



On the Move 2

Making sense of travel trends in England 1995-2014: Technical Report

Research on behalf of the ITC by
Peter Headicar and Gordon Stokes



Acknowledgements:

This report was authored by Peter Headicar and Gordon Stokes. The findings are those of the research team and do not necessarily represent the collegiate view of the ITC.

The authors would like to thank the Department for Transport's National Travel Survey team for access to the survey data, and for assistance they have provided.

The ITC would also like to record its gratitude to our Core Benefactors, a list of whom can be found on the main ITC website (www.theitc.org.uk).

The research and report were developed in consultation with the ITC project Steering Group, comprising Kris Beuret OBE, Professor Peter Jones, Simon Linnett, Matthew Niblett and Bright Pryde-Saha.

The **Independent Transport Commission (ITC)** is one of Britain's leading research charities with a mission to explore all aspects of transport and land use policy. Through our independent research work and educational events we aim to improve and better inform public policy making. For more information on our current research and activities please see our website: www.theitc.org.uk

Published December 2016

© Copyright Independent Transport Commission

www.theitc.org.uk

Registered Charity No. 1080134

On the Move 2

Making sense of travel trends in England 1995-2014: Technical Report

Preface	1
1. Introduction	3
1.1 This report in context	3
1.2 The overall picture: travel trends and the impact of the recession	5
1.3 The overall picture: the relationship between trips, distance and time	5
2. Travel Trends by Purpose and Mode	7
2.1 Travel trends by trip purpose	7
2.2 Travel trends by mode	11
3. Car Availability and its Relationship with Travel	19
3.1 Car ownership, licence holding and car availability	19
3.2 Travel trends amongst car availability groups	20
3.3 The travel impact of changes in car availability	22
4. Travel by Age and Gender	24
4.1 Introduction	24
4.2 Overall trends in travel by age and gender	24
4.3 Overall trends in licence holding and car availability by age and gender	27
4.4 Travel, car availability and mode share: Children 0-16	29
4.5 Travel, car availability and mode share: Men 17-34	33
4.6 Travel, car availability and mode share: Women 17-34	36
4.7 Travel, car availability and mode share: Men 35-59	40
4.8 Travel, car availability and mode share: Women 35-59	44
4.9 Travel, car availability and mode share: Men 60+	47
4.10 Travel, car availability and mode share: Women 60+	51
5. Other Socio-economic Influences	55
5.1 Introduction	55
5.2 Household Income	55
5.3 Economic activity	60
5.4 Occupation	62
5.5 Home location	65
6. The Effect of Changes in Population Composition and Distribution	71
6.1 Introduction	71
6.2 Age and gender	71

6.3	Household income	72
6.4	Economic activity	73
6.5	Occupation.....	74
6.6	Home location	75
6.7	Socio-economic and spatial influences in combination	77
6.8	Conclusion on the effect of changes in population composition and distribution	78
7.	Possible Causes of Change in Travel Behaviour.....	79
7.1	Introduction.....	79
7.2	Incomes	79
7.3	Inter-generational income distribution.....	82
7.4	Travel costs	83
7.5	Transport supply	84
7.6	Transport substitution (ICT)	88
7.7	'Urban Renaissance'	89
7.8	Cultural and attitudinal factors	92
8.	Conclusions	95
	Annex A: The Effects of the 2008-2009 Recession.....	98
	Annex B: The Decline in Company Car Use	101
	Annex C: Age Cohorts and their Effects on Travel Behaviour.....	104
	Annex D: The Effects of Changing Household Composition	109
	Annex E: The Travel Behaviour of International Migrants and Ethnic Minorities.....	115

Appendix A: Socio-economic and spatial influences on personal travel 1995-2014 [regressions analysis] – available on request

List of Figures

[Data is for England except where stated otherwise]

Figure P 1 GDP (UK) and person miles (GB) by car/van and other modes indexed 1955-2014.....	1
Figure 1.1 Total miles (personal travel), population and miles per head England 1995-2014.....	5
Figure 1.2 Trips, distance and hours travelled per person indexed 1995-2014*	6
Figure 2.1 Distance travelled per person by trip purpose, 1995-2014.....	7
Figure 2.2 Proportion of the population making trips* by purpose: 1996-98, 2004-06 and 2012-14 ..	9
Figure 2.3 Trips per year per tripmaker* by purpose 1996-98, 2004-06 and 2012-14	9
Figure 2.4 Miles per trip by purpose 1996-98, 2004-06 and 2012-14	10
Figure 2.5 Distance per person by car driver, car passenger and all non-car modes 1995-2014 ..	12
Figure 2.6 Distance per person by individual non-car modes 1995-2014 (based on three year rolling averages)	12
Figure 2.7 Car driver trips, distance and hours travelled per person; also average trip distance, time and speed, indexed 1995-2014.....	14
Figure 2.8 Non-driver trips, distance and hours travelled per person, indexed 1995-2014	15
Figure 2.9 Proportion of the population making trips by main mode: 1996-98, 2004-06 and 2012-14*	16
Figure 2.10 Trips per year per tripmaker by main mode: 1996-98, 2004-06 and 2012-14*.....	16
Figure 2.11 Miles per trip by main mode: 1996-98, 2004-06 and 2012-14.....	17
Figure 3.1 Car ownership and licence holding 1995-2014	19
Figure 3.2 Drivers and car availability (adults 17+): 1996-98, 2004-06 and 2012-14.....	20
Figure 3.3 Adult miles per year by mode by driver category: 1996-98, 2004-06 and 2012-14.....	21
Figure 3.4 Change in adult miles per year by mode by driver category: 1996-98 to 2004-06 and 2004-06 to 2012-14.....	21
Figure 3.5 Change (miles per adult per year by mode) actual and controlled car availability: 1996-98 to 2004-06 and 2004-06 to 2012-14.....	23
Figure 4.1 Miles per person per year all modes by age and gender 1996-98 to 2012-14	24
Figure 4.2 Car driver miles per person per year* by age and gender 1996-98 to 2012-14	25
Figure 4.3 Car driver share of travel distance* by age and gender 1996-98 to 2012-14.....	25
Figure 4.4 Car passenger miles per person per year* by age and gender 1996-98 to 2012-14	26
Figure 4.5 Rail miles per person per year* by age and gender 1996-98 to 2012-14.....	26
Figure 4.6 Proportion of adults 17+ with a driving licence by age and gender, 1995-2014.....	27
Figure 4.7 Main drivers by age (17+) and gender 1996-98, 2004-06 and 2012-14.....	28
Figure 4.8 Children 0-16 Travel by trip purpose 1996-98, 2004-06 and 2012-14.....	29
Figure 4.9 Children 0-16 Number of cars or vans in household, 1996-98, 2004-06 and 2012-14..	31
Figure 4.10 Children 0-16 Travel by main mode of trips 1996-98, 2004-06 and 2012-14	31
Figure 4.11 Men 17-34 Travel by trip purpose 1996-98, 2004-06 and 2012-14.....	33
Figure 4.12 Men 17-34 Drivers and car availability: 1996-98, 2004-06 and 2012-14.....	35
Figure 4.13 Men 17-34 Travel by main mode of trips: 1996-98, 2004-06 and 2012-14	35
Figure 4.14 Women 17-34 Travel by trip purpose: 1996-98, 2004-06 and 2012-14.....	37

Figure 4.15 Women 17-34 Drivers and car availability: 1996-98, 2004-06 and 2012-14	38
Figure 4.16 Women 17-34 Travel by main mode of trips: 1996-98, 2004-06 and 2012-14	39
Figure 4.17 Men 35-59 Travel by trip purpose 1996-98, 2004-06 and 2012-14	41
Figure 4.18 Men 35-59 Drivers and car availability: 1996-98, 2004-06 and 2012-14	42
Figure 4.19 Men 35-59 Travel by main mode of trips: 1996-98, 2004-06 and 2012-14	42
Figure 4.20 Women 35-59 Travel by trip purpose 1996-98, 2004-06 and 2012-14	44
Figure 4.21 Women 35-59 Drivers and car availability: 1996-98, 2004-06 and 2012-14	46
Figure 4.22 Women 35-59 Travel by main mode of trips: 1996-98, 2004-06 and 2012-14	46
Figure 4.23 Men 60+ Travel by trip purpose 1996-98, 2004-06 and 2012-14	48
Figure 4.24 Men 60+ Drivers and car availability: 1996-98, 2004-06 and 2012-14	49
Figure 4.25 Men 60+ Travel by main mode of trips: 1996-98, 2004-06 and 2012-14	50
Figure 4.26 Women 60+ Travel by trip purpose: 1996-98, 2004-06 and 2012-14	51
Figure 4.27 Women 60+ Drivers and car availability: 1996-98, 2004-06 and 2012-14	53
Figure 4.28 Women 60+ Travel by main mode of trips: 1996-98, 2004-06 and 2012-14	54
Figure 5.1 Cars per adult by household income quintile 1996-98 to 2012-14	55
Figure 5.2 Private cars per adult by household income quintile 1996-98 to 2012-14	56
Figure 5.3 Company cars per adult by household income quintile 1996-98 to 2012-14	56
Figure 5.4 Licence holding amongst adults by household income quintile 1996-98 to 2012-14	57
Figure 5.5 Adults with driver access* by household income quintile 1996-98 to 2012-14	57
Figure 5.6 Stage miles per person per year by household income quintile 1996-98 to 2012-14	58
Figure 5.7 Car driver stage miles per person per year by household income quintile 1996-98 to 2012-14	58
Figure 5.8 Private car driver stage miles per person per year by household income quintile 1996-98 to 2012-14	59
Figure 5.9 Company car driver stage miles per person per year by household income quintile 1996-98 to 2012-14	59
Figure 5.10 Rail stage miles per person per year by household income quintile 1996-98 to 2012-14	60
Figure 5.11 Economic activity of men and women aged 16-74: 1996-98, 2004-06 and 2012-14 ..	60
Figure 5.12 Travel by gender and employment status (all aged 16-74) 1996-98 to 2012-14	61
Figure 5.13 Men 16-74: Travel by car driver and other modes* by employment status 1996-98 to 2012-14	62
Figure 5.14 Women 16-74: Travel by car driver and other modes* by employment status 1996-98 to 2012-14	62
Figure 5.15 Proportion of workers by occupation and gender 1996-98, 2004-06 and 2012-14	63
Figure 5.16 Male workers' car driver and other travel* by occupational group 1996-98 to 2012-14	64
Figure 5.17 Female workers' car driver and other travel* by occupational group 1996-98 to 2012-14	64
Figure 5.18 Workers' rail travel by gender and occupational group 1996-98 to 2012-14	64
Figure 5.19 Share of national population* by size of built-up area (BUA) and density of postcode sector 2012-14	66
Figure 5.20 Cars and vans per adult by population density of postcode sector 1996-98 to 2012-14	66
Figure 5.21 Cars and vans per adult by size of built-up area (BUA) 1996-98 to 2012-14	67
Figure 5.22 Travel by size of built-up area (BUA) 1996-98 to 2012-14	67

Figure 5.23 Car driver travel* by size of built-up area (BUA) 1996-98 to 2012-14	68
Figure 5.24 Travel by non-car modes* by size of built-up area (BUA), 1996-98 to 2012-14	68
Figure 5.25 Surface rail travel by size of built-up area (BUA) 1996-98 to 2012-14	69
Figure 5.26 Car driver distance mode share* by size of built-up area (BUA) 1996-98, 2004-06 and 2012-14.....	70
Figure 6.1 Proportion of the population* by age group 1996-98 to 2012-14	71
Figure 6.2 Change (miles per person per year by mode*) 1996-98 to 2004-06 and 2004-06 to 2012-14 actual and controlled for age and gender.....	72
Figure 6.3 Equivalised household income levels by age group of individual 1996-98 to 2012-14 ..	72
Figure 6.4 AGE 17-34 proportion by equivalised household income quintile 1996-98 to 2012-14 ..	73
Figure 6.5 AGE 60+ proportion by equivalised household income quintile 1996-98 to 2012-14	73
Figure 6.6 Economic activity amongst working age population (16-74)*, 1996-98 to 2012-14.....	74
Figure 6.7 Change (miles per year per person aged 16-74, by mode*) 1996-98 to 2004-06 and 2004-06 to 2012-14; actual and controlled for economic activity	74
Figure 6.8 Occupation of employed people* 1996-98 to 2012-14.....	75
Figure 6.9 Change (miles per year per worker) actual and controlled for occupation and gender 1996-98 to 2004-06 and 2004-06 to 2012-14	75
Figure 6.10 Share of national population by size of built-up area (BUA); Census 2001 and 2011 ..	76
Figure 6.11 Change in miles per person per year by mode*; actual 2000-02 to 2012-14 and controlled for home location	76
Figure 6.12 Influence of socio-economic and spatial variables on distance travelled per person aged 16-74 1995-2001, 2002-07 and 2008-14 (SEG = socio-economic group).....	78
Figure 7.1 GDP per head (UK), mean household disposable income (GB) and miles per head (England) indexed 1990-2014.....	79
Figure 7.2 Household mean disposable incomes and travel distance per person by age group indexed 2002-2014	82
Figure 7.3 Mean household disposable income, all motoring costs and cars per head (GB) indexed 1990-2014*	83
Figure 7.4 Mean household disposable income, car running costs and car driver miles per head indexed 1990-2014*	84
Figure 7.5 Mean household disposable income, rail fares and rail miles per head (GB) indexed 1990-2014*	84
Figure 7.6 Traffic by road class GB 1995-2014.....	85
Figure 7.7 Average trip speed by car driver (main mode) by size of built-up area (BUA)* 1996-98 to 2012-14.....	86
Figure 7.8 Frequency of working at home by sex and occupation: 2002-07 and 2008-12	89
Figure 7.9 Change in England's population and its spatial distribution* 1971-2011	90
Figure 8.1 Travel and traffic 2003-2014	95
 Figure A 1 Total distance travelled per person by month* and mode, indexed 2003-2014	98
Figure A 2 Driver distance per person by month with six month and yearly moving averages 2003-2014.....	99
Figure A 3 Driver distance per person by age and gender by month* 2003-2014.....	100
Figure A 4 Driver distance per person by month* by journey purpose, indexed 2003-2014	100

