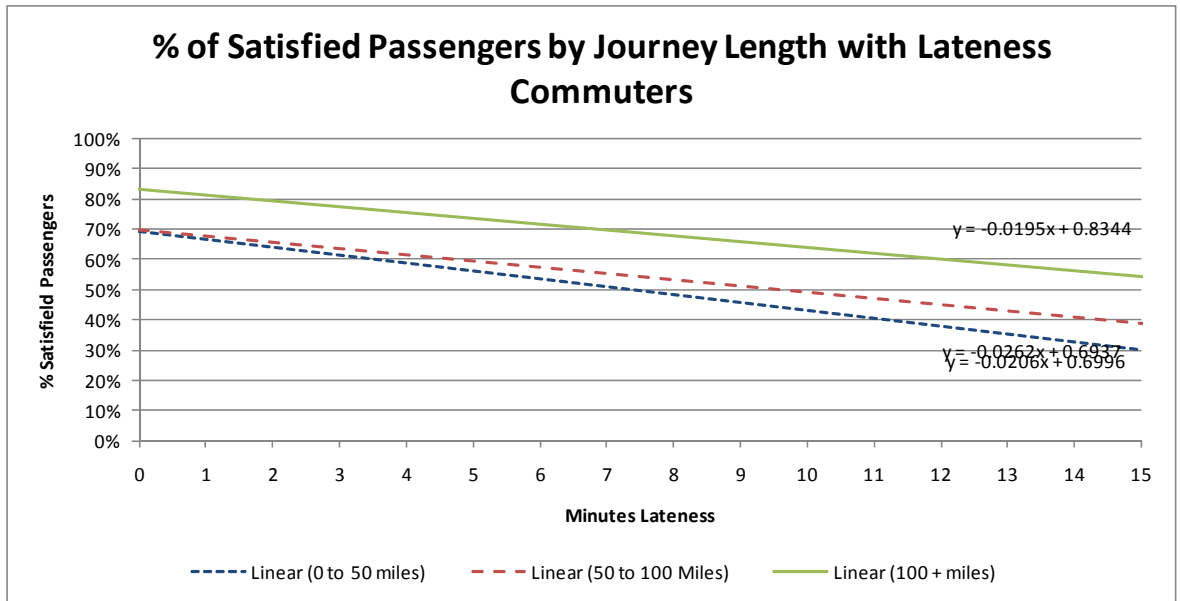


Figure 17

It is therefore clear that satisfaction levels for journeys under 100 miles are dominated by the higher proportion of commuters, in large part because there is a difference of 20% in base satisfaction with 'right-time' trains (i.e. no lateness). This is demonstrated in Figure 18 below:

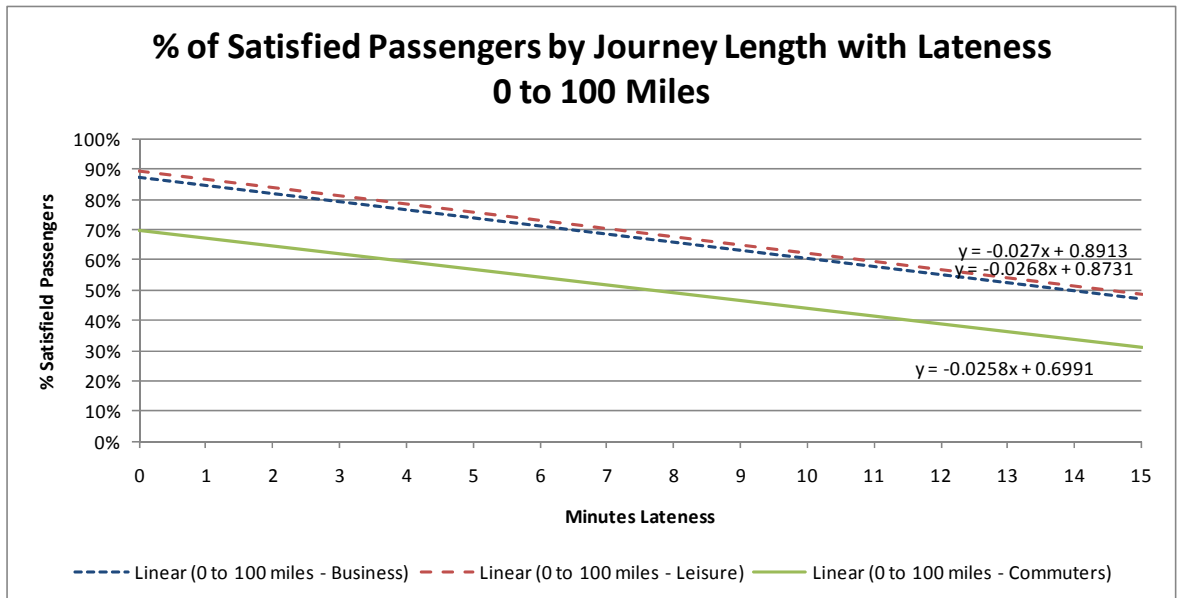


Figure 18

This means TOCs with high concentrations of commuters (such as NXEA or Northern) will exhibit a different (lower) overall relationship between performance and satisfaction than TOCs with high business or leisure travel (such as Cross Country) as commuting is skewed towards shorter journey distances.

4.1 Conclusion - Point of Lateness where Satisfaction Changes

Commuters travelling over shorter distances are 20% less satisfied than business and leisure travellers.

Leisure and business travellers change their level of satisfaction between 4 to 6 minutes of lateness. By comparison commuter's level of satisfaction falls after 1 minute of lateness, then it starts to fall by 5% per minute of lateness between 3 - 7 minutes of lateness.

The same pattern as above is observed for short journeys. This is explained by the fact that short journeys are dominated by commuters.

The overall satisfaction is lowered by the effect of commuters who are a high proportion of rail users and who appear to respond to lateness after just 1 minute of delay, where after their satisfaction falls by 5% per minute of lateness between 3 - 7 minutes of lateness. By comparison, other passengers only start to change their level of satisfaction after suffering between 4-6 minutes of lateness.

TOCs with high concentrations of commuters (such as NXEA or Northern) will exhibit a different overall relationship between performance and satisfaction than TOCs with high business or leisure travel (such as Cross Country) as commuting is skewed towards shorter journey distances