Research into changes in bus travel behaviour

January 2010 fare increase and the economic downturn

Final Report

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1 Introduction

Study objectives

1.1 The purpose of this study was to provide a robust and comprehensive representation of changes in travel behaviour and the effect on travel on London buses by the recent fare increases and the economic downturn.

1.2 TfL data indicates that bus usage was approximately one percent higher in spring 2010 than it was at the same time in 2009.

1.3 This figure does not provide any information about how changes in travel patterns vary by type of bus passenger, for example, or across different parts of London. Also they do not show to what extent there was a change in the number of trips versus a shift of trips between modes.

1.4 This study was designed to provide more information in these areas by obtaining revealed preference data concerning how bus passengers have changed their travel habits, and what has influenced this change.

Context

1.5 Between 2001/2 and 2007/8 the average bus fare paid has declined each year[1]. However in January 2010 many bus fares were subject to fare increases:

- Oyster pay as you go single bus journey (up 20% to £1.20)
- Bus daily price cap (up 18% to £3.90)
- 7 day bus pass (up 20% to £16.60)
- Monthly bus pass (up 20% to £63.80)
- Annual bus pass (up 20% to £664)

By comparison many other fares were not subject increases in January 2010:

- Single bus journey cash fare (remains at £2.00, no increase)
- Daily anytime zones 1-2 Travelcard (remains at £7.20, no increase)
- 7 day zones 1-2 Travelcard (remains at £25.80, no increase)
- Monthly zones 1-2 Travelcard (remains at £99.10, no increase)
- Annual zones 1-2 Travelcard (remains at £1,032, no increase)

[1] Travel in London Report 2, TfL 2010

2 Methodology

Introduction

2.1 The survey was carried out by telephone, using our telephone survey partner Fieldworks. The survey was carried out between 24th May 2010 and 9th June 2010 with 602 respondents surveyed in total.

Survey questions

2.2 The first two questions in the survey identified whether the respondent ever travelled by bus in London and if the respondent pays for their travel. Respondents who do not travel by bus and those who do not pay for their travel (i.e. those who receive free concessionary travel) were excluded from the survey.

2.3 The survey then continued, covering the following topics and issues:

- Current travel patterns
  - Current frequency of travel by mode
  - Current frequency of bus travel by purpose
  - Current bus ticket type
- Travel patterns last year
  - Frequency of travel by mode, last year
  - Frequency of bus travel by purpose, last year
  - Bus ticket type used last year
- Changes to travel patterns
  - Reason for any changes in ticket type
  - Reason for any increase or decrease in bus travel since last year
  - Time of day of any increase or decrease in bus travel since last year
- Awareness of changes to bus fares since last year
- Effect of the recession (e.g. loss of household income, etc.)
- Disabilities
- Demographics
  - Age
  - Ethnicity
  - Employment status
  - Household car ownership
  - Household income band
  - Number of adults and children in household

2.4 People were asked to recall their travel patterns twelve months ago. It is therefore reliant on individuals accurately remembering their travel patterns. This may introduce an element of recall error, although the questionnaire was designed to minimise this.

Survey quotas

Quota to ensure sufficient sample size

2.5 We devised a series of quotas for the survey to ensure a sufficient sample for analysis. The minimum quota size was 100. The quotas below split survey respondents by their bus usage and the fare rise. Respondents were classified into fare increase and no fare increase based on the ticket types detailed in paragraph 1.5 in the introduction. Respondents were classified into frequent and infrequent users as follows:

- Frequent users (use bus 1-2 days a week or more)
- Infrequent users (use bus once a fortnight or less)

2.6 As can be seen from the table below, the first three quotas were met. The fourth quota was more difficult to meet. To ensure that a suitable sample size the two bus user groups subject to no fare increase were combined for analysis purposes. The quotas were as follows:

TABLE 2.1 BUS USAGE AND FARE RISE QUOTAS

Respondent type	Quota	Sample Achieved	
Frequent bus user - fare increase	200	213	
Infrequent bus user - fare increase	200	213	
Frequent bus user - no fare increase	100	121	Sample combined for analysis
Infrequent bus user - no fare increase	100	55	
Total	600	602	

Quota to ensure survey is representative of the bus passenger population

2.7 To ensure that the survey was representative of the population of bus users we also included the quotas on the demographics and geographic location of the respondents detailed in table 2.2. Quotas were based on the profile of bus users sourced from the report 'Customer Insight concerning Buses in London, Transport for London, July 2009'. Note that these quotas are based on all bus users, including those who receive a discount on their bus travel and those who do not pay for their bus travel.

2.8 Overall the survey sample matched the demographic quota of bus users well. Those on lower incomes and in the lower age range were slightly under sampled, however as these groups are more likely than average to receive free or discounted student travel we consider this difference between the quota and the sample achieved to be acceptable.

TABLE 2.2 DEMOGRAPHIC AND GEOGRAPHIC QUOTAS

		Quota	Sample Achieved
Gender	Male	48%	42%
	Female	52%	56%
Household income	<£10,000 - £19,999	40%	34%
	£20,000 - £39,999	30%	35%
	£40,000 - £74,999	20%	20%
	£75,000 or more	10%	11%
Age	16 – 24	26%	20%
	25 – 44	56%	57%
	45 – 59	18%	23%
Region	Inner	20%	20%
	East	20%	20%
	North	20%	20%
	South	20%	20%
	West	20%	20%

Data cleaning

2.9 Following initial analysis of the data a series of top-line results were produced. These results showed a number of questions where several respondent's answers were coded as 'Other'. Upon further investigation it was possible to clean the survey data, recoding responses and adding additional categories to group responses as appropriate.

Weighting of data

2.10 To ensure that the respondents to the survey were as representative of the general population of bus users as possible, responses were weighted to reflect the profile of the total bus user population, based on those affected by the different fare increases and frequent and infrequent users, as seen in table 2.1.

2.11 The proportion of people in each of these four groups used in the weighting process was calculated through analysis of the share of bus users in each of the four groups from analysis of the most recent London Travel Demand Survey (LTDS) which is from 2008/9. The table below describes this weighting process.

2.12 As an example survey data on respondents who were frequent bus users, subject to the fare increase were given the weight of 1.25, upweighting the sample by 25%.

TABLE 2.3 WEIGHTING OF SURVEY DATA

Respondent type	Share of survey responses	Share of bus users	Weighing	
Frequent bus user - fare increase	35%	44%	1.25	
Infrequent bus user - fare increase	35%	37%	1.05	
Frequent bus user – no fare increase	20%	14%	0.71	Sample combined for analysis
Infrequent bus user – no fare increase	9%	4%	0.49	
Total	100%	100%		

2.13 After undertaking this weighting the data was reviewed to ensure that it remained consistent with the demographic and geographic profiles of the total population of bus users detailed in table 2.2. It was decided not to undertake an iterative weighting process as the weighting process had made only marginal changes to the demographic profiles.

Data analysis

2.14 The data analysis within the main body of this report was undertaken with the weighted data, described in the previous paragraphs.

2.15 Analysis in this report is not designed to be an exhaustive analysis of each question in the survey, rather to concisely focus on key findings and differences in responses. Sample sizes are detailed in each chart.

2.16 Differences between sub-sample findings have been checked for their statistical significance. The statistical significance of each finding is reported in the commentary for each graph. Where a difference is not statistically significant this means that we cannot be confident that such a difference is replicated in the total population of bus users.