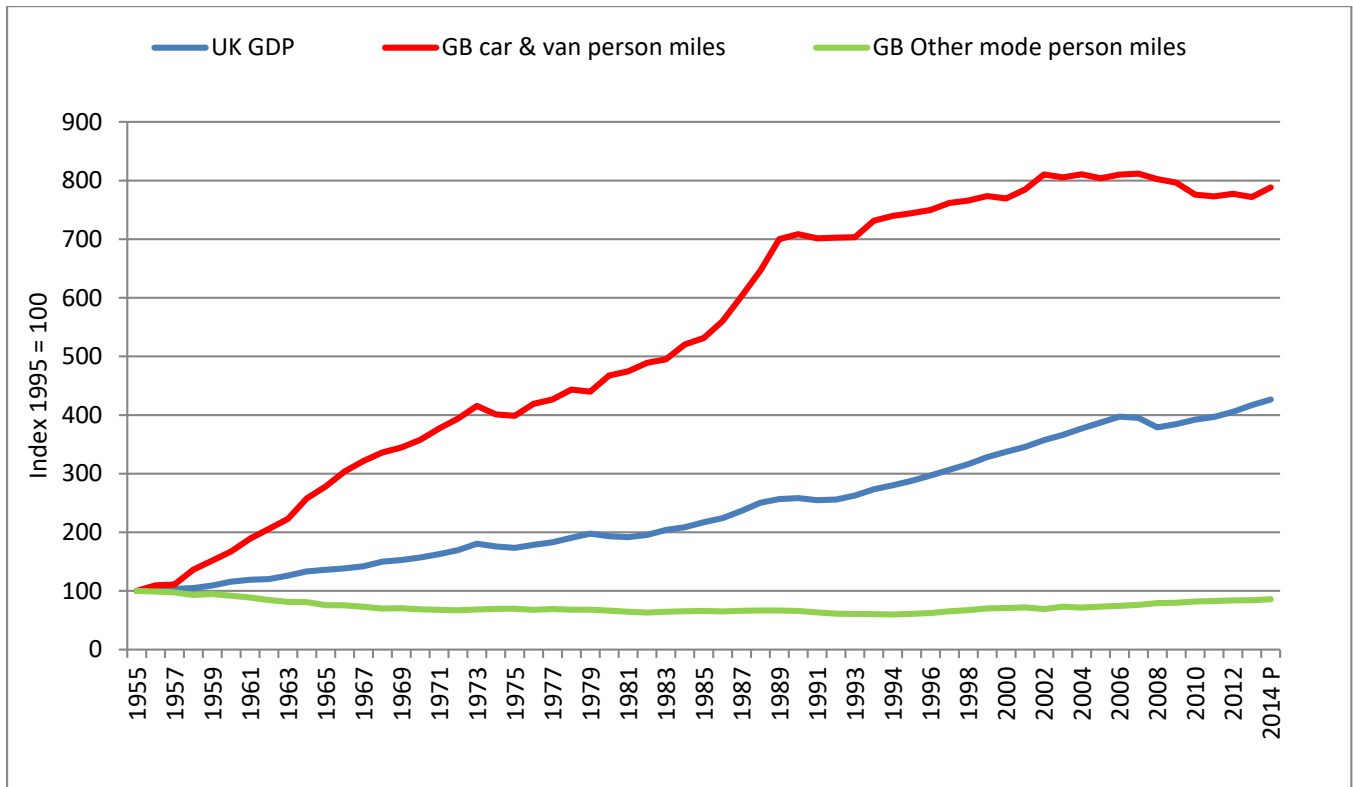
Figure B 1 Driver miles per adult per year by type of car ownership 1996-98 to 2012-14.....	101
Figure B 2 Percentage of men by age with company car access, 1996-98 to 2012-14	102
Figure B 3 Driver miles per person per year by occupation and type of car ownership 1996-98 to 2012-14.....	102
Figure B 4 Employment in selected industrial sectors 1996-98 to 2012-14	103
Figure C 1 Proportion of men and women with full driving licences by decade of birth*	104
Figure C 2 Sample population of NTS by birth year, and number of licenses gained in year	105
Figure C 3 Sum of driver miles by year of birth	106
Figure C 4 Driver miles per person per year for age cohorts over time.....	107
Figure C 5 Rail miles per person per year for age cohorts over time	108
Figure D 1 Living situation of adults by age and gender: 1996-98, 2004-06 and 2012-14	109
Figure D 2 Living situation of adults 17-34 by gender, subdivided by age: 1996-98, 2004-06 and 2012-14.....	110
Figure D 3 Employment status by age group and gender: 1996-98, 2004-06, 2012-14.....	111
Figure D 4 Miles per person per year (all modes) by age 17-34 sub-groups by living situation 1996-98, 2004-06 and 2012-14.....	112
Figure D 5 Driver miles per person per year by age 17-34 sub-groups by living situation 1996-98, 2004-06 and 2012-14.....	112
Figure D 6 Miles per person per year (all modes) by age 17-34 sub-groups by employment status 1996-98, 2004-06 and 2012-14.....	113
Figure D 7 Driver miles per person per year by age 17-34 sub-groups by employment status 1996-98, 2004-06 and 2012-14.....	114
Figure E 1 Percentage of adults living in a household with a car by ethnicity and country of birth, by gender and age group 2010-14.....	115
Figure E 2 Percentage of adults with a full driving licence by ethnicity and country of birth, by gender and age group 2010-14.....	116
Figure E 3 Percentage of adults who are main drivers of a household car by ethnicity and country of birth, by gender and age group 2010-14	116
Figure E 4 Miles per person per year (all modes) by gender, age, ethnicity and country of birth 2010-14.....	117
Figure E 5 Driver miles per person per year by gender, age, ethnicity and country of birth 2010-14	117
Figure E 6 Proportion of the adult population by ethnicity and country of birth by area-type/size of built-up area 2010-14.....	118
Figure E 7 Proportion of adults with a full driving licence by ethnicity and country of birth, gender and area type/size of built-up area, 2010-14.....	118
Table 2.1 Miles per person per year by trip purpose and change from 1996-98 to 2004-06 and 2012-14.....	8
Table 2.2 Tripmaking by purpose 2012-14 and change from 1996-98.....	11

Table 2.3 Miles per person per year by main mode and change 1996-98 to 2004-06 and 2012-14	13
Table 2.4 Tripmaking by main mode 2012-14 and change from 1996-98.....	18
Table 4.1 CHILDREN 0-16 Tripmaking by trip purpose 2012-14 and change from 1996-98	30
Table 4.2 Children 0-16 Tripmaking by main mode 2012-14 and change from 1996-98	32
Table 4.3 Men 17-34 Tripmaking by trip purpose 2012-14 and change from 1996-98.....	34
Table 4.4 Men 17-34 Tripmaking by main mode 2012-14 and change from 1996-98.....	36
Table 4.5 Women 17-34 Tripmaking by trip purpose 2012-14 and change from 1996-98	37
Table 4.6 Women 17-34 Tripmaking by main mode 2012-14 and change from 1996-98	40
Table 4.7 Men 35-59 Tripmaking by trip purpose 2012-14 and change from 1996-98.....	41
Table 4.8 Men 35-59 Tripmaking by main mode 2012-14 and change from 1996-98.....	43
Table 4.9 Women 35-59 Tripmaking by trip purpose 2012-14 and change from 1996-98	45
Table 4.10 Women 35-59 Tripmaking by main mode 2012-14 and change from 1996-98	47
Table 4.11 Men 60+ Tripmaking by trip purpose 2012-14 and change from 1996-98.....	49
Table 4.12 Men 60+ Tripmaking by main mode 2012-14 and change from 1996-98.....	50
Table 4.13 Women 60+ Tripmaking by trip purpose 2012-14 and change from 1996-98	52
Table 4.14 Women 60+ Tripmaking by main mode 2012-14 and change from 1996-98	53
Table 7.1 Annualised changes in living standards according to National Accounts and HBAI measures	81

Preface

Throughout the second half of the 20th Century domestic travel increased virtually continuously with economic growth. This increase was linked almost entirely with the rise in private car ownership. Use of other modes generally declined in absolute as well as relative terms (Figure P1).

Figure P 1 GDP (UK) and person miles (GB) by car/van and other modes indexed 1955-2014



[Source: ONS, UK Quarterly National Accounts and DfT Transport Statistics Great Britain 2015]

But in the early years of the 21st Century it became apparent that these trends were not continuing as expected. Population growth was generating increased travel in total but car use per person appeared to be levelling off whilst rail use was experiencing a remarkable upturn after years of stagnation.

In response, the Independent Transport Commission (ITC) joined with the RAC Foundation, the Office of Rail Regulation (now the Office of Rail and Road) and Transport Scotland in sponsoring a study of the nature and source of these changes. The resulting report *On the Move: Making sense of car and train travel trends in Britain* written by Scott Le Vine and Professor Peter Jones was published in 2012. A key finding was that whilst trends in aggregate invited suggestions of a 'peak car' phenomenon, there was in practice a complex mix of factors exerting an influence on car use and that use of the term was "at best an over-simplification".

The original report was an innovative exercise mainly using data from the National Travel Survey (NTS) since 1995. However it deliberately focused on the years prior to 2008 in order not to confuse potentially longer-term changes in travel behaviour with the short-term impacts of the financial crisis and ensuing recession.

Since publication, the ITC has been keen to establish whether and how the previously identified trends have evolved. The availability of NTS data to 2014 provided the opportunity to commission an update of the original report so as to view the impact of the recession across the period before and since. From 2012 however, the NTS has been conducted in England only. Hence in this report, data for earlier years has been revised so as to present a consistent series for England throughout, although the differences are typically very small. In interpreting the NTS data we have also been able to draw on insights gained through social research commissioned by the ITC following the original OTM report (published as *On the Move: Exploring Attitudes to Road and Rail Travel in Britain* authored by Kris Beuret OBE and her team at Social Research Associates (2015).

In undertaking the update the opportunity has been taken to extend the forms of analysis. This report takes a more broadly based view of travel as a whole and examines trends in relation to the full range of travel purposes and modes. Likewise there is consideration of travel behaviour across the spectrum of age, gender and economic groups. Spatial differences are investigated more fully. Trip-making is analysed more rigorously by distinguishing between the *proportion* of the population who engage in travel of various kinds (as reported in their NTS surveyed week) and the *frequency* of those who do.

The guiding principle has been to identify the travel characteristics of the population as evident amongst the various groups and then to establish how far the aggregate changes in the amounts and types of travel are attributable to changes in their relative size, and how far they are attributable to changes in the travel behaviour of their individual members.

1. Introduction

1.1 This report in context

1.1.1 This report sets out to make sense of travel trends over the last two decades and particularly since 2008. It follows the original 'On the Move' report published in 2012 which had a similar objective but which largely omitted the years after 2008 because of the potentially distorting effects of the Great Recession.

1.1.2 The original report investigated the sources of decline in personal car use, which had become apparent since the turn of the century notwithstanding continuous economic growth at that time.

1.1.3 It identified the main sources as

- Licence holding and car use amongst young men
- Travel in London
- Ownership and use of company cars

The original report also investigated the trend of increasing rail use and the extent to which this was attributable to a shift from car driving. More recent trends in these particular fields are incorporated in the present report.

1.1.4 Like the original report this update draws mainly on evidence from the National Travel Survey (NTS), although in this case it is confined to England rather than Great Britain because of changes to the Survey from 2013. Key features of the NTS are summarised in the box below.

1.1.5 The remainder of this Introduction gives an overall picture of travel trends and the impact of the recession.

- Chapter 2 identifies how these overall trends are made up of changes by trip purpose and mode;
- Chapter 3 looks at changes in car ownership, licence holding and car availability;
- Chapters 4 and 5 provide more detailed analyses of travel trends by age and gender groups, and of the influence of other socio-economic factors (income, employment status, occupation and home location);
- Chapter 6 reports changes in the population mix within these categories and identifies how much of the aggregate changes in travel are attributable to changes in this mix as distinct from changes in the behaviour of individuals within each category;
- Chapter 7 provides a brief review of possible causes of these changes in travel behaviour; and,
- Chapter 8 summarises the main findings.

The National Travel Survey

The National Travel Survey (NTS) is a survey of travel behaviour, involving all members of households, and conducted face to face. It includes questions on household and individual characteristics, on vehicles owned and used by the household, and a record of journeys made by each over the period of a week (the 'travel diary'). It asks for information on how, why, when and where people travel as well as factors affecting travel (e.g. car availability and driving licence holding). The data is largely factual with very few questions relating to attitudes or intentions.

It is designed to monitor long-term trends in personal travel and to inform the development of policy. It is the primary source of data on personal travel patterns by residents, and is regarded as authoritative both in the UK and elsewhere. But like any survey it has limitations so cannot answer any question on travel behaviour.

It was done periodically from 1965, and has run continuously since 1988. In 2002 the sample size was increased to involve about 20,000 individuals each year. The sample previously included households in England, Scotland and Wales (Great Britain), but since 2013 it is only carried out in England.

