

UK Real Time Information Group

Statistics on the relationship of patronage and RTI in the UK

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List of contents

1 Overview of SIRI

- 1.1 About SIRI
- 1.2 What SIRI currently covers
- 1.3 What SIRI doesn't (yet) cover

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2 Using SIRI in the UK

- 2.1 RTIG recommendations
- 2.2 Additional requirements

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1 Introduction

1.1 Context

- 1.1.1 The question of the 'business case' for real time information (RTI) is a perennial one, and one which it is difficult to answer definitively because of the number of factors involved in its evaluation. There have been reviews which attempt to answer this from different perspectives, most recently (and most comprehensively) from the RTIG study in East Kent. The outcome has been encouraging, but – at least insofar as patronage impacts are concerned – have not been unarguably conclusive.
- 1.1.2 This short note takes a slightly different view. It compares the development of bus patronage and passenger satisfaction statistically between areas that have RTI, and those that don't have RTI. The outcome is generally supportive: areas that have RTI have generally preserved their ridership, while areas without have seen ridership dwindle.
- 1.1.3 The difference is statistically significant. However, this prima facie evidence is of course subject to its own set of caveats, some of which are discussed below.

1.2 Status of this document

- 1.2.1 This note has been produced by Centaur using official DfT data, and with the support of DfT in the clustering and analysis.
- 1.2.2 The conclusions and discussion are the authors' but DfT statisticians have indicated that they are content with the presentation of both.

2 Analysis

2.1 Source data

- 2.1.1 RTI has been deployed around the UK predominantly during the past five years. We therefore sought to obtain figures from the official national statistics, compiled annually by DfT, to compare authorities 'with' and 'without' RTI.
- 2.1.2 For an objective test of which authorities are 'with' and which 'without', we used the returns to the 2003 Annual Survey. Of course this is imperfect as it omits those authorities gaining RTI in subsequent years, and fails to acknowledge those who had RTI throughout the period; however the impact of these would be to understate any correlation between RTI and impact, so this was accepted as a limitation.
- 2.1.3 London was however omitted from the analysis. Its unique size, and the fact that its RTI has not substantially changed over the period, make it a clearly special case.
- 2.1.4 In the official statistics, the figures are presented regionally, which does not allow sufficient granularity for this kind of analysis. We therefore contacted DfT's Transport Statistics division, who kindly repeated the analysis of patronage and satisfaction trends using 'with' and 'without' groups of authorities as clusters.
- 2.1.5 At DfT's suggestion, the grouping was refined to reflect four groups of authorities:
- LA areas with *significant* RTI in 2003 (in terms of amount of equipment installed, scaled by size of authority);
 - LA areas with *a little* RTI in 2003;
 - LA areas who responded to the survey indicating they had *no* RTI in 2003;
 - LAs who did not respond to the survey in 2003.
- 2.1.6 The table overleaf lists the authorities by their group.
- 2.1.7 For each group, the official statistics for passenger numbers and for passenger satisfaction were collated over the period from 1999/2000 to 2004/2005 (the last year for which figures are available).
- 2.1.8 During analysis, DfT found that there were a number of features in which the West Midlands were distinctly at variance with other authorities in the "little RTI" category, and that because of the scale of the area this masked the wider picture. Data for the West Midlands is therefore presented separately.