3 Research Findings

Introduction

3.1 This chapter details the findings of our research. The chapter is set out as follows:

- Overall changes in bus travel since the January 2010 fare increase
- How changes in bus travel differ by demographics
- How changes in bus travel differ by geography
- Changes in modes used by frequency of bus travel and fare increase
- Reasons for changes in bus use
- Effect of the recession

Overall changes in bus travel since the January 2010 fare increase

3.2 Respondents were asked how often they currently travel by bus and also how often they travelled by bus 12 months ago. Since the January 2010 fare increase:

- 62% of respondents have not changed how often they travel by bus
- 18% travel *more* often by bus
- 20% travel *less* often by bus

3.3 Overall the survey showed a 0.6% drop in bus trips, which compares to a 1% increase in bus trips reported by TfL. This difference in results is not statistically significant.

Overall findings

Note – these findings focus on differences in the survey which are statistically significant at a 90% confidence level or better.

Income

3.4 The household income band £15,000 to £19,999 has the highest net decrease in bus use from before the fare increase in 2009 to after the fare increase in 2010.

3.5 Frequent bus users affected by the January 2010 fare increase were more likely than average to be in the lowest household income band (less than £15,000).

Employment

3.6 Frequent bus users affected by the January 2010 fare increase were less likely than average to be employed, either full-time or part time. Conversely frequent bus users affected by the January 2010 fare increase were more likely than the average bus user not to be working.

Geography

3.7 Residents of Inner London have decreased their bus use the least since the January 2010 fare increase.

3.8 The greatest net decrease in bus use from 2009 to 2010 was seen in the East and West of Outer London.

3.9 Infrequent bus users subject to the fare increase are less likely than average to live in Inner London.

Changes in mode

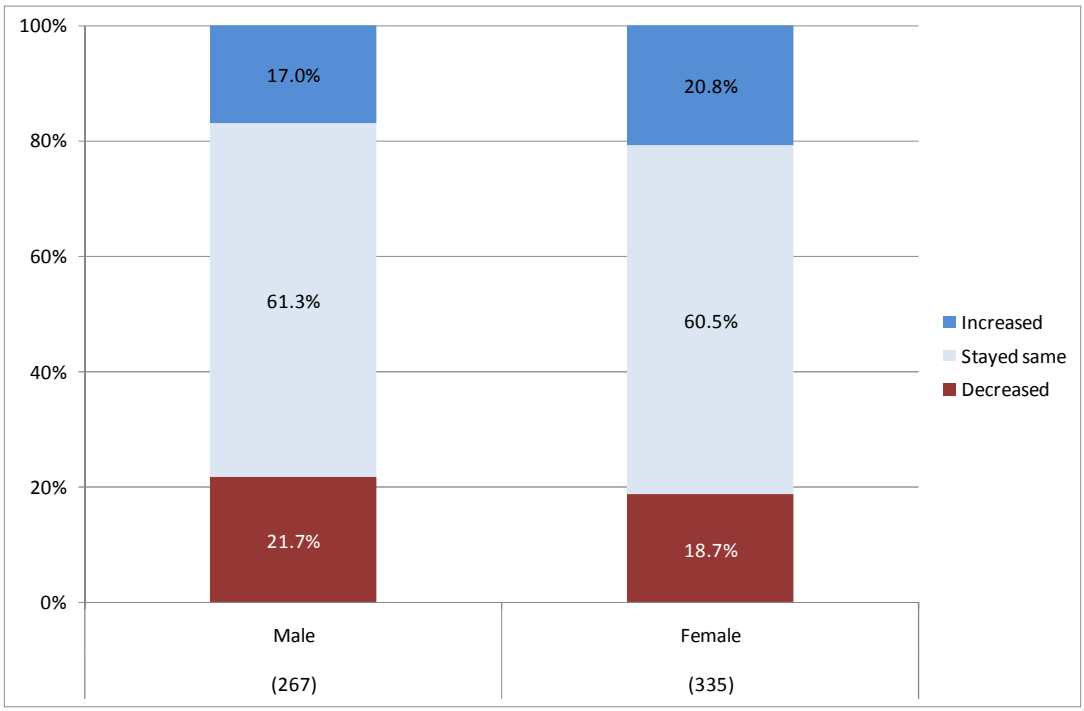
3.10 Infrequent bus users affected by a fare increase travelled less by bus post the fare increase.

How changes in bus travel differs by demographics

Gender

- Although there are some apparent differences between the changes in bus travel between males and females with males more likely to have decreased their bus usage since the January 2010 fare rise and females slightly more likely to have increased their bus usage, these differences are not statistically significant

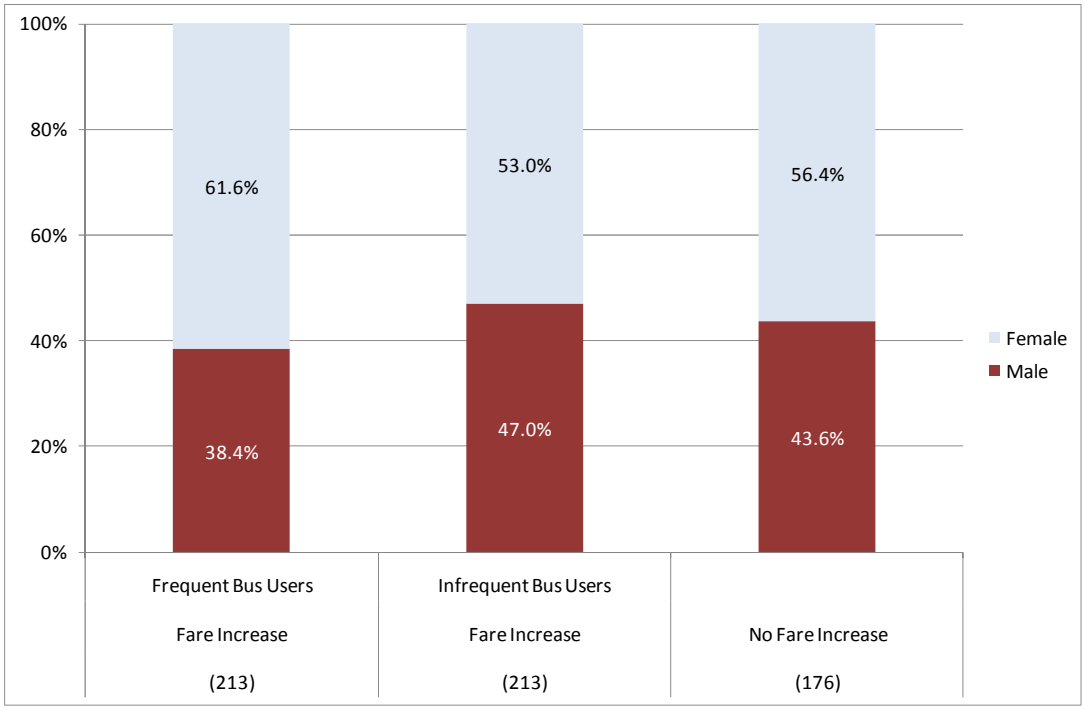
FIGURE 3.1 CHANGES IN BUS USE BY GENDER



Sample - all survey respondents (602)

- Analysis of the survey responses shows that frequent bus users affected by the higher January 2010 fare increase were more likely than average to be female, although this difference is not statistically significant
- Considering infrequent bus users affected by the higher January 2010 fare increase, the balance between male and female bus users was very similar to the profile of bus users overall