To aid readers of this report some of the nomenclature used and other details are explained here:

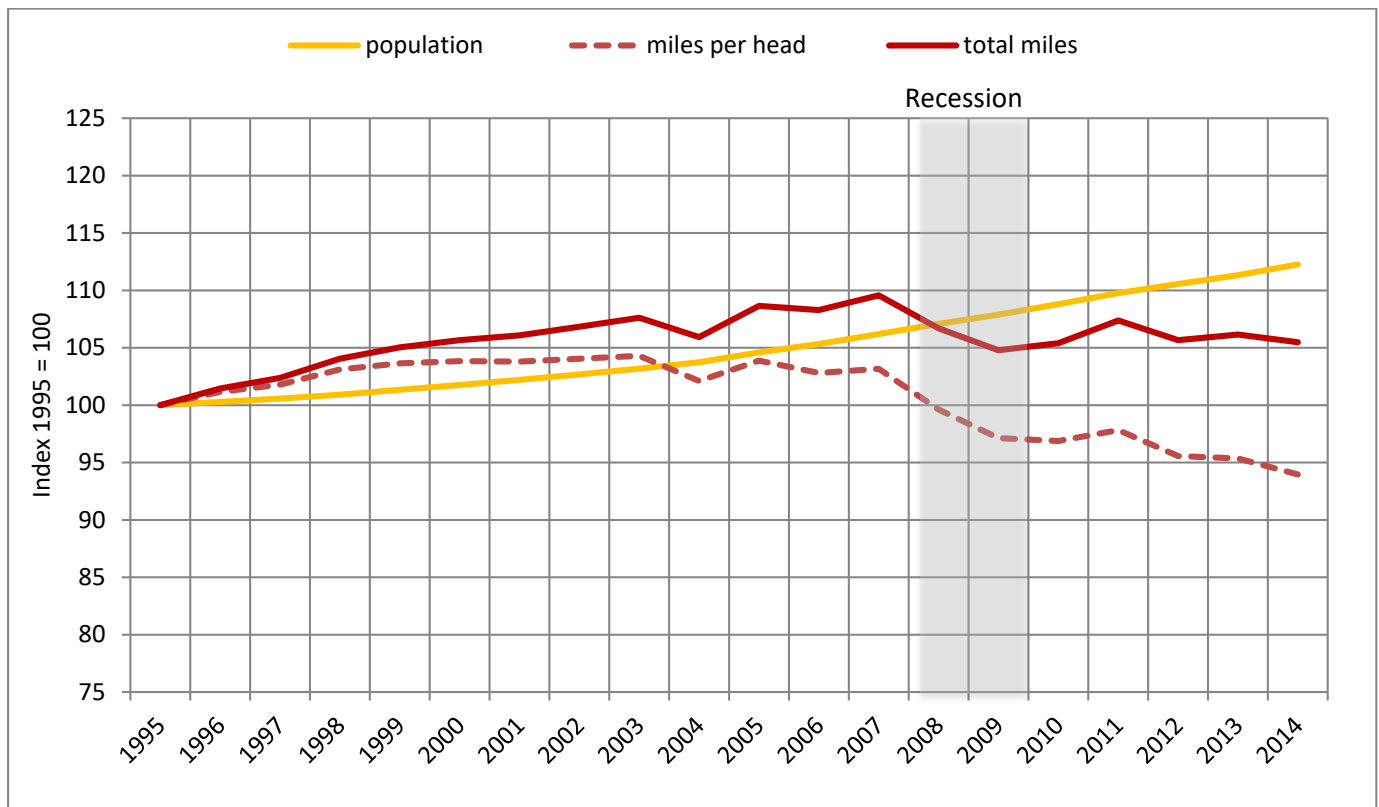
- A 'trip' is a journey made to reach somewhere where an activity is carried out.
- Each trip has a 'purpose' ascribed to it, such as shopping, personal business, place of work, or escorting others.
- Trips which consist of returning home are assigned the purpose associated with the previous activity. So a simple return journey from home to shops for example would be recorded as two shopping trips.
- Each trip can have a number of 'stages' which are the different modes used on a trip. For example a journey involving walk to a bus stop, a bus, a train, and another walk would have 4 stages, with details of each recorded. Some of the aggregate statistics by mode (e.g. Figure 2.5-2.8) are derived from this stage-based data but more detailed analyses (e.g. Figures 2.9-11) are based on trip categorisations by 'main mode', i.e. the mode used for the longest part of the trip by distance.
- To avoid complexity and 'interviewee fatigue', "short walks" are only recorded on the final day of the survey. (The start of the survey week is rotated between respondents so that this 'day 7' falls on different days of the week). Short walks are those between 50 yards and 1 mile. As a result, the walk, bus, train, walk trip described above would only be recorded as a 2-stage trip (bus, train) if it was carried out on the first 6 days, unless the walk stages were longer than one mile.
- Data is weighted to scale up short walks by a factor of 7 to give weekly trip rates and distances, and weighting is also applied to account for differences in response rates amongst different population groups.
- Although the data set is very large random variation can increase once the population is broken down into groups and when lesser-used modes of transport are analysed. Hence, throughout this report data is sometimes grouped into 'three year rolling averages', and some modes and purposes grouped together to distinguish real changes from random variation.

Further information is available at <https://www.gov.uk/government/collections/national-travel-survey-statistics>

1.2 The overall picture: travel trends and the impact of the recession

- 1.2.1 The total amount of travel is a product of the number of people and the average distance travelled by each person. After 1995 the total amount rose fairly steadily to reach a peak about 10% higher in 2007 (the solid brown line in Figure 1.1). However, during this time the population grew by 6.2% (the yellow line) so that on a per person basis the amount of travel was only 3% higher, having 'flat-lined' since 1997 (the pecked brown line).

Figure 1.1 Total miles (personal travel), population and miles per head England 1995-2014



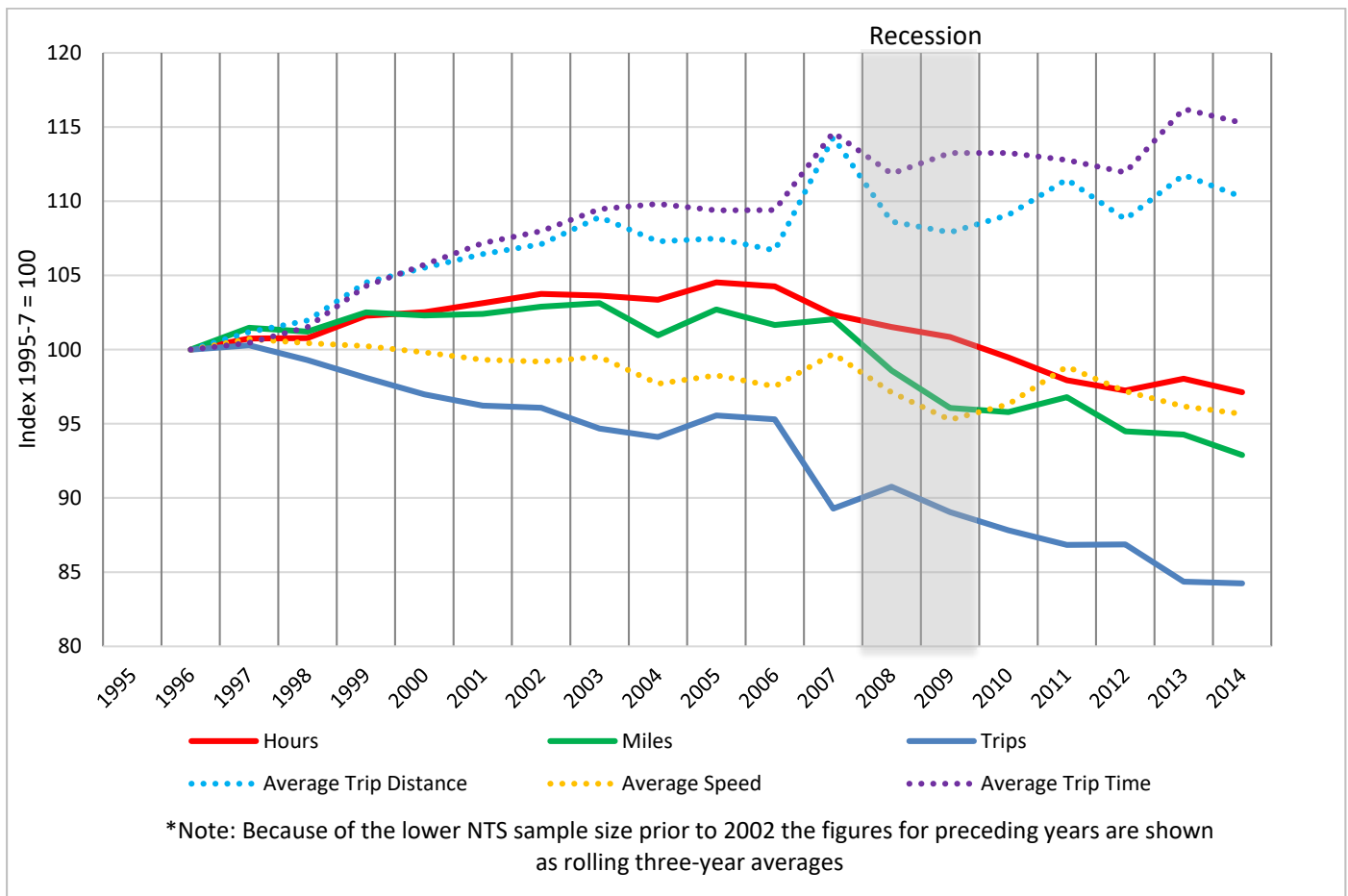
- 1.2.2 Between 2007 and 2010 when the recession took effect total travel fell sharply by 4.2 points and travel per person by 6.3 points. More detail on the impact of the recession is given below and in Annex A.
- 1.2.3 Since 2010 (until 2014) total travel has fluctuated a little but remained broadly flat whilst the population has continued to grow, signifying a further reduction of 3 points in travel per person to reach a low point of 94% of the 1995 level.
- 1.2.4 Overall therefore it appears that, after a drop during the recession years, we have reverted to a situation in which the diminished rate of travel reduction per person is being offset as far as overall travel is concerned by the rate of increasing population. [The situation for individual travel modes is different, as discussed in chapter 2].

1.3 The overall picture: the relationship between trips, distance and time

- 1.3.1 A person's total travel distance can be seen as the product of their frequency of trip making and their average trip length. The per capita decline noted above can therefore be due to a lower trip rate, reduced trip length or a combination of the two.

1.3.2 Since 1995 the number of trips per person has fallen by about 0.5% a year during the first decade and about 1% a year since (see the solid blue line in Figure 1.2). However until 2003 the average length of these trips increased (the dotted blue line) such that the total distance travelled remained much the same (the green line). Since then the average trip length has increased only marginally and as a result (with falling trip numbers) the total distance per person in 2014 was about 9 points below its pre-recession peak at 6,488 miles a year or 124 miles per week. However, as can be seen in the Figure, the 'Great Recession' of 2008-09 itself had only a minor impact relative to longer-term trends.

Figure 1.2 Trips, distance and hours travelled per person indexed 1995-2014*



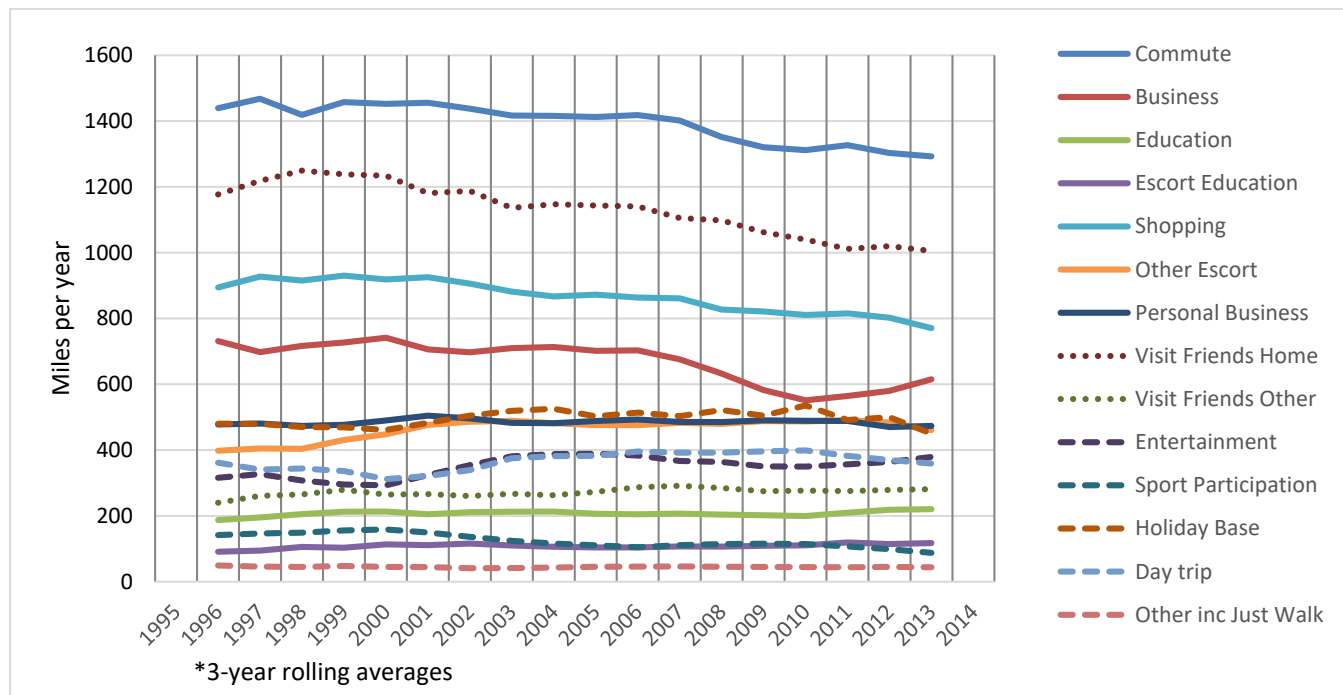
1.3.3 'Total travel' can be measured in terms of time as well as distance. A combination of declining speeds (the dotted yellow line in Figure 1.2) and increased distances for individual journeys resulted in the total time spent travelling (the red line) increasing to a peak of 389 hours a year per person in 2005 (7 hours 27 minutes a week). Although the time and distance of journeys have continued to increase a little since then, the steeper fall in trip-making has reduced the average amount of time spent travelling to 361 hours a year in 2014 (i.e. by half an hour a week to 6 hours 55 minutes) – a little less than the amount in 1995.

2. Travel Trends by Purpose and Mode

2.1 Travel trends by trip purpose

2.1.1 Journeys are made for a variety of purposes. Identifying the distance travelled on a per person basis enables us to see how much each is contributing to the total and how this share is changing. Figure 2.1 illustrates the general trend of stability or slow decline. Only in the case of commuting and business trips is there a perceptible impact of the 2008-09 recession.

Figure 2.1 Distance travelled per person by trip purpose, 1995-2014



2.1.2 Four purposes account for more than a half of all travel: commuting, visiting friends and relatives at home, shopping and business. Collectively these lost 627 miles a year between 1996-98 and 2012-14 (a decline of 15% – twice the overall average) with the majority occurring since 2004-06 (Table 2.1).

2.1.3 By contrast several other purposes including other escort, entertainment, holidays and day trips showed per capita *increases* up to 2004-6 but only education, education escort and visiting friends other than at home have experienced continuing (small) increases since then.