Significant RTI in 2003	A little RTI in 2003	No RTI in 2003	No response in 2003
Bristol	Luton	Bath & NE Somerset	North Somerset
Reading	Halton	South Gloucestershire	Bracknell Forest
Wokingham	Cornwall inc. Scilly Isles	Bedfordshire exc Luton	West Berkshire
Plymouth	Gloucestershire	Slough	Buckinghamshire exc Milton Keynes
Devon exc Plymouth & Torbay	Portsmouth	Windsor & Maidenhead	Warrington
Brighton & Hove	Blackburn with Darwen	Milton Keynes	Cheshire exc Halton & Warrington
Southend	York	Peterborough	Cumbria
Thurrock	Nottingham	Cambridgeshire exc Peterborough	Derby
Essex exc Southend & Thurrock	Suffolk	Hartlepool	Bournemouth
Kent exc Medway Towns	West Sussex	Redcar & Cleveland	Poole
Lancashire exc Blackburn & Blackpool	Greater Manchester PTE	Middlesbrough	Dorset exc Poole & Bournemouth
Leicestershire exc Leicester & Rutland	Merseyside PTE	Stockton	Durham exc Darlington
Norfolk	West Midlands PTE	Derbyshire exc Derby	East Sussex exc Brighton & Hove
North Yorkshire exc York		Torbay	Southampton
Shropshire exc Telford & The Wrekin		Darlington	Hampshire exc Portsmouth & Southampton
Surrey		Worcestershire	Hertfordshire
Wiltshire exc Swindon		Herefordshire	Medway Towns
		Kingston upon Hull	Blackpool
		North East Lincolnshire	Leicester
		East Riding of Yorkshire	Rutland
		North Lincolnshire	Lincolnshire
		Isle of Wight	Nottinghamshire exc Nottingham
		Northamptonshire	Telford and the Wrekin
		Northumberland	Staffordshire exc Stoke-on-Trent
		Oxfordshire	Swindon
		Somerset	Tyne and Wear PTE
		Stoke-on-Trent	
		Warwickshire	
		South Yorkshire PTE	
		West Yorkshire PTE	

2.2 Results: patronage

2.2.1 Figure 1 below shows the track of passenger numbers for each of the groups. To ease comparison, these have been scaled so that 2000/2001 figures are taken as a baseline ("2000/2001=100").