FIGURE 3.2 FREQUENCY OF BUS USE AND FARE INCREASE BY GENDER

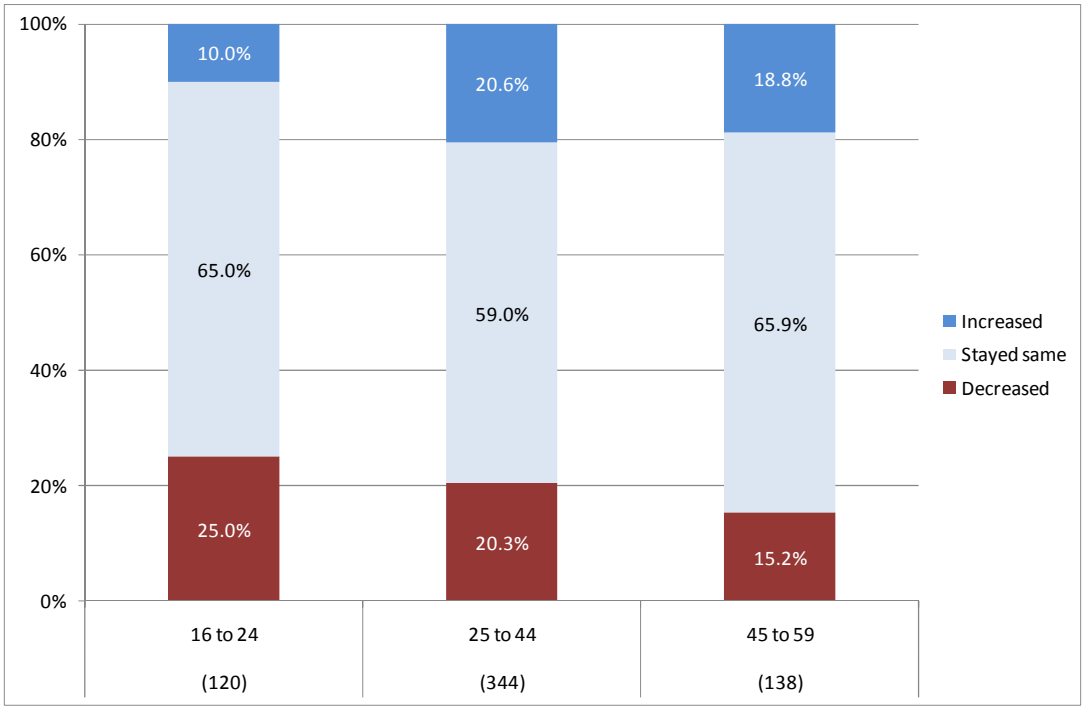


Sample - all survey respondents (602)

Age

- The survey has shown the following differences in bus use by age, although these differences are not statistically significant:
  - Bus use has decreased the most amongst younger bus users (ages 16 to 24)
  - Bus use has decreased the least amongst older bus users (aged 45 to 59)
  - On balance more younger bus users have decreased travel by bus than increased travel by bus

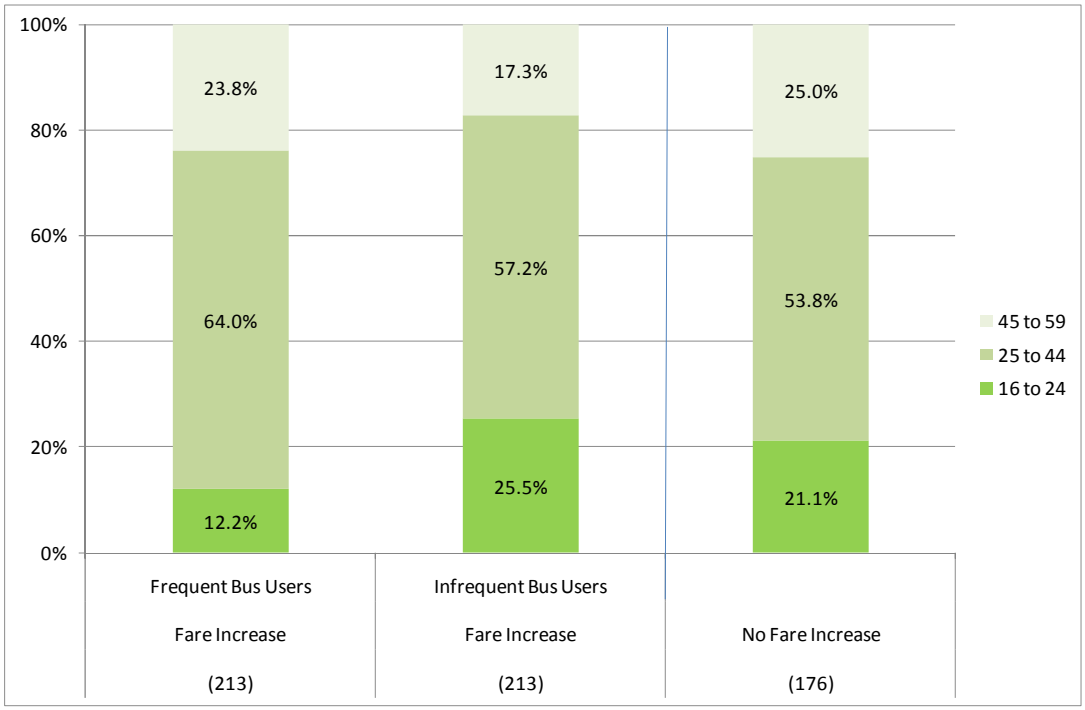
FIGURE 3.3 CHANGES IN BUS USE BY AGE



Sample - all survey respondents (602)

- Frequent bus users affected by the higher January 2010 fare increase were more likely than average to be between 25 and 44 or between 45 and 59 than younger, although the scale of these differences are not statistically significant
- The age of infrequent bus users affected by the higher January 2010 fare increase was broadly representative of all bus users

FIGURE 3.4 FREQUENCY OF BUS USE AND FARE INCREASE BY AGE

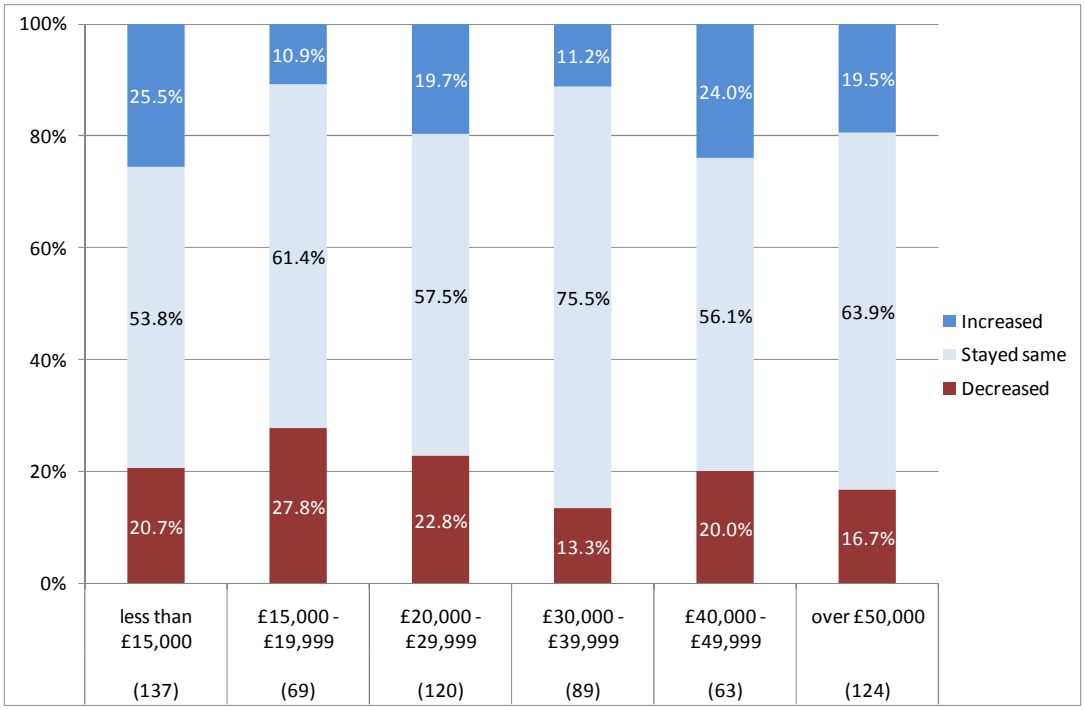


Sample - all survey respondents (602)