Table 2.1 Miles per person per year by trip purpose and change from 1996-98 to 2004-06 and 2012-14

	1996-98	2004-06	Change		2012-14	Change		Change	
			96/98-04/06			04/06-12/14		96/98-12/14	
Commute	1468	1413	-55	-3.7%	1293	-120	-8.5%	-175	-11.9%
Business	698	702	4	0.5%	615	-86	-12.3%	-83	-11.8%
Education	195	206	11	5.6%	221	14	7.0%	25	12.9%
Escort education	94	104	10	10.4%	117	13	12.4%	23	24.1%
Shopping	927	873	-55	-5.9%	771	-102	-11.7%	-156	-16.9%
Other escort	405	476	71	17.6%	461	-15	-3.2%	56	13.9%
Personal Business	480	488	8	1.6%	473	-15	-3.0%	-7	-1.4%
Visit friends at home	1218	1144	-74	-6.1%	1005	-138	-12.1%	-213	-17.5%
Visit friends other	261	273	13	4.8%	281	8	3.0%	21	7.9%
Entertainment	327	389	62	18.8%	379	-9	-2.4%	52	15.9%
Sports participation	146	111	-36	-24.5%	88	-23	-20.7%	-59	-40.1%
Holiday base	480	503	23	4.8%	450	-53	-10.5%	-30	-6.2%
Day trip	340	383	42	12.4%	359	-23	-6.1%	19	5.5%
Other incl. just walk	46	45	-1	-1.8%	44	-1	-3.3%	-2	-5.0%
ALL	7087	7108	21	0.3%	6557	-551	-7.7%	-529	-7.5%

2.1.4 Embedded in the distance changes per head are changes in the proportion of the population making trips for each purpose¹, the frequency of their trip-making and average trip length. Changes in each of these are shown in Figures 2.2-2.4.

¹ On the basis of the trips recorded in the NTS one-week travel diary. Their frequency of trip-making during this week is extrapolated to an annual equivalent.

Figure 2.2 Proportion of the population making trips* by purpose: 1996-98, 2004-06 and 2012-14

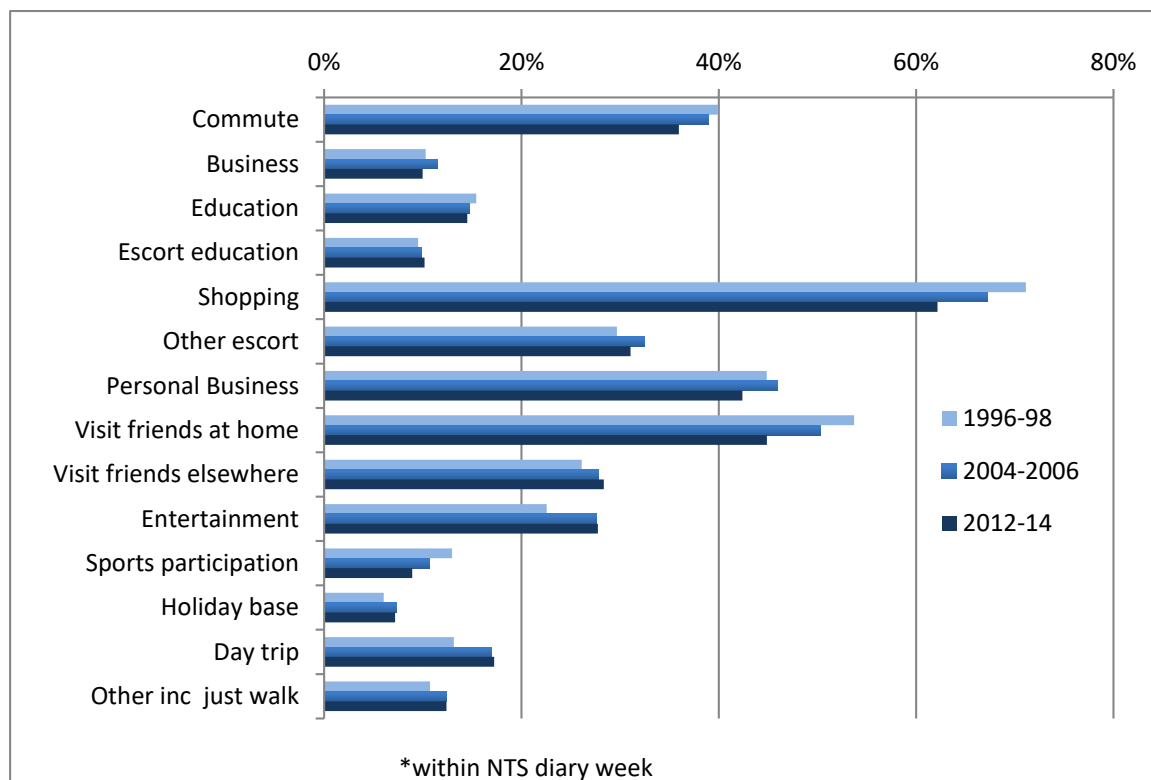


Figure 2.3 Trips per year per tripmaker* by purpose 1996-98, 2004-06 and 2012-14

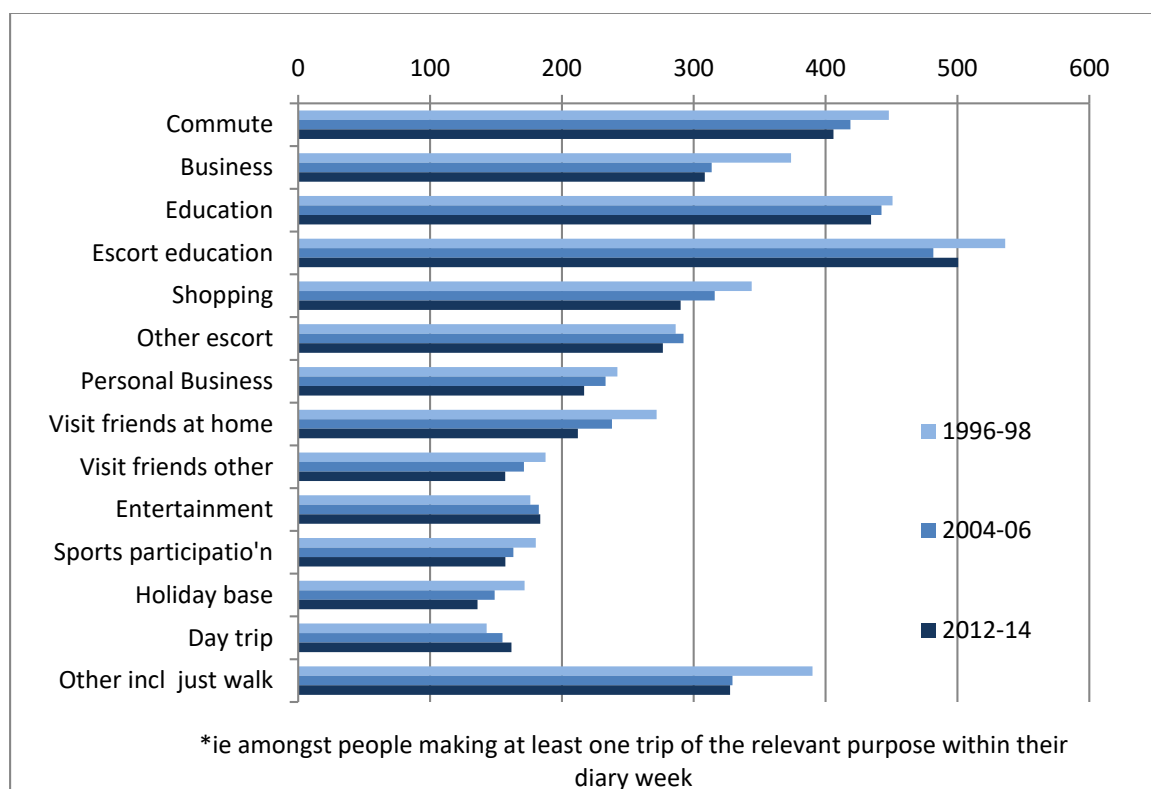
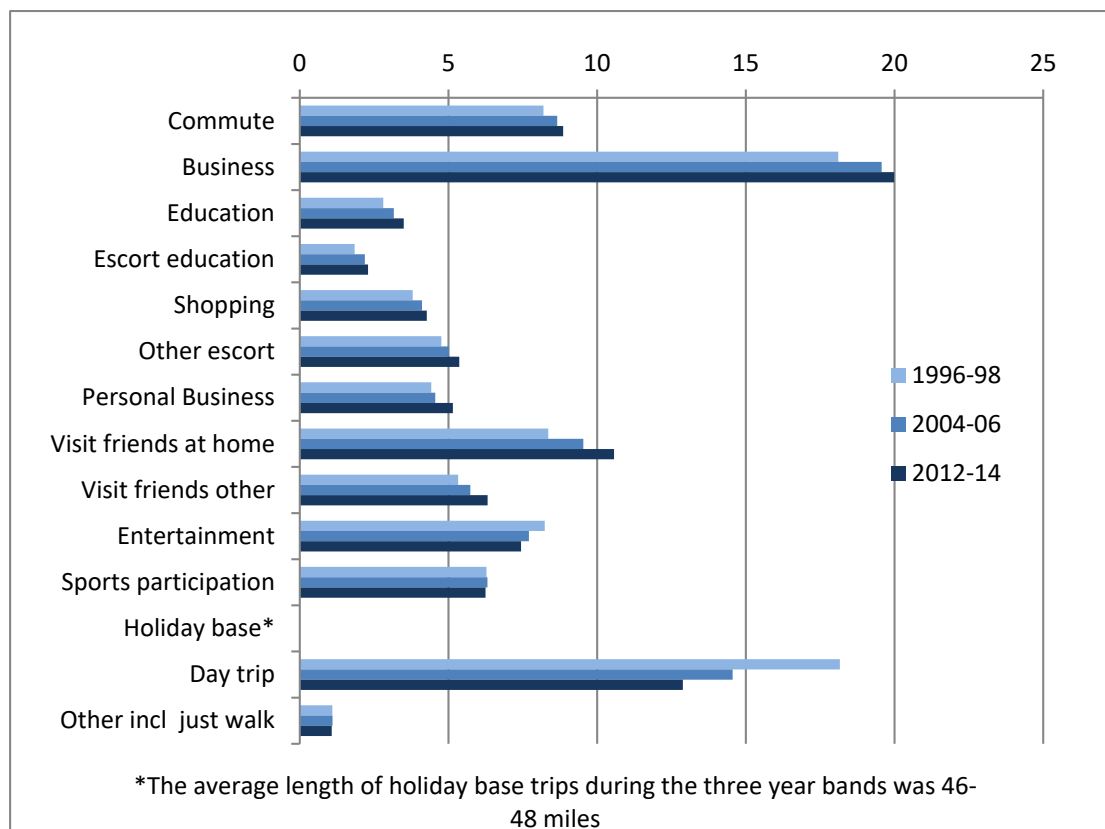


Figure 2.4 Miles per trip by purpose 1996-98, 2004-06 and 2012-14



- 2.1.5 In terms of the proportion of the population making trips there has been a reduction of nine percentage points between 1996-98 and 2012-14 in the proportions shopping and visiting friends at home (to 62% and 45% respectively). Commuting, personal business and sports participation are also down. On the other hand participation in entertainment, day trips and visits to friends and relatives other than at home have increased.
- 2.1.6 Less frequent trip-making is evident across almost all purposes. (Day trips and escort education trips since 2004-06 are minor exceptions). It is notable that reduced frequency in respect of commuting and business trips is primarily a feature of the period prior to 2004-06 whereas lower participation in these purposes is more a feature of the period since.
- 2.1.7 In relation to average trip lengths most purposes show an increase of the order of 10%-20% between 1996-98 and 2012-14. The principal exception is day trips where the average trip distance has fallen by almost 30% to 13 miles.
- 2.1.8 The contribution of each of these features to the overall change in per capita mileage shown previously is listed in Table 2.2. For the four main trip purposes their overall reduction in travel distance per person can be seen to be attributable to a lower proportion of people making trips and lower trip frequency offset by increased average trip lengths. In practice each purpose has distinctive features. In the case of day and entertainment trips for example, the opposite has occurred with increased participation and frequency offset by reduced trip length, resulting in increased per capita travel overall.

Table 2.2 Tripmaking by purpose 2012-14 and change from 1996-98

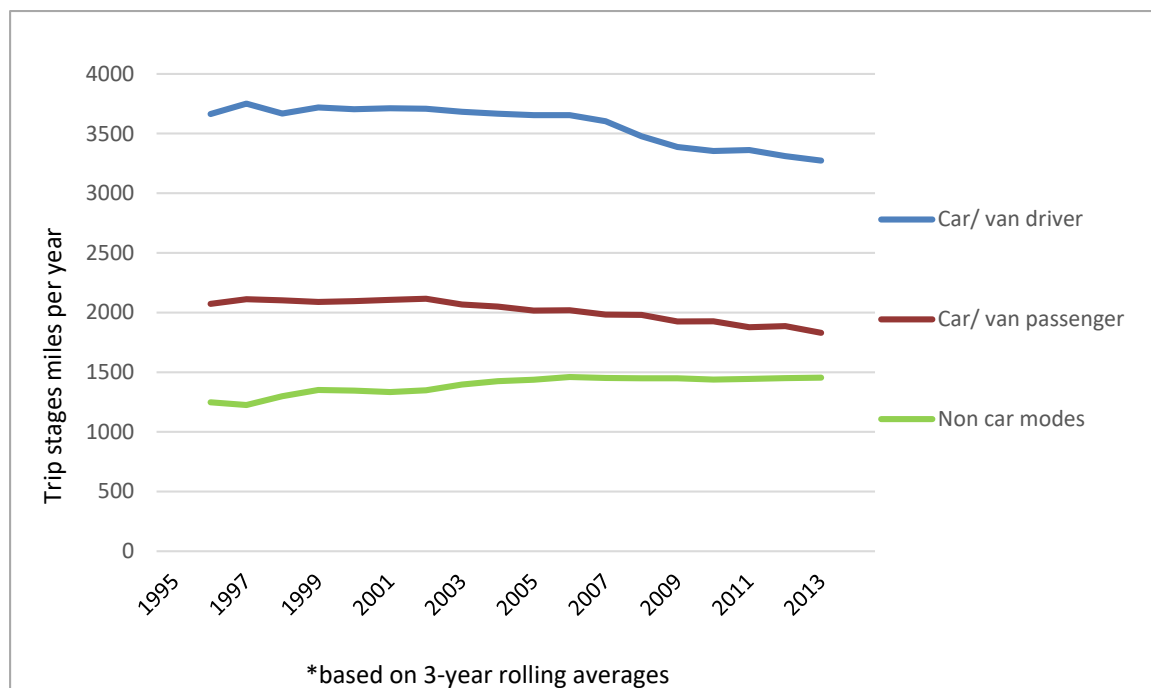
	% making trips*		trips per year per tripmaker*		miles per trip		miles per person per year**	
	2012-14	Change from 96/98	2012-14	Change from 96/98	2012-14	Change from 96/98	2012-14	Change from 96/98
Commute	35.9%	-10%	406	-9%	8.9	8%	1293	-12%
Business	10.0%	-3%	308	-17%	20.0	10%	615	-12%
Education	14.5%	-6%	434	-4%	3.5	25%	221	13%
Escort education	10.2%	7%	500	-7%	2.3	24%	117	24%
Shopping	62.2%	-13%	290	-16%	4.3	13%	771	-17%
Other escort	31.1%	5%	277	-3%	5.4	13%	461	14%
Personal Business	42.4%	-6%	217	-10%	5.1	16%	473	-1%
Visit friends home	44.9%	-16%	212	-22%	10.6	26%	1005	-17%
Visit friends other	28.4%	9%	157	-16%	6.3	19%	281	8%
Entertainment	27.7%	23%	184	4%	7.4	-10%	379	16%
Sports particip'n	8.9%	-31%	157	-13%	6.2	-1%	88	-40%
Holiday base	7.2%	19%	136	-21%	45.9	-1%	450	-6%
Day trip	17.2%	31%	162	13%	12.9	-29%	359	6%
Other inc just walk	12.4%	16%	328	-16%	1.1	-2%	44	-5%
ALL					7.0	10%	6557	-7%