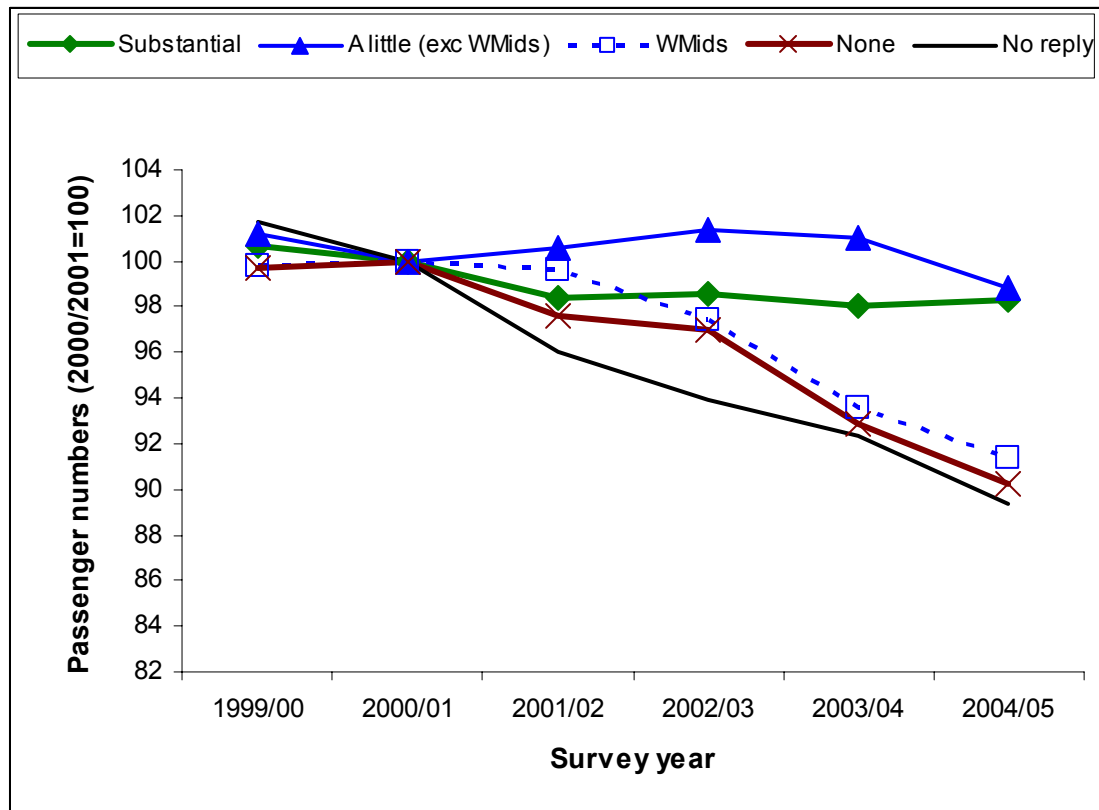


Figure 1: Patronage trends, authorities with different levels of RTI in 2003

2.2.2 This graph shows that:

- Patronage holds up well in areas with RTI in 2003, whether they had at that point a little or a substantial amount. There is no significant difference between these curves.
- Patronage in areas with no RTI in 2003 fell off during the analysis period, but the difference from those with RTI is only significant in the last two years of the period.
- The trend for the West Midlands tracks the "no RTI" curve closely.
- Those not participating in the survey showed patronage drop off as bad as those without RTI (if anything, slightly worse).

2.3 Results: satisfaction

2.3.1 The figure below shows the track of ratings for each of the groups for "satisfaction with information provided at the bus stop", again with the West Midlands separated out. Satisfaction is scored out of 100.

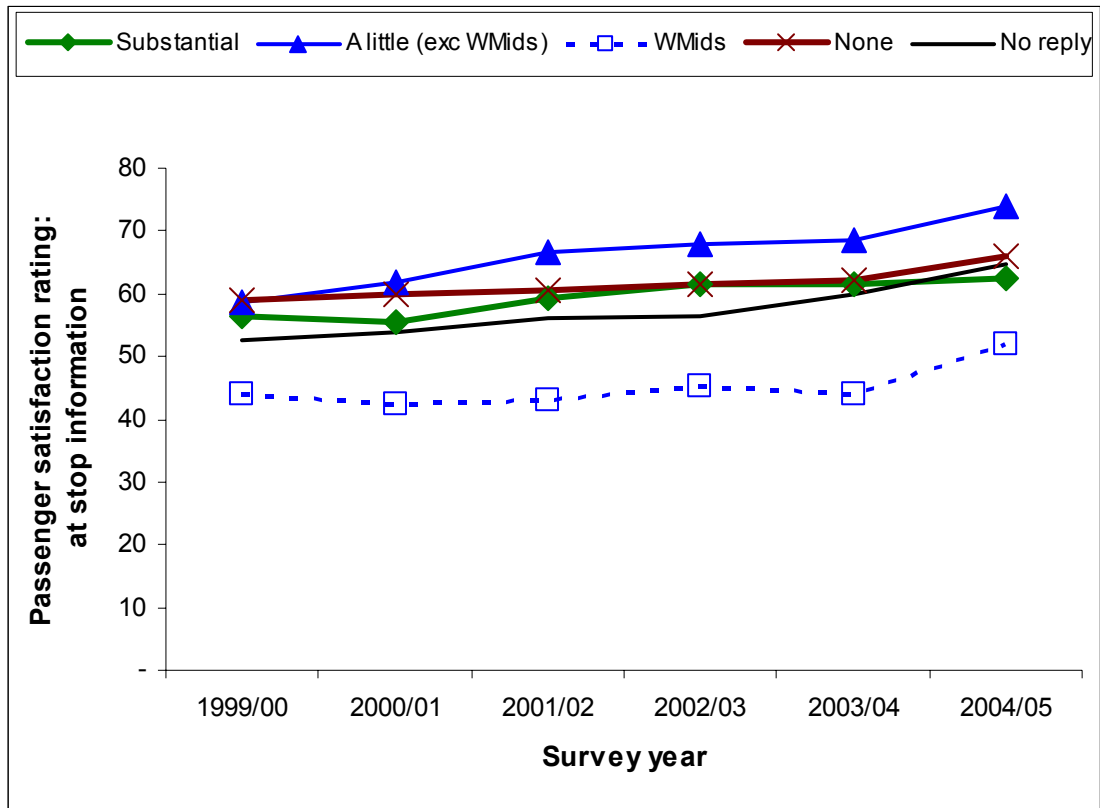


Figure 2: Passenger satisfaction with at-stop information, authorities with different levels of RTI in 2003