Household income

- There is a mixture in the change in bus use across different household income bands with all income bands showing some increases and decreases in bus use
- Comparing the proportion of respondents who have increased and decreased their bus use by income band the highest net decrease in bus use is in the £15,000 to £19,999 income band, although this sample size is less than 100 the difference in the results are statistically significant at a 90% confidence level

FIGURE 3.5 CHANGE IN BUS USE BY HOUSEHOLD INCOME

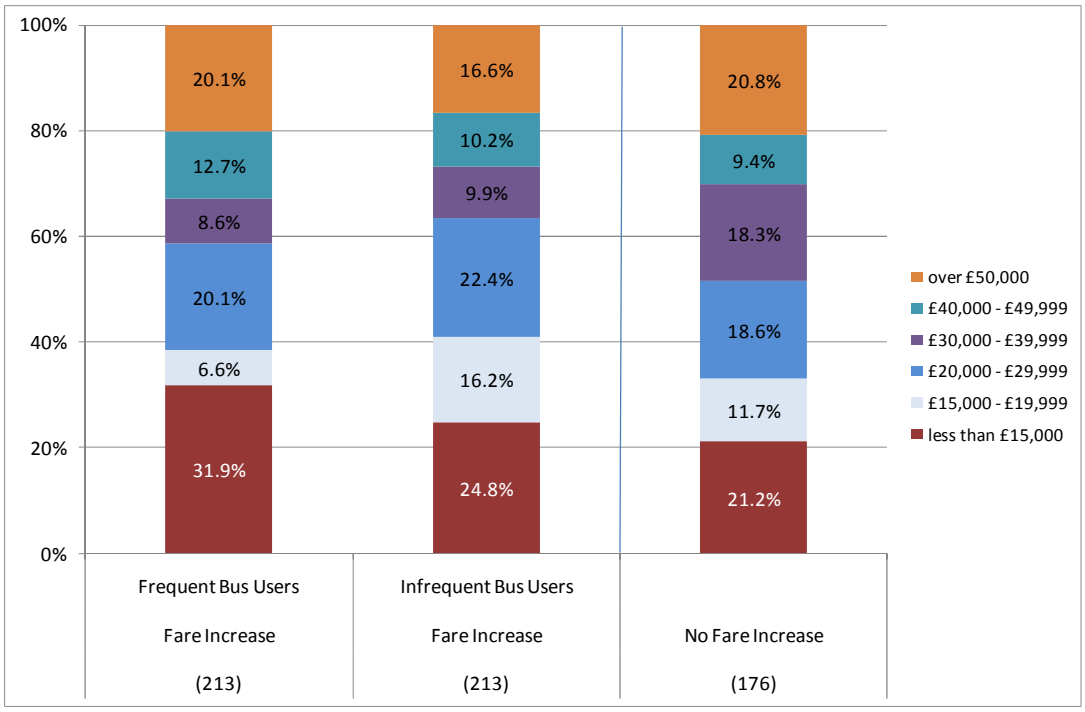


Sample - all survey respondents (602)

Note - due to small sample sizes in some income groups, caution should be used when interpreting results (sample size is detailed in brackets)

- Frequent bus users affected by the higher January 2010 fare increase were more likely than average to be in the lowest household income band (less than £15,000), this difference is statistically significant at a 90% confidence level

FIGURE 3.6 FREQUENCY OF BUS USE AND FARE INCREASE BY HOUSEHOLD INCOME

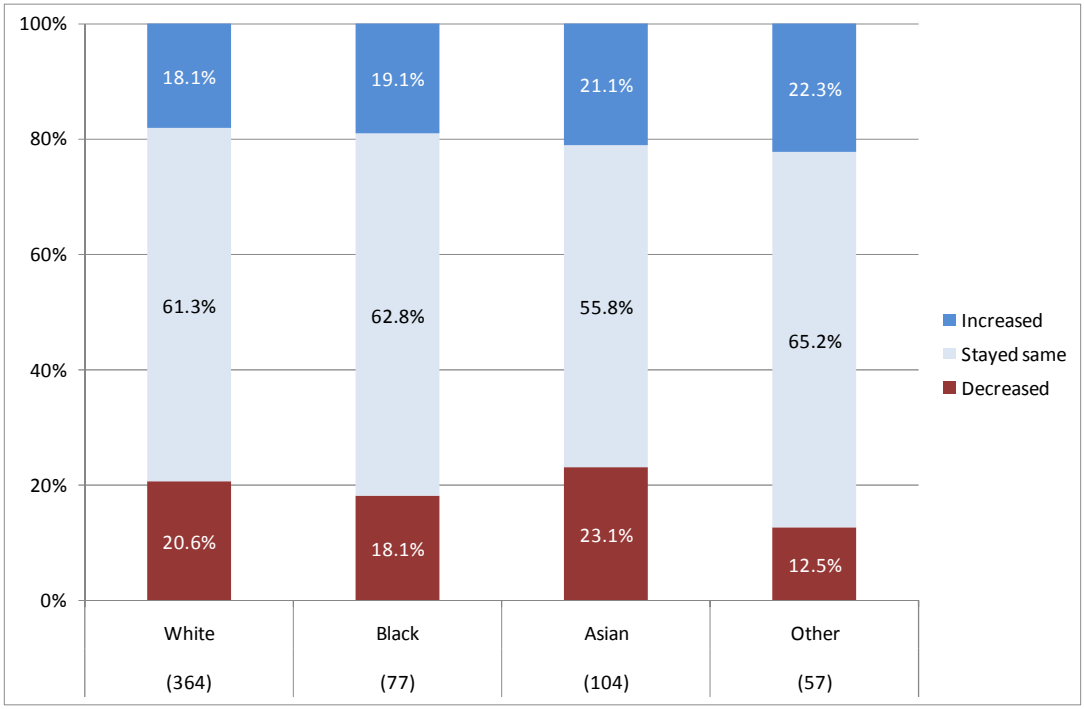


Sample - all survey respondents (602)

Ethnicity

- The change in bus use after the January 2010 fare increase shows some differences by ethnicity, although these differences are not statistically significant