*within NTS diary week ** average of all people (ie including those not making trips of particular purpose within diary week)

2.2 Travel trends by mode

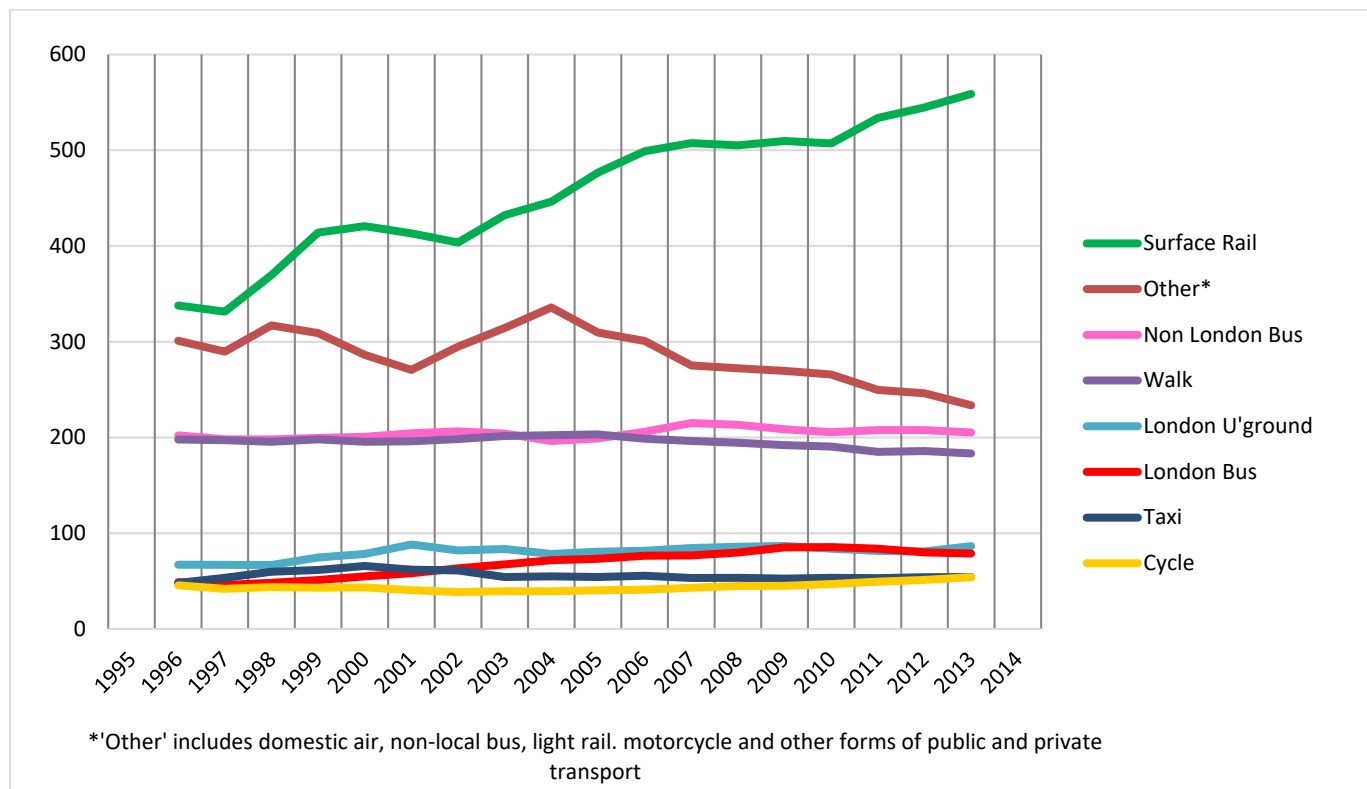
2.2.1 During the decade after 1995 travel by car remained essentially stable on a per capita basis, but travel by all other modes combined increased by 17% (Figure 2.5). As a result, an important break occurred from the hitherto increasing share of travel by car. By 2006 its share of distance (driver and passenger) had *fallen* 2.7 points to 79.5%.

Figure 2.5 Distance per person by car driver, car passenger and all non-car modes 1995-2014



2.2.2 Amongst non-car modes the biggest increases during the first decade occurred in London buses and underground (56% and 22% respectively) and in national rail² (48%) (Figure 2.6; note different scale). However, use of ‘non-local buses’ (i.e. inter-urban coaches) declined.

Figure 2.6 Distance per person by individual non-car modes 1995-2014 (based on three year rolling averages)



² 'surface rail' in NTS terminology: includes London Overground

- 2.2.3 Since 2006 use of non-car modes has remained unchanged overall although within this there has been a continued but slower increase in rail and a turn-round in the previous decline in cycling. However, walking has reduced.
- 2.2.4 Individual car travel began to fall slowly from around 2003 and car passenger travel has continued this decline ever since. But car driving experienced a particularly sharp reduction of 10% in the two recession years (2008-09) and was at this low level in 2014 after a slight recovery in the interim.
- 2.2.5 As a result of these more recent changes the car mode share of travel has fallen a further 1.7 points to 77.8% with car driving contributing 49.9%.
- 2.2.6 The per capita travel by the individual modes in 1996-98, 2004-06 and 2012-14 together with the change between these years is shown in Table 2.3.

Table 2.3 Miles per person per year by main mode and change 1996-98 to 2004-06 and 2012-14³

	1996-98	2004-06	Change		2012-14	Change		Change	
			96/98 - 04/06			04/06-12/14		96/98-12/14	
Walk	170	173	3	1.8%	152	-21	-12.0%	-18	-10.4%
Bicycle	41	40	-2	-3.7%	52	12	31.5%	11	26.7%
Car/van driver	3741	3648	-93	-2.5%	3263	-385	-10.5%	-478	-12.8%
Car/van passenger	2107	2008	-99	-4.7%	1821	-188	-9.3%	-286	-13.6%
Mcycle	37	38	1	1.9%	33	-5	-12.4%	-4	-10.7%
Other private	126	138	13	10.2%	109	-29	-21.0%	-16	-13.0%
Bus in London	44	68	23	52.7%	74	7	9.6%	30	67.4%
Other local bus	203	200	-2	-1.2%	207	7	3.5%	5	2.2%
Non local bus	98	73	-25	-25.4%	56	-17	-23.5%	-42	-42.9%
London Underground	64	77	13	20.3%	81	4	5.3%	17	26.7%
Surface rail	368	526	157	42.7%	617	91	17.4%	249	67.5%
Taxi/minicab	49	50	0	0.3%	50	0	0.7%	1	1.1%
Other public*	38	69	31	82.9%	40	-29	-41.8%	2	6.4%
ALL	7087	7108	21	0.3%	6557	-551	-7.7%	-529	-7.5%

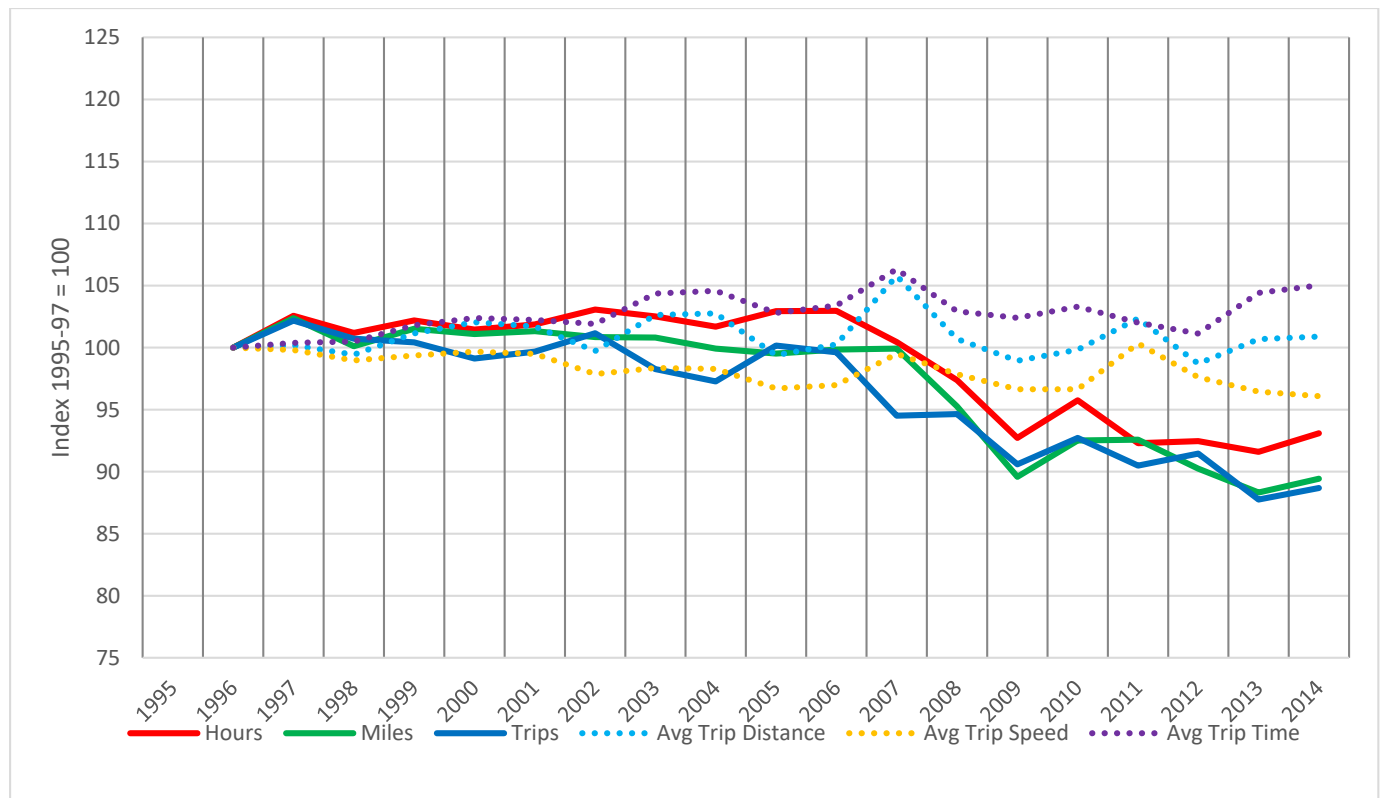
*includes domestic air, light rail, ferries

- 2.2.7 The changing characteristics of car driver travel throughout the period since 1995 are shown in Figure 2.7. Unlike travel generally (Figure 1.2) driver trips per person during the first decade declined only marginally (the solid blue line in the graph). This was due mainly

³ Note that in Table 2.3 the figures for 'London Bus' and 'Other local bus' are potentially misleading in that the use of both types is divided by the whole England population (as is standard NTS practice). Amongst London residents however the use of (London) buses on a per capita basis is in fact about double that elsewhere in the country – see Figure 2.9.

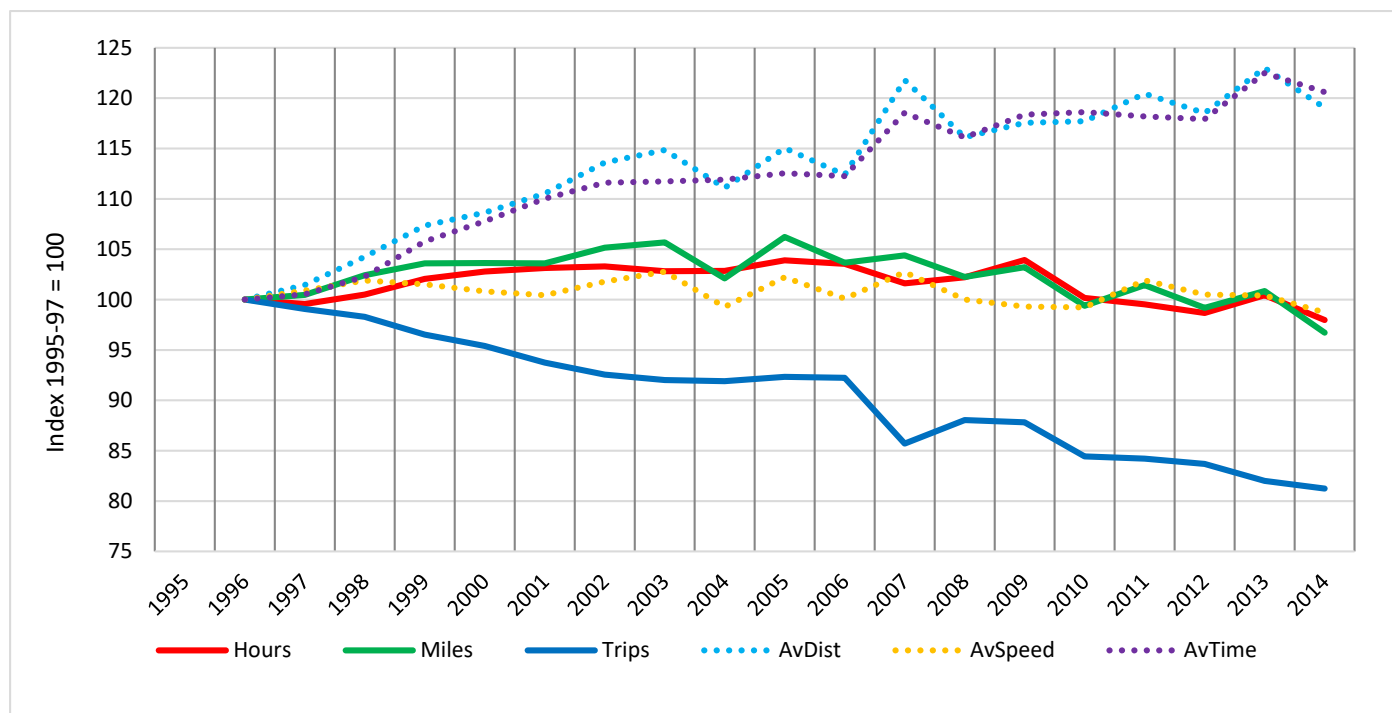
to an increase in the proportion of people driving (see below). Nor did the average driver trip lengthen in distance. But with increasing population and commercial traffic the average speed of car trips fell by 5% (the dotted yellow line). Motorists' total travel time increased accordingly (the solid red line).