2.3.2 This graph shows that passengers are generally getting gradually more satisfied with at-stop information, wherever they happen to be. There is little distinction to be made between groups, although:

- Those in areas with “a little” RTI seemed to have slightly higher satisfaction than others.
- The West Midlands has significantly lower levels of satisfaction throughout the period.

3 Interpretation and caveats

- 3.1 The correlation between patronage levels and RTI is unlikely to be incidental, particularly given the timing of the divergence in the graphs. However there are significant questions about the cause of this correlation, which beg the question: by what means does RTI most significantly affect passengers' travel choice?
- 3.2 One possibility is that the causality is the other way round. That is, areas with sustained patronage are encouraged to treat their passengers well, and one reflection of this is installing RTI. The timing perhaps indicates that this is not the main cause, though, as there is little difference in the patronage curves pre-2003.
- 3.3 A second possibility is that RTI and patronage growth are both connected to a more fundamental explanation:
- Directly; for example, a renewal of the local bus fleet encouraged passengers and also gave an opportunity for new technology to be deployed.
 - Indirectly; a generally positive bus-friendly environment associated with, for example, bus lanes, and of which RTI was one project.
- The first feels a bit like coincidence, but the second is quite realistic and is certainly not ruled out by the data.
- 3.4 A variation of this is that the existence of an RTI project led both the LA and local operators to focus on bus services, which encouraged passengers, whereas elsewhere patronage drifted off for lack of focus. This, if true, would mean that an RTI project is a good thing because of the institutional momentum it provides, whether or not RTI directly helps grow patronage. There is indeed anecdotal evidence of this from a number of projects.
- 3.5 The satisfaction graph is, perhaps, slightly startling. The *prima facie* implication is that RTI has no impact on satisfaction. However this is more complex than it looks.
- There is strong evidence that passengers value RTI *at stop level*. The 2005 Public Transport Statistics bulletin gives a satisfaction rating of 79 to equipped stops but only 63 at unequipped stops, across England as a whole¹.
 - Ergo, there are factors which operate across an area that mask this. An obvious possibility is that where RTI is available at some stops but not others, users of unequipped stops are dismayed, balancing the cheer of those at equipped stops; so the average level of satisfaction need not change.
 - It is possible that in areas of 'little RTI', passengers were aware and hopeful (hence the slight increase in satisfaction) whereas in areas of 'substantial RTI' their expectations were raised and it therefore took more to satisfy them. The time series don't really support this – there is no rise-and-fall effect visible, for instance.
- 3.6 It is not clear why West Midlands passengers were so unhappy with their at-stop information! It is possible that this has some bearing on the fall-off of patronage in this area.

¹ The distinction is even more dramatic outside London: 81 to 57 for metropolitan areas and 79 to 59 for non-metropolitan areas.

- 3.7 It is very likely that passengers 'reset' their responses to the satisfaction question, depending on what is available. Stated satisfaction will be to some extent relative to what is usually provided locally, whether that includes RTI or not. In other words, RTI-generated *satisfaction* is not the same as RTI-generated *utility*: passengers might find RTI useful, and change their travel behaviour accordingly, without being 'satisfied' by it.
- 3.8 A final possibility is that RTI might help boost patronage by means other than being directly visible to the passenger. For example, if RTI enabled more reliable services in those areas where it was fitted, or reduced operating costs and therefore kept ticket prices down, this might lead to improved patronage even if passengers don't ever look at the at-stop information. Data on overall passenger satisfaction (ie with the service as a whole) provides little evidence for this, though.