FIGURE 3.7 CHANGE IN BUS USE BY ETHNICITY

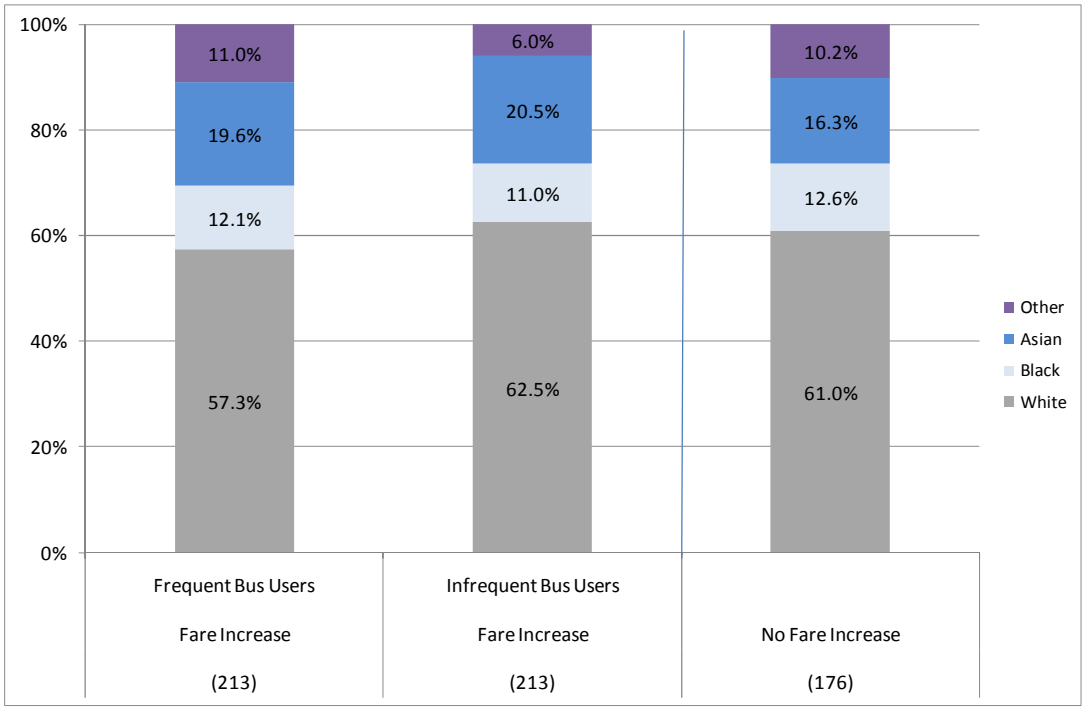


Sample - all survey respondents (602)

Note - due to small sample sizes in some ethnic groups, caution should be used when interpreting results (sample size is detailed in brackets)

- Although not statistically significant, a higher than average proportion of bus users affected by the higher January 2010 fare increase were Asian
- Other variations in the ethnicity of bus users by frequency of bus use and fare increase were less distinct

FIGURE 3.8 FREQUENCY OF BUS USE AND FARE INCREASE BY ETHNICITY

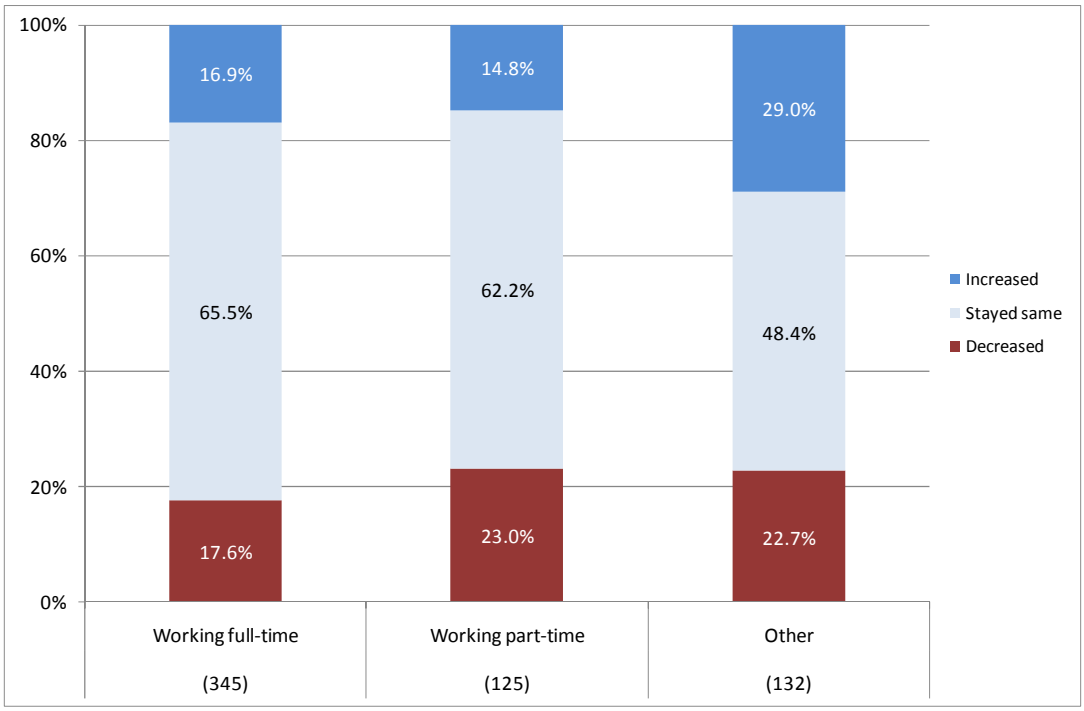


Sample - all survey respondents (602)

Employment status

- Although the differences in the findings are not statistically significant the survey indicates that:
  - Those working full-time were less likely to change the amount they use bus than some other groups)
  - Those working part-time were more likely to decrease their bus use than increase their bus use

FIGURE 3.9 CHANGE IN BUS USE BY EMPLOYMENT STATUS

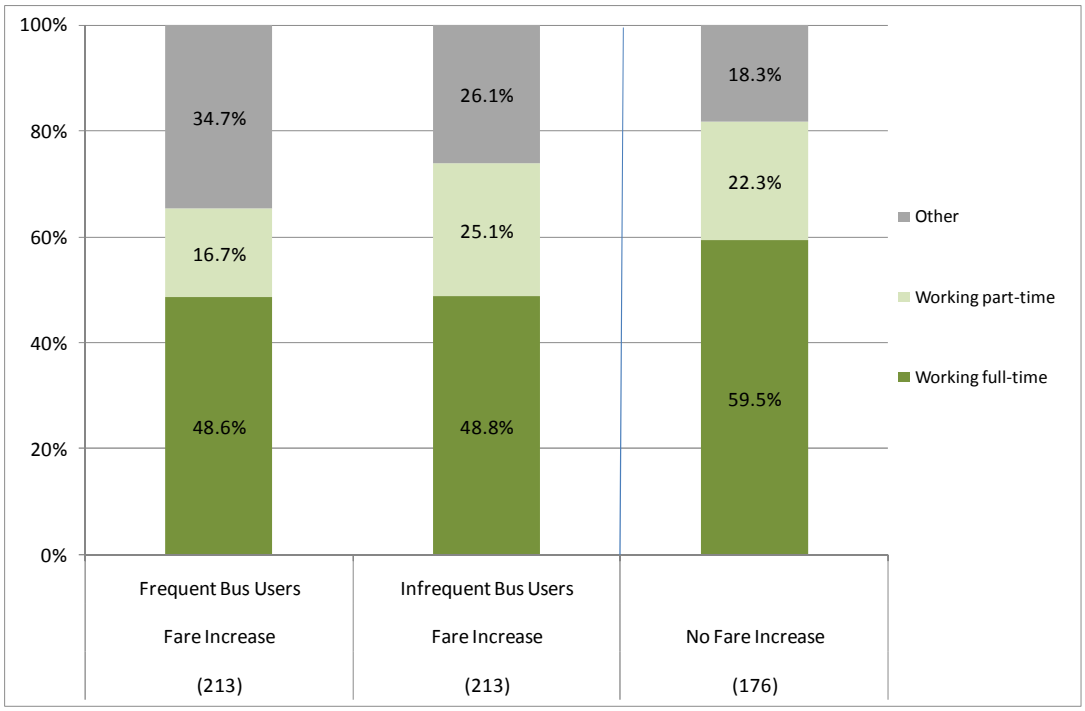


Sample - all survey respondents (602)

Note - Other category includes Not working and currently looking for work (40), Student (52), Keeping house (29) and Other (11)

- Frequent bus users affected by the higher January 2010 fare increase were less likely than average to be employed, either full-time or part time, this result is statistically significant at a 95% confidence level
- Frequent bus users affected by the higher January 2010 fare increase were more likely than the average bus user to be not working, this result is statistically significant at a 95% confidence level