Figure 2.7 Car driver trips, distance and hours travelled per person; also average trip distance, time and speed, indexed 1995-2014



- 2.2.8 After 2006 a more pronounced decline began in the number of car driver trips with a corresponding impact on total distance (the green line) and, with stabilising average speeds, on total time. In this case steep falls occurred during the recession years with small fluctuations since within a more gentle trajectory of decline. In 2014 all three metrics were about 10% below their pre-recession levels.
- 2.2.9 In terms of the total car mileage arising from personal travel population growth has partially offset the effect of reduced driving by individuals. Total driver miles in 2014 were 5% fewer than their 2006 peak and at the level last seen in 1996.
- 2.2.10 The components of travel by modes other than car driver show quite different trends over the last two decades although the overall picture presented in Figure 2.8 is the amalgam of separate features amongst individual modes. The number of non-driver trips (the solid blue line) fell by 8 points during the first decade. Average trip time and distance (the dotted dark and light blue lines) increased in almost equal measure such that average trip speeds (the dotted yellow line) remained roughly constant. Per capita distance (the solid green line) increased by about 5%.

Figure 2.8 Non-driver trips, distance and hours travelled per person, indexed 1995-2014



2.2.11 The decline in non-driver trips has continued at a similar rate during the more recent decade but with a flattening in average trip distance total miles and total hours per capita have fallen back to their mid 1990's levels.

2.2.12 The overall change in miles per person by the various modes arises from a combination of the proportion of the population using them, their frequency of use and their average trip distance. These characteristics of each mode are shown in Figures 2.9-2.11 for 1996-98, 2004-06 and 2012-14.

Figure 2.9 Proportion of the population making trips by main mode: 1996-98, 2004-06 and 2012-14*

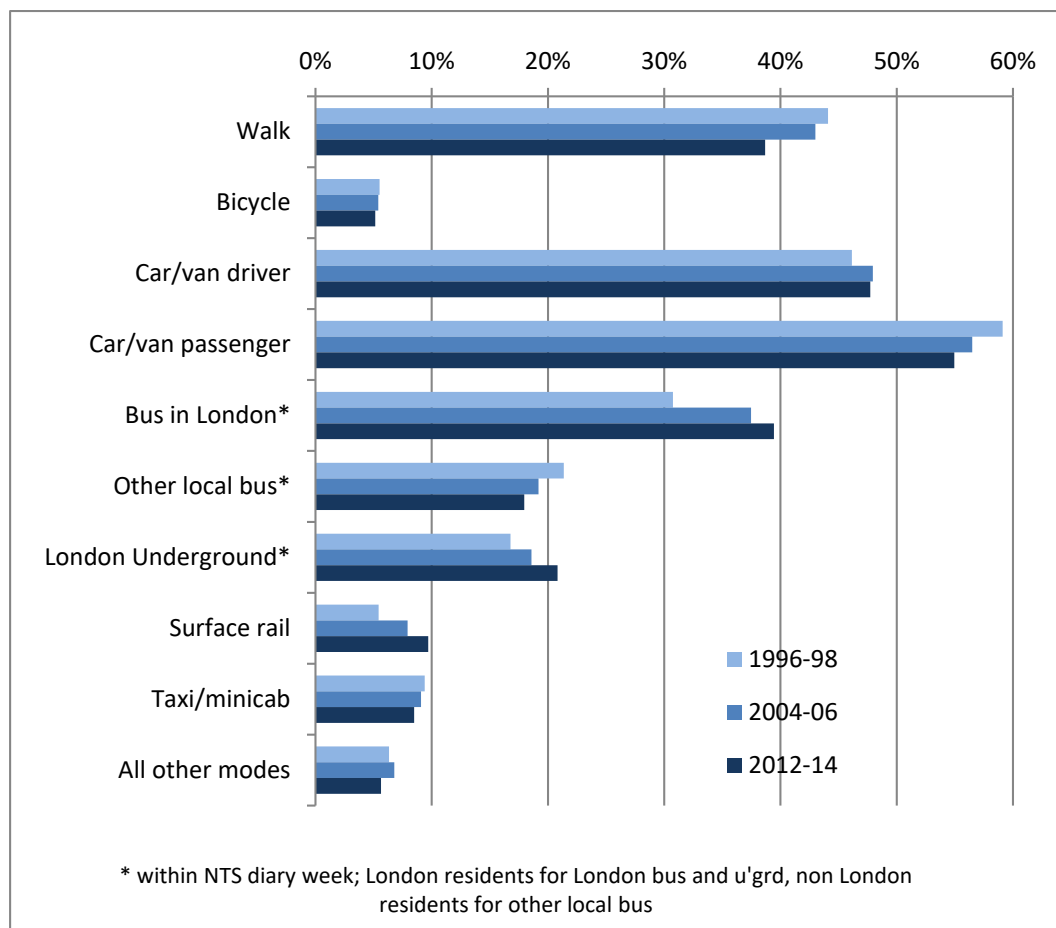


Figure 2.10 Trips per year per tripmaker by main mode: 1996-98, 2004-06 and 2012-14*

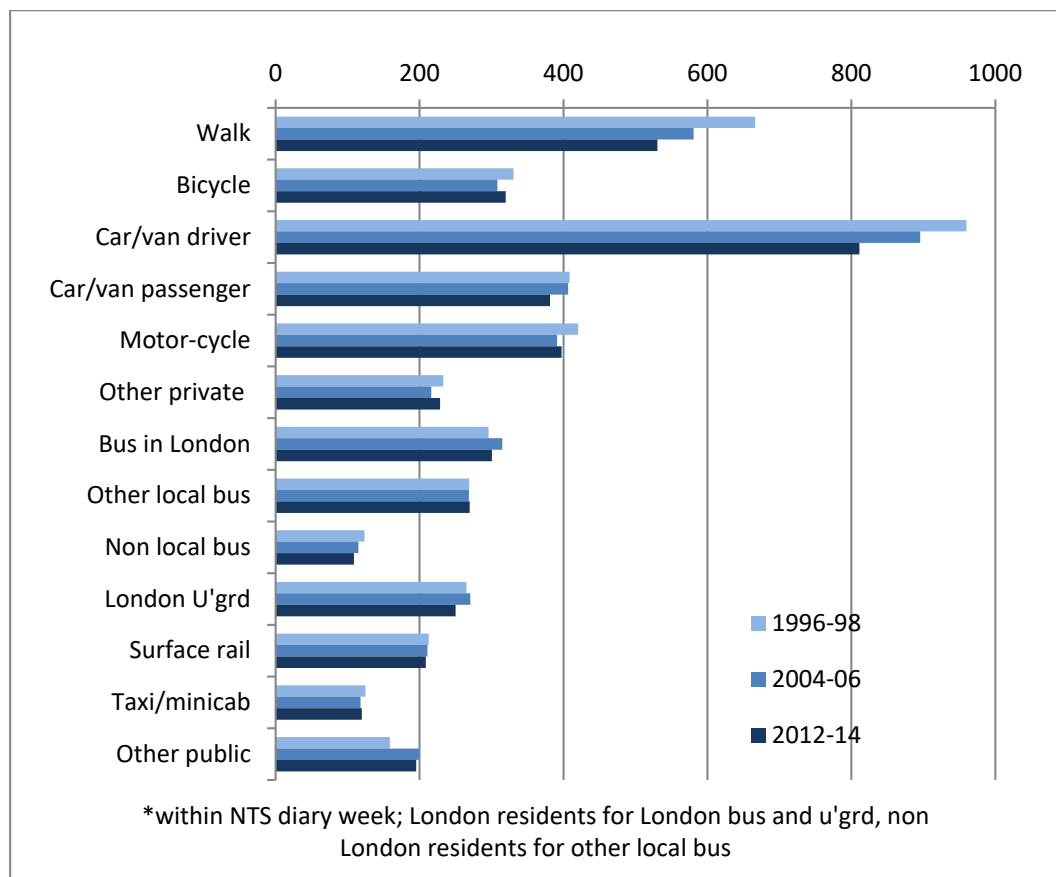
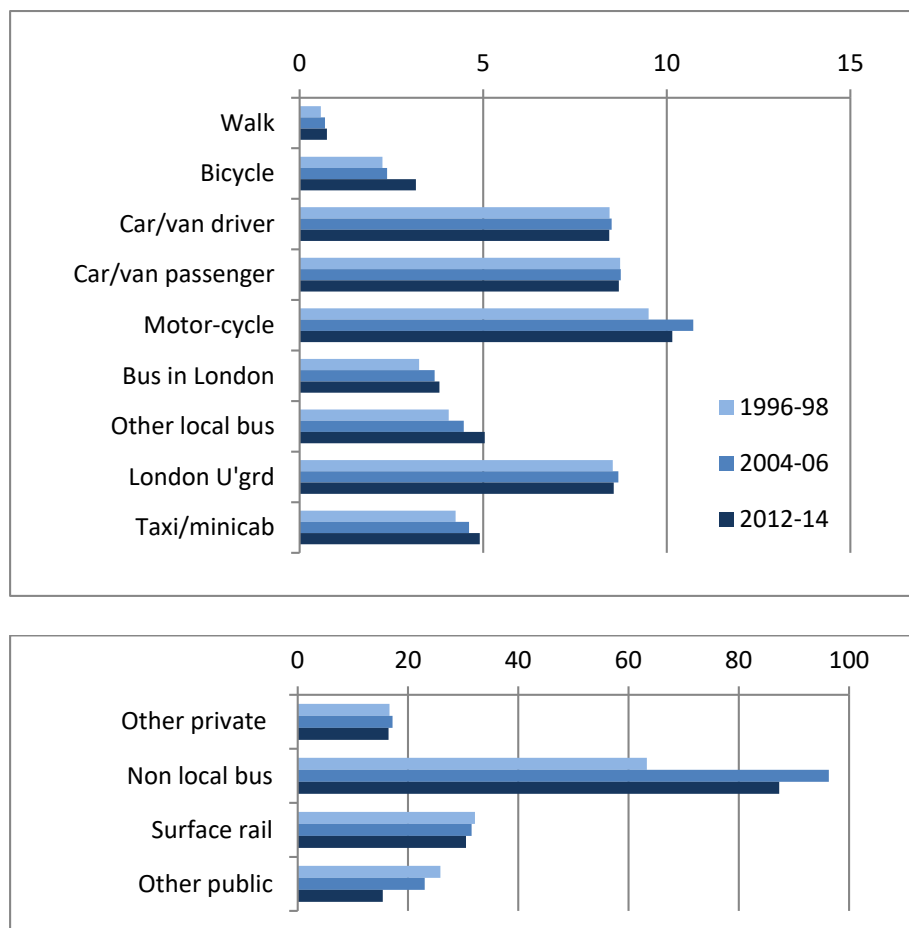


Figure 2.11 Miles per trip by main mode: 1996-98, 2004-06 and 2012-14



- 2.2.13 Car passenger is the mode used by the largest proportion of the population in any given week (Figure 2.9). This has fallen by 4 points since 1996-98 whilst that of car driving has increased a little such that they are now used by 55% and 48% of the population respectively.
- 2.2.14 Walking as a main mode was recorded as being used by 39% of the population in 2012-14⁴ – a drop of 5 points since 1996-98.
- 2.2.15 A higher proportion of Londoners now make use of buses and Underground in the capital (up 9 and 4 points to 39% and 21% respectively). By contrast the proportion using local buses outside London stands at 18% and has fallen by 3 points since 1996-98.
- 2.2.16 The proportion of the population using rail for at least one trip in their diary week has increased by more than three quarters and in 2012-14 stood at just under 10%.
- 2.2.17 The general pattern of less frequent trip-making is reflected in most modes and particularly in respect of walking and car driving (Figure 2.10). However, lower frequency of use is much less a feature of car passenger travel and is virtually absent in the case of rail, local buses and taxis.

⁴ See Box 1.1 for explanation of the selective manner in which walk trips are recorded in NTS diary week

- 2.2.18 The average distances of individual trips by car as driver or passenger are unchanged over almost two decades (Figure 2.11). Amongst other modes however trip length has generally increased, although rail trips have shortened a little.
- 2.2.19 The contribution of these features to the overall change in per capita mileage for each mode is shown in Table 2.4. In the case of driving for example the overall drop is due to less frequent use by individual drivers. By contrast frequency of use amongst bus users outside London is unchanged but an increase in average trip length offsets the effect of a smaller proportion of users as far as overall travel volume is concerned. The large per capita growth in rail travel is attributable to a much higher proportion of the population using rail and not to increased frequency of travel by individual users nor to longer average trip distance.