FIGURE 3.10 FREQUENCY OF BUS USE AND FARE INCREASE BY EMPLOYMENT STATUS



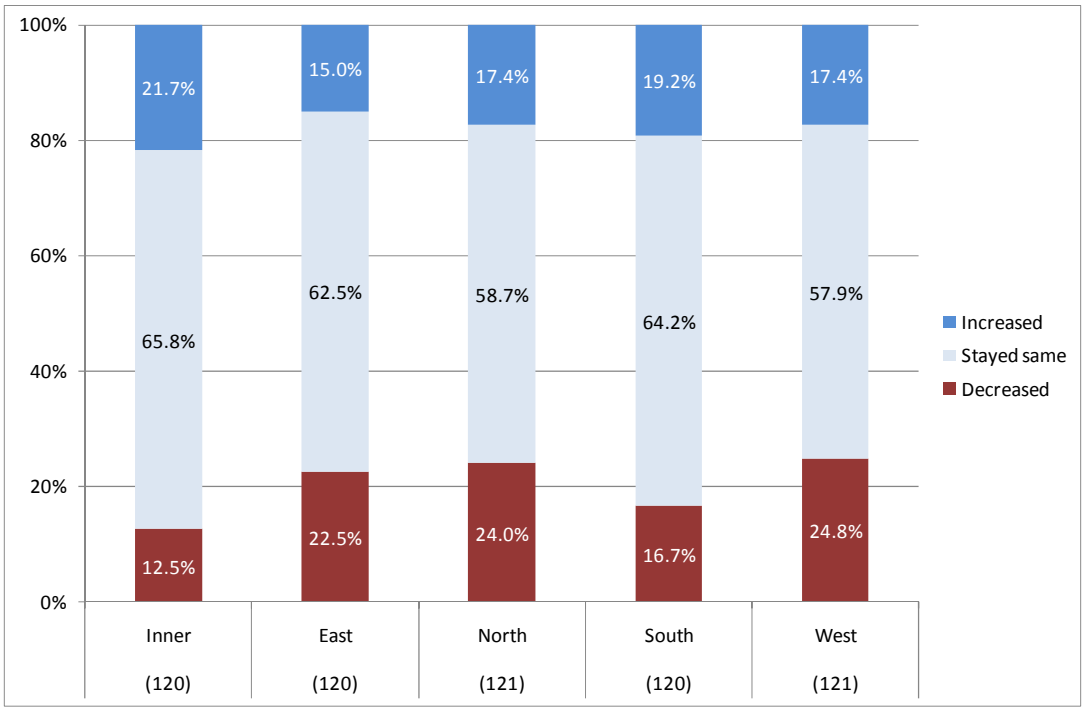
Sample - all survey respondents (602)

Note - Other category includes Not working and currently looking for work (40), Student (52), Keeping house (29) and Other (11)

How changes in bus travel differ by geography

- Residents of Inner London have decreased their bus use the least, the results for Inner London residents are statistically significant at a 95% confidence level
- The greatest net decrease in bus use was seen in the East and West of Outer London, these results are statistically significant at a 95% confidence level
- Residents of South London have also decreased their bus use at a lower level than average although the difference in result is not statistically significant
- There is a greater variation in the proportion of people who have decreased their bus use by their home location than the proportion of people who have increased their bus use

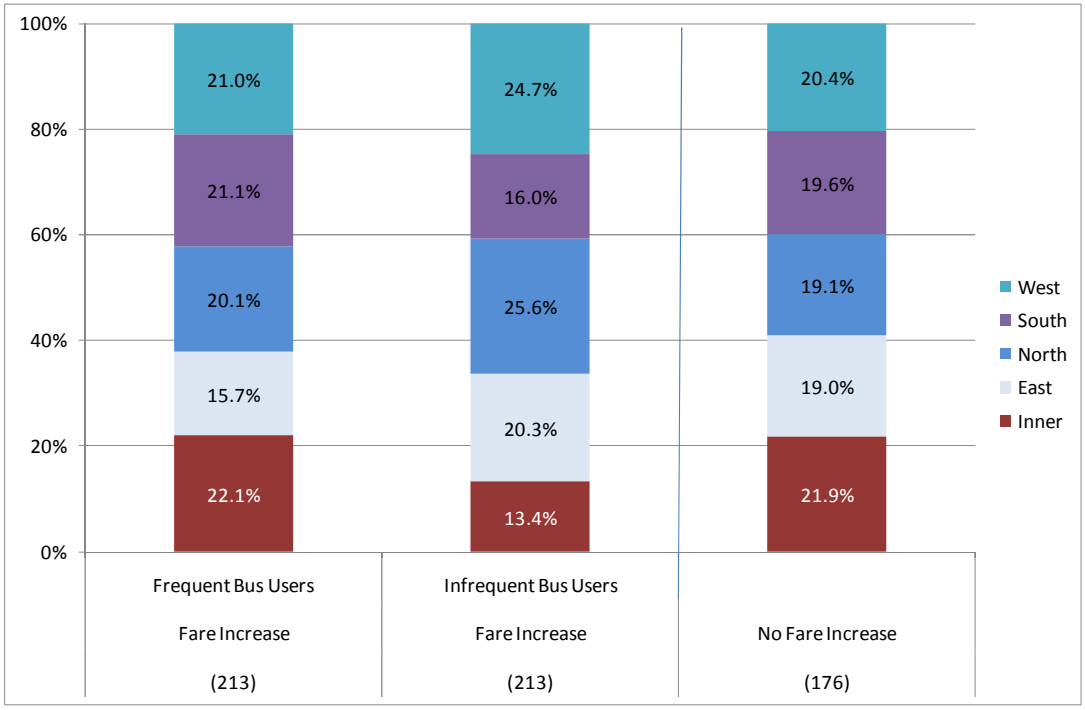
FIGURE 3.11 CHANGE IN BUS USE BY HOME LOCATION



Sample - all survey respondents (602)

- Infrequent bus users subject to the higher fare are less likely than average to live in Inner London, these results are statistically significant at a 90% confidence level
- Other results from the survey, which show smaller variations and are not statistically significant include:
  - Infrequent bus users subject to the higher fare are less likely than average to live in South London
  - Frequent bus users subject to the higher fare are more likely than average to live in Inner London and less likely than average to live in East London
  - Infrequent bus users subject to the higher fare are more likely than average to live in North London and West London

FIGURE 3.12 FREQUENCY OF BUS USE AND FARE INCREASE BY HOME LOCATION



Sample - all survey respondents (602)

- Comparing changes in modes used between 2009 and 2010 in Inner and Outer London, as one might expect, changes are small. This means that the changes noted in the survey are not statistically significant. The following comments, can be noted of the survey sample:
  - Comparing trends in bus use in Inner and Outer London, on balance bus use had increased slightly in Inner London from 2009 to 2010 and decreased slightly in Outer London
  - In both Inner and Outer London the share of trips by Underground decreased from 2009 to 2010
  - Car trips remained stable in Inner London, but slightly increased as a share of all trips in Outer London
  - The share of walking trips increased in both Inner and Outer London from 2009 to 2010