Table 2.4 Tripmaking by main mode 2012-14 and change from 1996-98

	% making trips*		trips per year per tripmaker*		miles per trip		miles per person per year**	
	2012-14	Change from 1996-98	2012-14	Change from 1996-98	2012-14	Change from 1996-98	2012-14	Change from 1996-98
Walk	38.7%	-12%	530	-20%	0.74	28%	152	-10%
Bicycle	5.1%	-7%	320	-3%	3.17	41%	52	27%
Car/van driver	47.7%	3%	811	-15%	8.43	0%	3263	-13%
Car/van passenger	54.9%	-7%	381	-7%	8.69	0%	1821	-14%
Motorcycle	0.8%	-12%	397	-5%	10.15	7%	33	-11%
Other private	2.9%	-10%	229	-2%	16.48	-1%	109	-13%
Bus in London***	39.4%	28%	310	2%	3.71	15%	453	51%
Other local bus***	18.0%	-16%	270	0%	5.04	24%	245	4%
Non local bus	0.6%	-53%	109	-12%	87.33	38%	56	-43%
London Ugrd***	20.8%	24%	268	-6%	8.41	6%	471	25%
Surface rail	9.7%	79%	209	-2%	30.53	-5%	617	68%
Taxi/minicab	8.5%	-10%	120	-4%	4.91	16%	50	1%
Other public	1.3%	48%	195	23%	15.43	-40%	40	6%

*within NTS diary week ** divided by the whole population except where note *** applies

*** by London residents for London bus and Underground, by residents elsewhere for other local bus

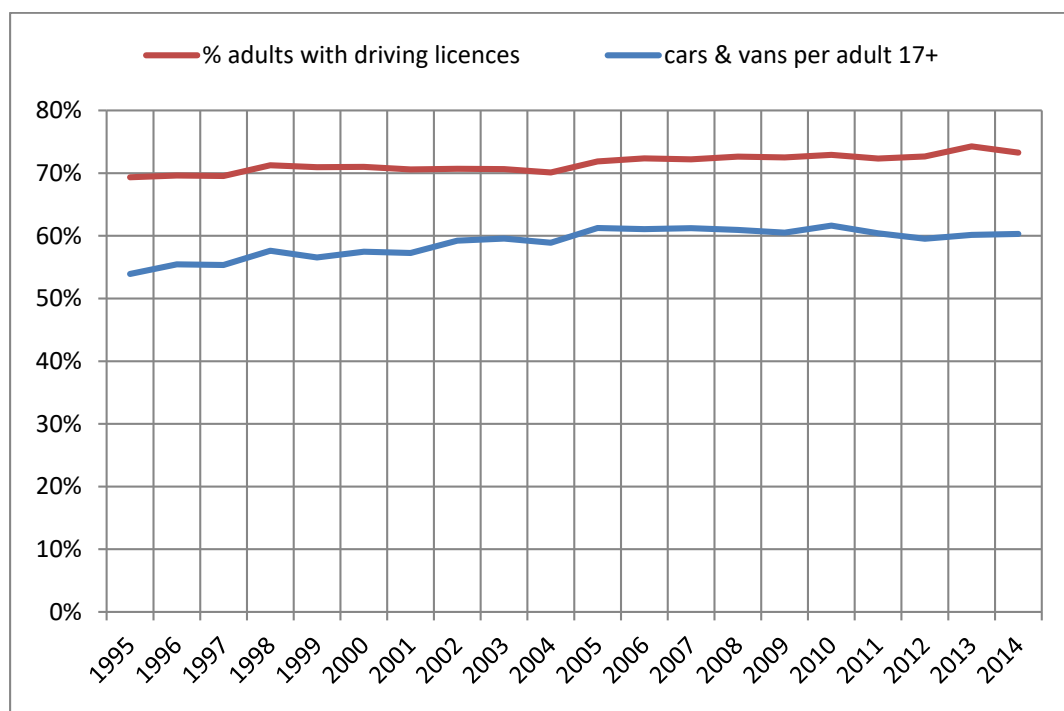
3. Car Availability and its Relationship with Travel

3.1 Car ownership⁵, licence holding and car availability

3.1.1 The amount of car use per person is closely linked with levels of car ownership and possession of a driving licence. Adults with sole or main use of a car travel more in total than their peers so that levels of 'car availability' are also an important factor contributing to the amount of travel overall.

3.1.2 The number of cars per adult (17+) rose steadily from 0.54 in 1995 to 0.61 in 2005 (Figure 3.1). In the subsequent 10 years it remained essentially stable with a level of 0.60 in 2014. Given the decline in car driver distance this represents a fall of 9% in the annual miles per car since 2005.

Figure 3.1 Car ownership and licence holding 1995-2014



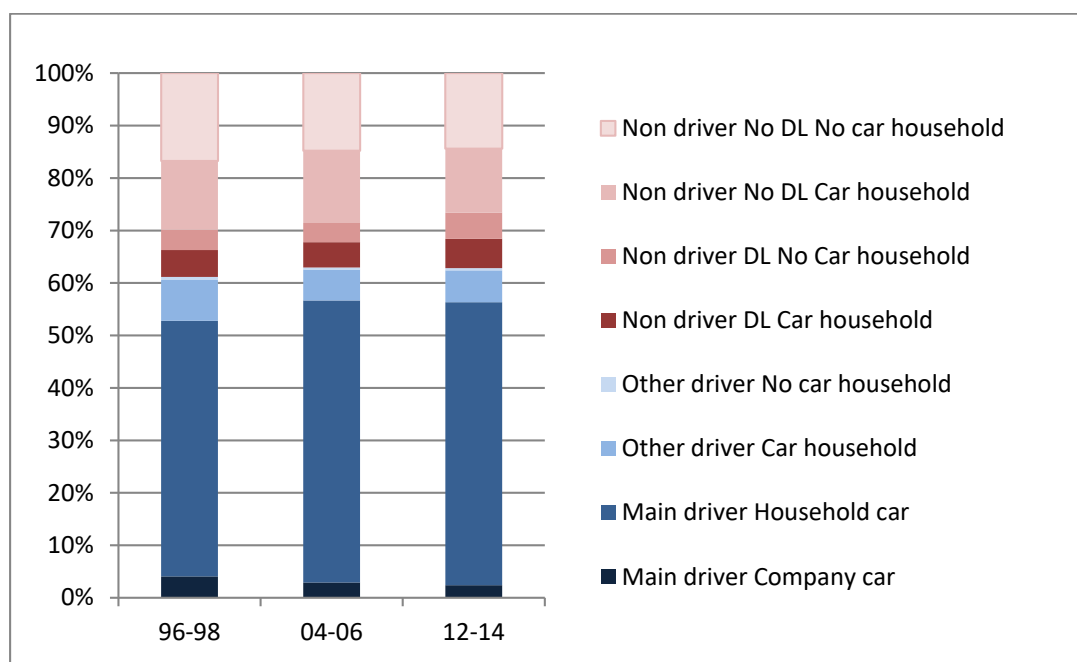
3.1.3 The level of licence holding amongst adults has followed a rather different pattern rising more slowly from 69% in 1995 to 72% in 2005 but thereafter continuing to rise a little to 73% in 2014. The higher level compared with car ownership reflects the fact that a proportion of licence holders living in car owning households do not have sole or main use of a vehicle whilst others live in households without a car altogether. Each of these licence holding groups can be further subdivided into those who in practice do or do not drive (on the basis of their travel in the NTS diary week).

3.1.4 Between 1996/8 and 2012-14 the proportion of adults with sole or main use of a car rose from 53% to 56% (Figure 3.2). However during the same period the sub-group with use of a company car (who on average have much higher driving mileage) fell from 4.1% to 2.4%. Other drivers (i.e. licence holders who actually drove during the diary week) fell from

⁵ 'cars' = cars and light vans available for use by household members

8.4% to 6.5%. Overall the proportion of adults driving increased from 61% to 63% with all the increase occurring in the first eight years.

Figure 3.2 Drivers and car availability (adults 17+): 1996-98, 2004-06 and 2012-14



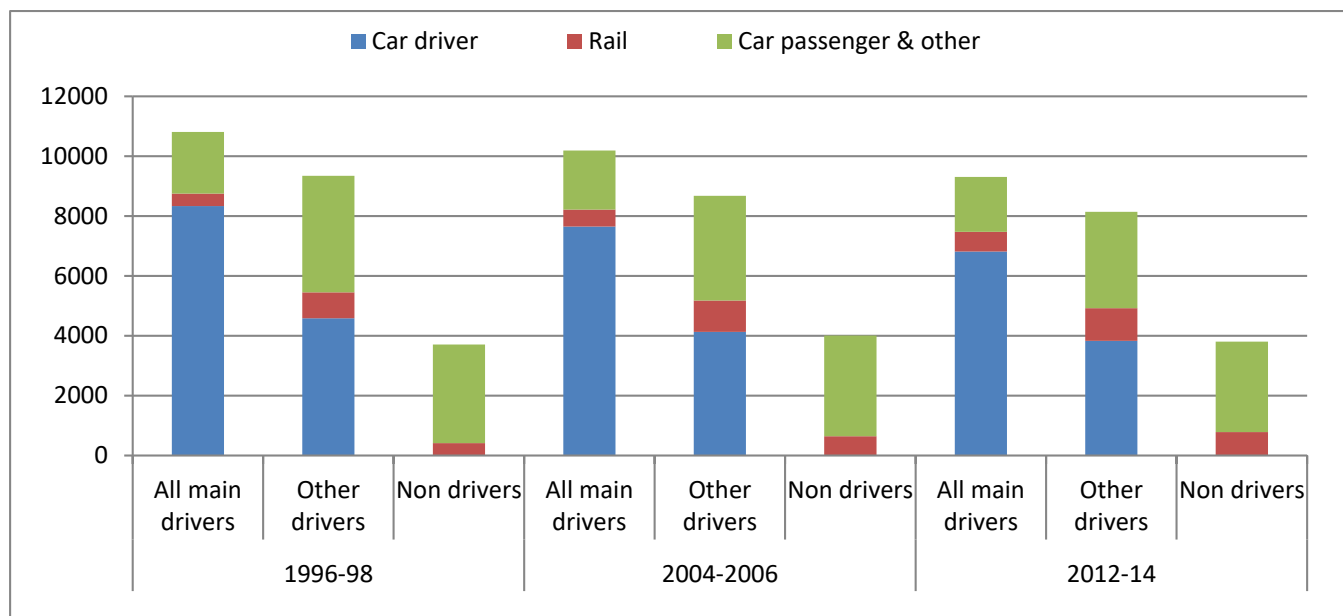
3.1.5 Of the 37% not driving in 2012-14 a roughly equal proportion lived in car owning and non car owning households. The subgroup with licences but not driving increased from 9.0% to 10.5% over the period.

3.2 Travel trends amongst car availability groups

3.2.1 The travel trends amongst adult car availability groups are summarised here in three categories: all main drivers, other drivers and non drivers. Their distance travelled and mode use is compared over two time periods: 1996-98 to 2004-06 and 2004-06 to 2012-14.

3.2.2 In 2012-14 the annual distance travelled per adult was 7,200 miles, i.e. 138 miles a week. The difference between those with sole or main use of a car and other drivers was not great (9,300 miles compared with 8,140). However main drivers made 73% of their travel as car driver (and 7% by rail) whereas for other drivers the equivalent figures were 47% and 13% (Figure 3.3)

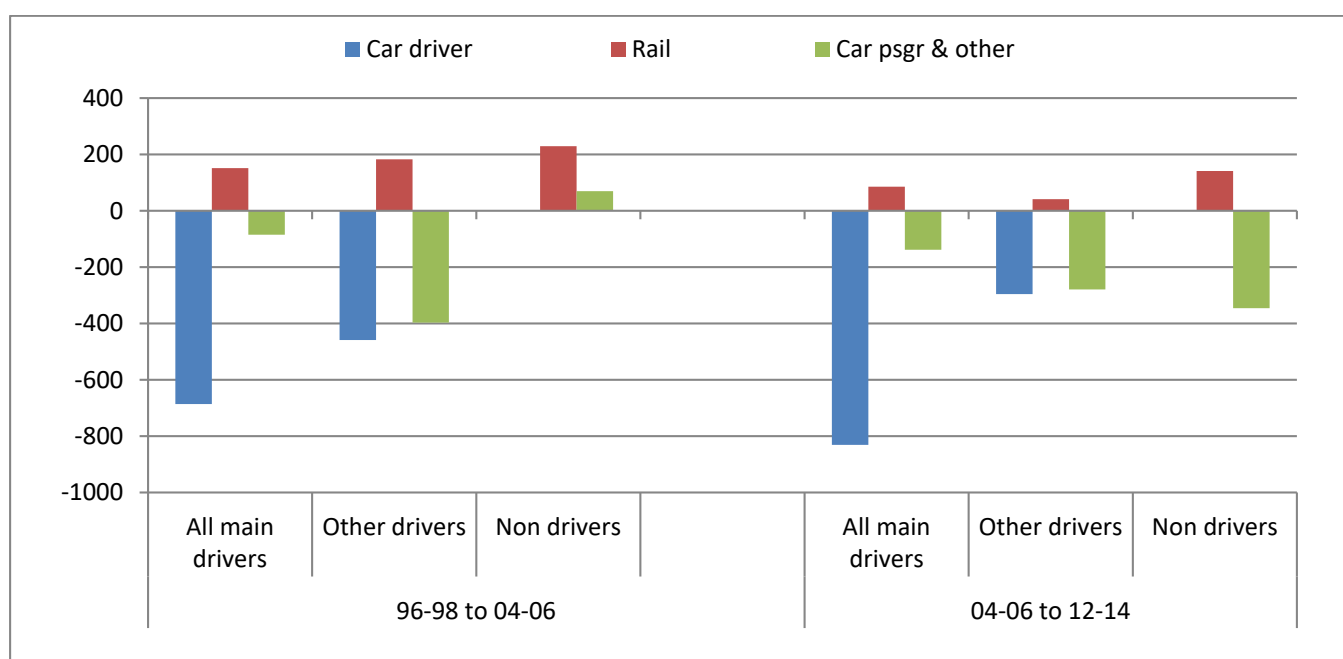
Figure 3.3 Adult miles per year by mode by driver category: 1996-98, 2004-06 and 2012-14



3.2.3 Non-driving adults travelled much less in total (3,800 miles a year) but 20% of this by rail. (In part this is because of their age and gender characteristics, which are described in Chapter 4).

3.2.4 During the two time periods travel distance per adult fell by 2% and 8%. Amongst main drivers the reduction was 6% and 9% with this due principally to less driving (Figure 3.4). Amongst other drivers distance fell by 7% and 6% with the reduction spread more evenly between car driver and other modes, excluding rail. Amongst non-drivers travel *increased* by 8% in the period to 2004-06 but fell by 5% thereafter with the latter fall concentrated amongst modes other than rail.