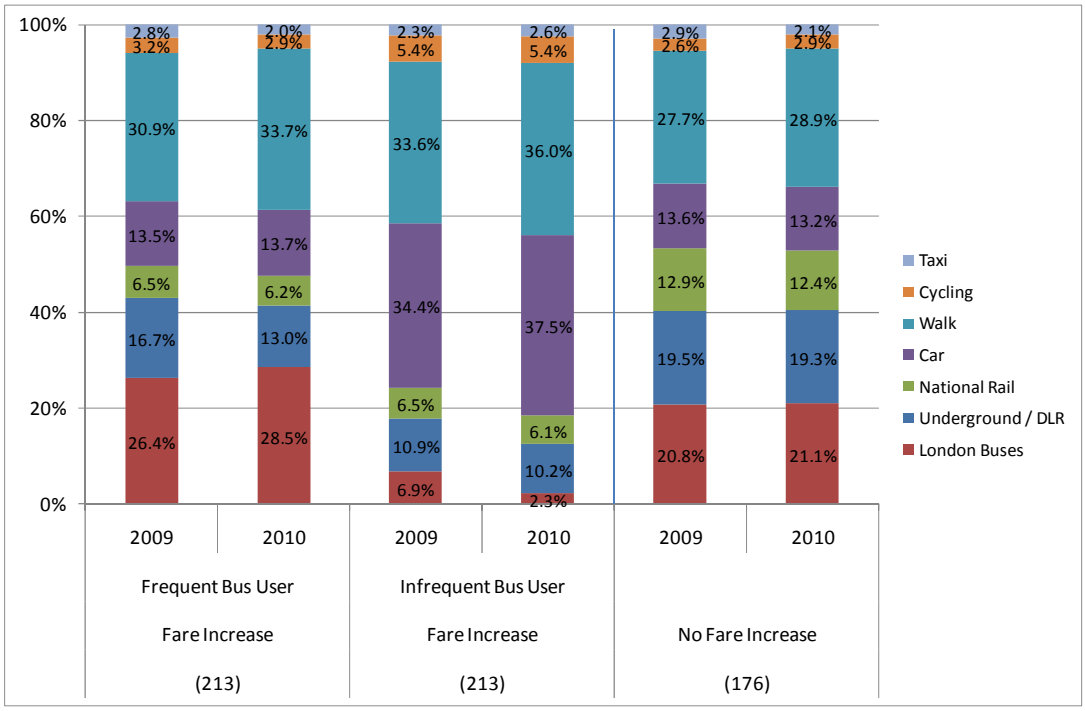
FIGURE 3.13 CHANGE IN MODE SHARE BY HOME LOCATION

Sample - all survey respondents (602)

Changes in modes used by frequency of bus travel and fare increase

- Infrequent bus users affected by a fare increase travelled less by bus post the fare increase, the decrease in bus use is statistically significant at a 90% confidence level
- Although other changes in mode use are small and therefore not statistically significant other changes noted include:
  - Frequent bus users affected by a fare increase travelled more by bus, walked more, but travelled less by Underground
- For respondents not affected by a fare increase their mode choice generally remained the same before and after the fare rise

FIGURE 3.14 CHANGE IN MODE SHARE BY FREQUENCY OF BUS USE AND FARE INCREASE



Sample - all survey respondents (602)

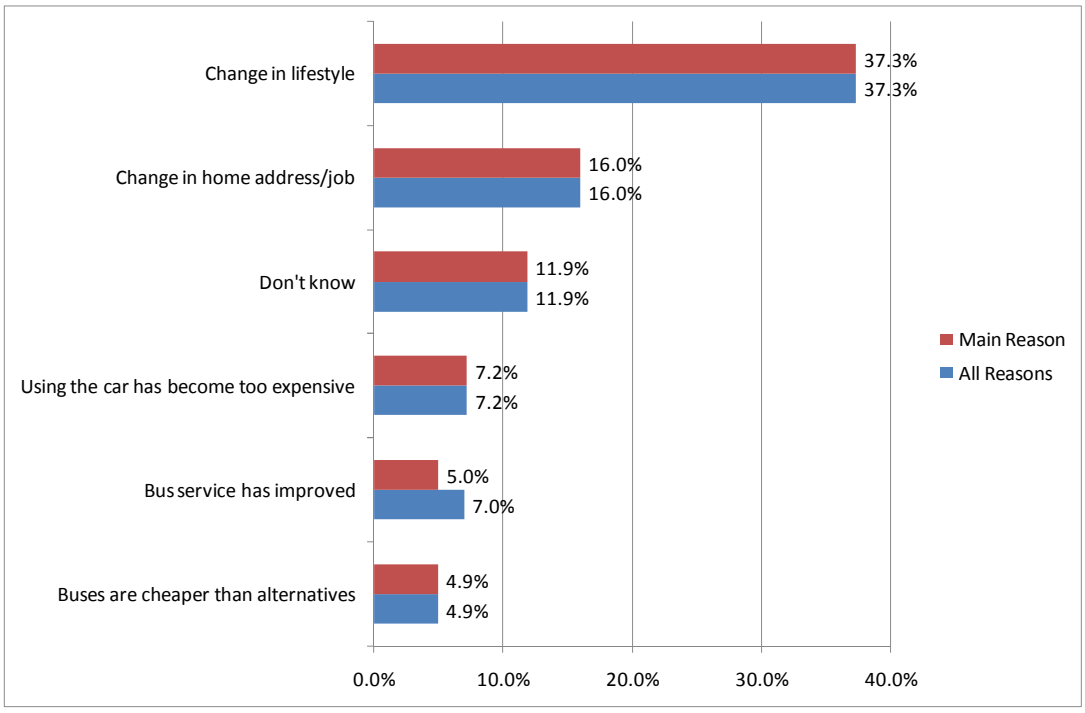
Reasons for changes in bus use

3.11 Respondents were asked, without prompting, about the reasons for changes in bus use. The number of responses to this question reflects the number of respondents who noted an increase in bus use from 2009 to 2010.

Reasons for increased bus use

- The most mentioned reason for increasing bus use was a change in lifestyle, (43 respondents) followed by a change in home address or job
- Respondents also mentioned reasons regarding saving money – for example bus being cheaper than alternatives (6 respondents)

FIGURE 3.15 REASONS FOR INCREASED BUS USE



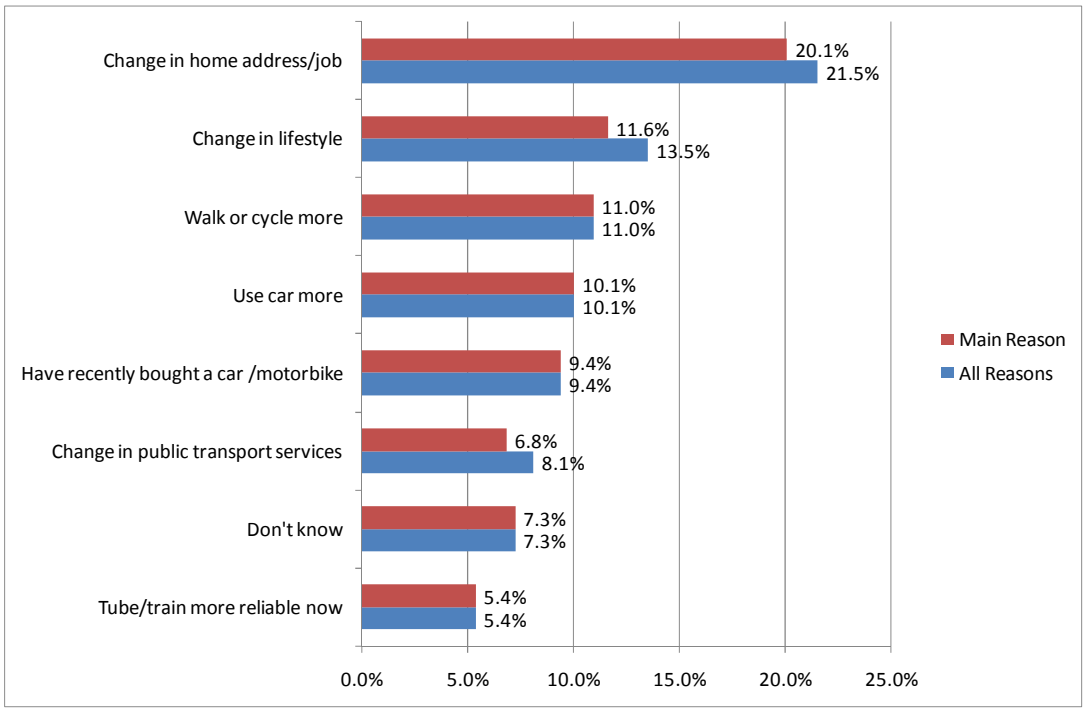
Sample - People who have increased their bus use from 2009 to 2010 (116)

Reasons for decreased bus use

3.12 The number of responses to this question reflects the number of respondents who noted a decrease in bus use from 2009 to 2010.

- The most mentioned reason for decreasing bus use was a change in home address or job (24 respondents) followed by a change in lifestyle, (14 respondents)
- Other reasons for reducing bus use included walking and cycling more (13 respondents), using their car more (12 respondents) or recently purchasing a car or motorcycle (11 respondents)
- Six respondents mentioned the bus fare increase as a reason for decreasing bus use
- Six respondents mentioned that their reason for decreasing bus use was that buses were more expensive than the alternatives

FIGURE 3.16 REASONS FOR DECREASED BUS USE



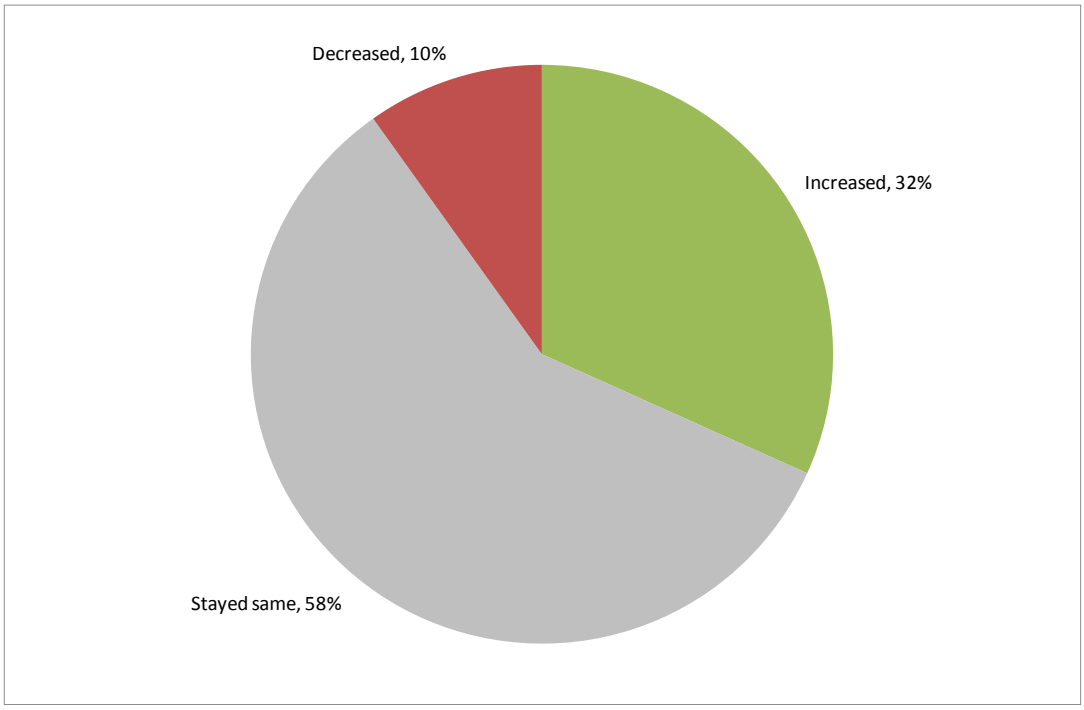
Sample - People who have decreased their bus use from 2009 to 2010 (120)

Focus on Outer London residents who have decreased their bus use

3.13 Although the sample for this sub-set of respondents is small (87) this analysis has been reported due to particular interest in changes in car use of Outer London respondents who have reduced their bus use.

- 21% bus users who live in Outer London have decreased their bus use since last year, these users are more likely to be male than female, have lower than average household income and they are also less likely than average to work full-time
- Of the people who have decreased their bus use, around a third have increased their car use

FIGURE 3.17 CHANGES IN CAR USE AMONGST OUTER LONDON RESIDENTS WHO HAVE DECREASED THEIR BUS USE

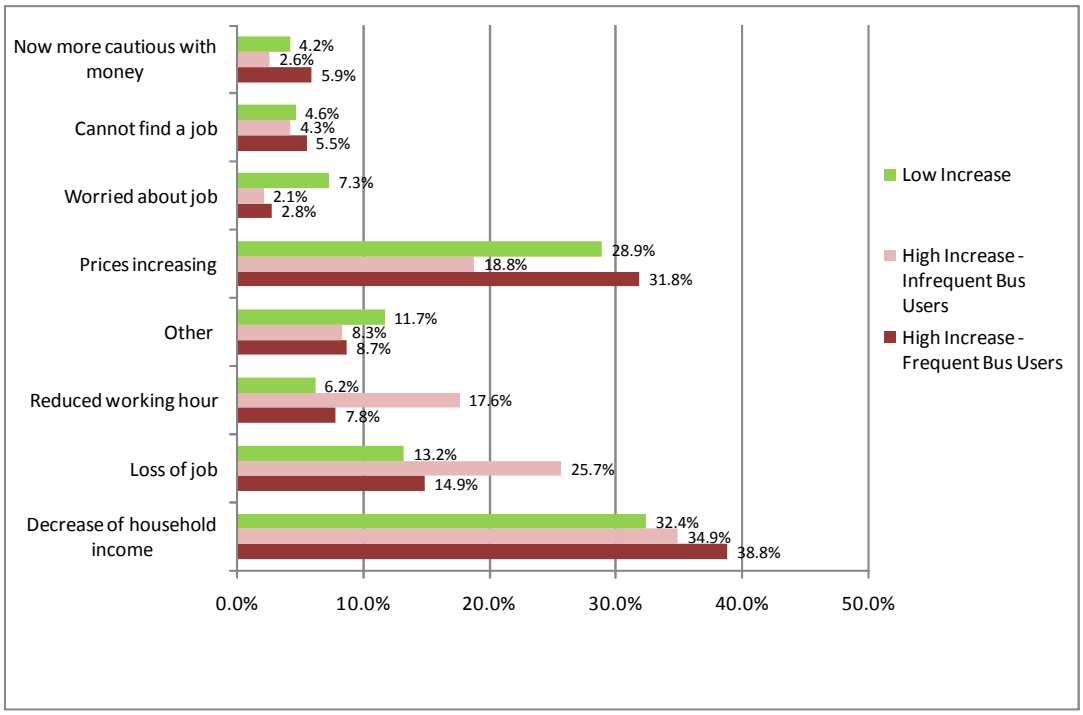


Sample - Outer London residents who have decreased their bus use from 2009 to 2010 (87)

Effect of the recession

- Overall, just over half of all respondents agreed that the recession has affected them in some way
- The most mentioned effect of the recession was an decrease in household income, mentioned by 107 respondents
- Those most affected by losing their job or reduced working hours are infrequent bus users affected by the higher January 2010 fare increase

FIGURE 3.18 HAS THE RECESSION AFFECTED YOU IN ANY WAY?



Sample - People who agreed that the recession has affected them in some way (315)