Figure 3.4 Change in adult miles per year by mode by driver category: 1996-98 to 2004-06 and 2004-06 to 2012-14

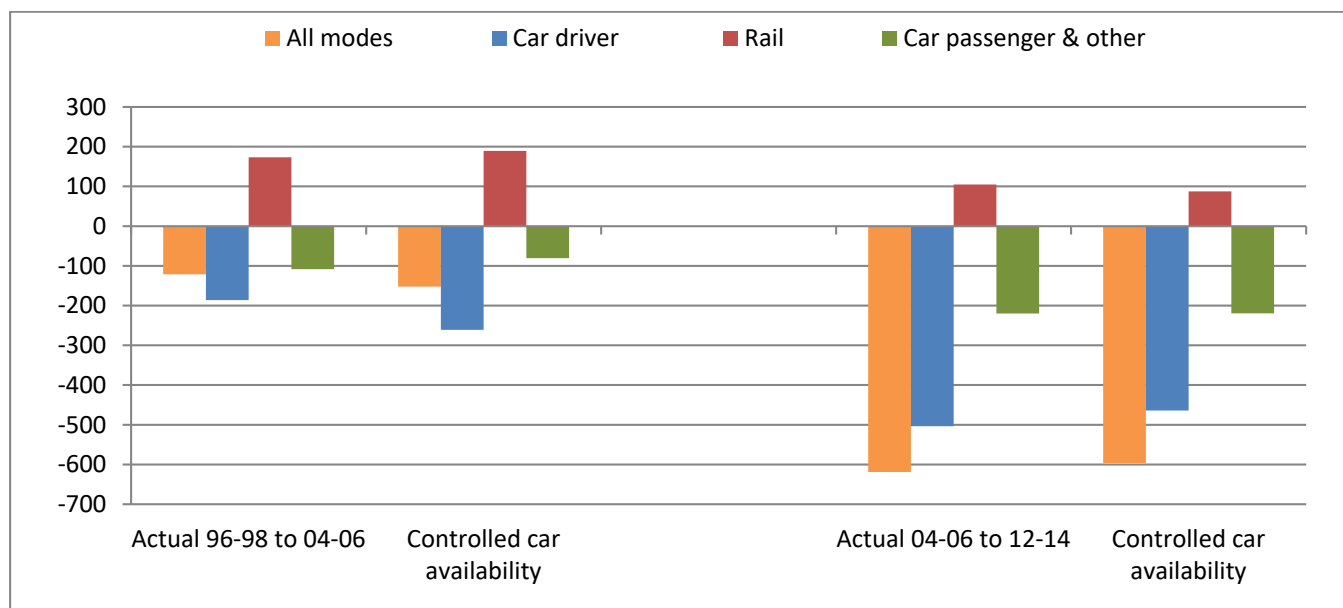


- 3.2.5 Rail use increased in both periods amongst all groups although with bigger increases in the first period and amongst non-drivers. Amongst drivers their increase in rail miles during the period to 2004-06 (155 miles a year overall) was the equivalent of 24% of their reduction in car driver miles. In the subsequent period to 2012-14 the proportion was only 10%. This lower figure is due to slower growth in rail use (81 miles a year) coupled with faster decline in driving.
- 3.2.6 Because of their high average mileage and car driver mode share changes amongst people with use of a company car are particularly important. During the two periods their travel as drivers fell by 2,020 and 2,500 miles per person per year (11% and 15%). Notwithstanding this fall their driver mode share increased marginally to 88% with only 4% by rail. Unlike the trend of increasing rail use within the population generally people who had use of a company car in 2012-14 travelled a third less by rail on average than the same group just eight years previously.
- 3.2.7 The combined effect of fewer company car drivers and their reduced travel accounted for most of the lower per capita car mileage amongst drivers generally during the period to 2004-06 (481 miles a year out of 525) but by little more than a quarter in the second period (200 out of 773).
- 3.2.8 Fuller details of changes in company car ownership and use are given in Annex B.

3.3 The travel impact of changes in car availability

- 3.3.1 The actual changes in travel and car use occurring between 1995 and 2014 can be viewed as a combination of changes in car availability (i.e. the proportion of the adult population in the eight categories identified previously) and of changes in the distance travelled per person in each category.
- 3.3.2 To give an indication of the relative importance of these two factors, the data for the two periods 1996-98 to 2004-06 and 2004-06 to 2012-14 has been reworked applying the actual (changed) mileage rates but with the car availability profile held constant as at the start of each period (Figure 3.5).

Figure 3.5 Change (miles per adult per year by mode) actual and controlled car availability: 1996-98 to 2004-06 and 2004-06 to 2012-14



- 3.3.3 For the first period it appears that the per capita reduction in total and car driver travel would have been about 25% and 50% greater than actually occurred, but for the effect of changes which generally increased levels of car availability. In absolute terms however the differences were fairly small – about 31 and 75 miles a year respectively.
- 3.3.4 The situation since 2004-06 is very different. Here the actual decline in travel and car driving is much greater but the effect of changes in car availability is smaller. (In part this is because of the much smaller change in car availability itself during this period). During this time the effect of car availability changes has been to reduce travel and car mileage by a little *more* than would otherwise have occurred (by 23 and 40 miles a year respectively). Overall however it can be concluded that, especially during the most recent period, the observed trends in travel and car mileage closely reflect changes which have occurred in the travel behaviour of individuals defined in terms of their car availability and not in car availability itself.

4. Travel by Age and Gender

4.1 Introduction

- 4.1.1 Age and gender are important dimensions for studying travel trends because each group tends to have distinctive characteristics as far as activities, hence trip making, is concerned. They also have distinctive traits in respect of car availability. Together these influence travel distance and mode use.
- 4.1.2 In this chapter the population is divided into four groups by age (0-16, 17-34, 35-59 and 60+) with the adult groups further divided by gender. The overall trends in travel and car driving between these groups are compared first (section 4.2) followed by licence holding and car availability (section 4.3). Changes in each group are then examined in more detail with respect to travel by purpose, car availability and mode (sections 4.4 to 4.10).

4.2 Overall trends in travel by age and gender

- 4.2.1 Figures 4.1 and 4.2 illustrate how the aggregate trends in per capita travel and car driving reported previously are the product of major differences between the age/gender groups. Whereas the aggregate trends shown for 'All persons' and 'All adults' are of limited decline there are examples of both major increases and decreases amongst the individual groups.

Figure 4.1 Miles per person per year all modes by age and gender 1996-98 to 2012-14

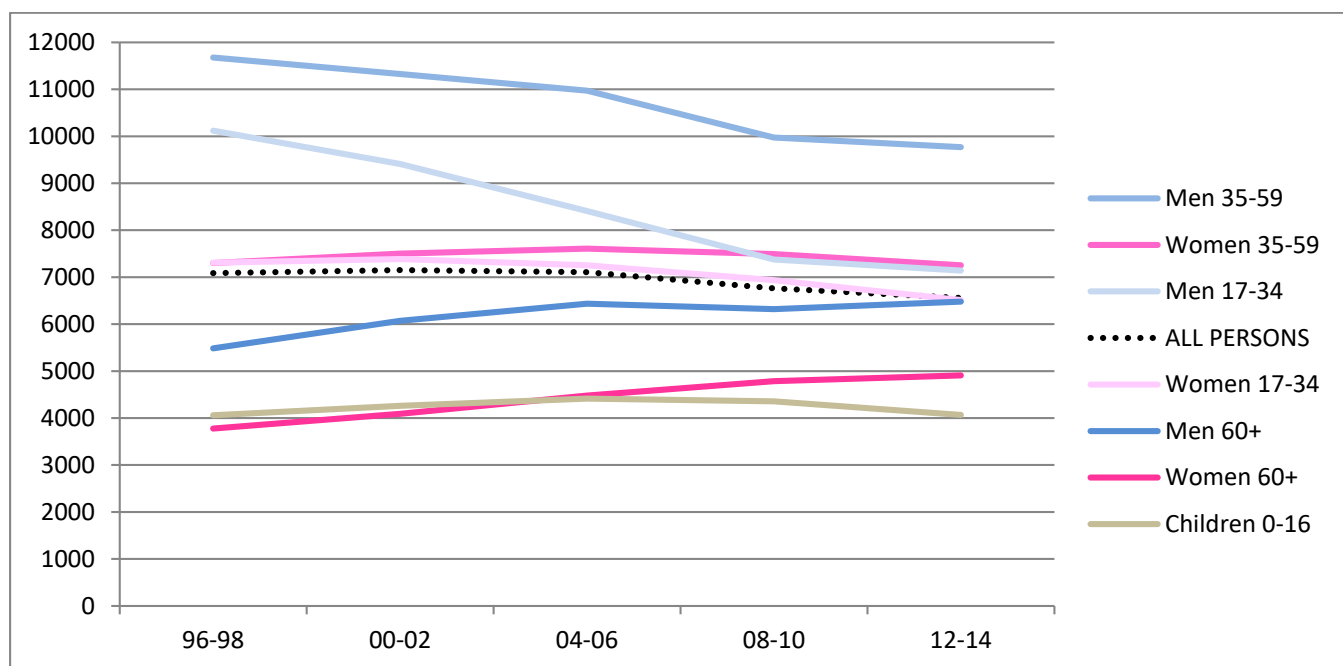
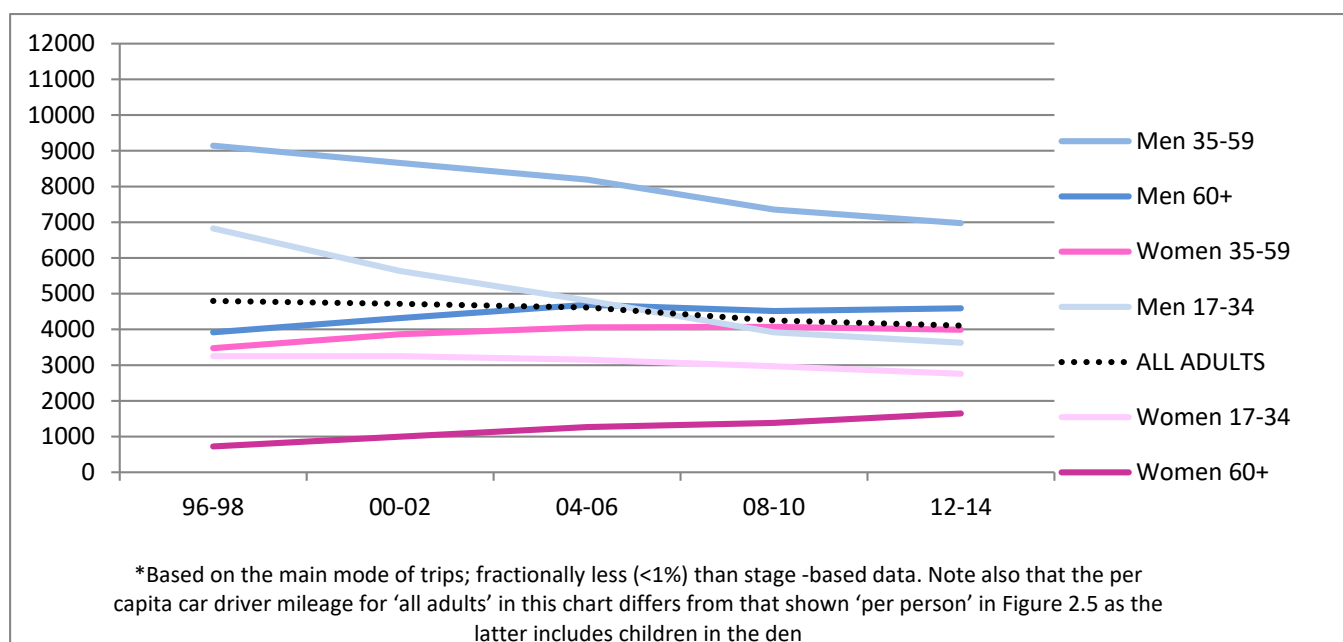
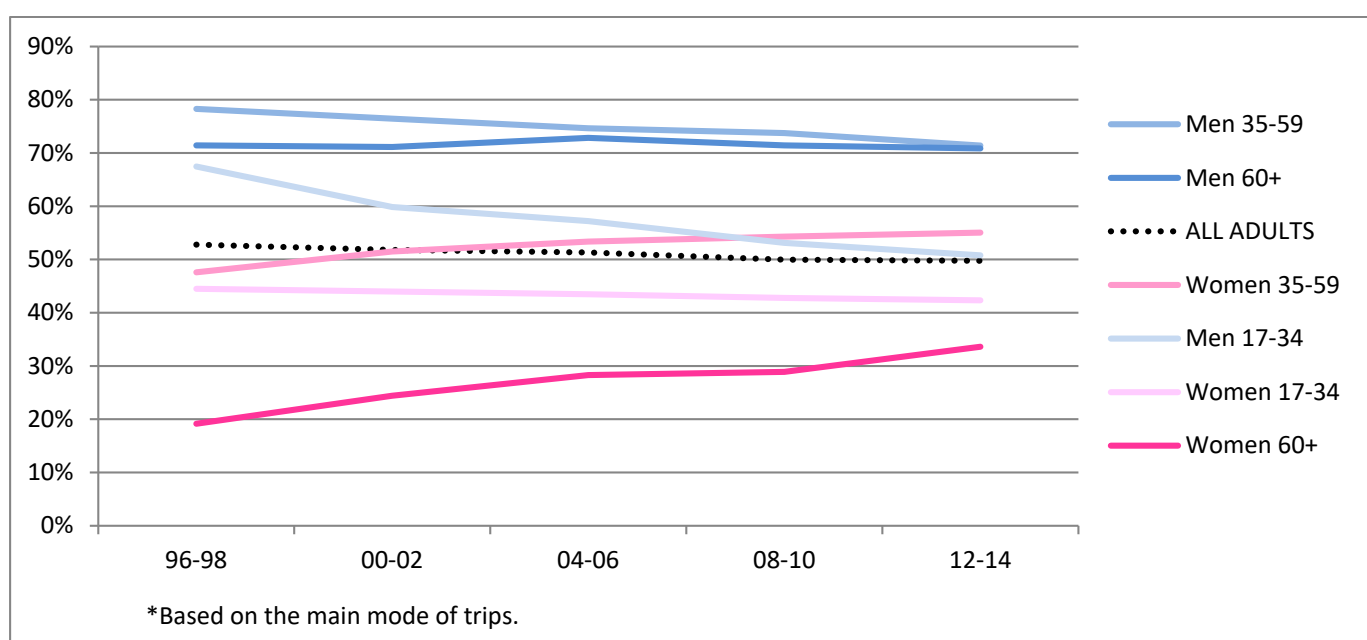


Figure 4.2 Car driver miles per person per year* by age and gender 1996-98 to 2012-14



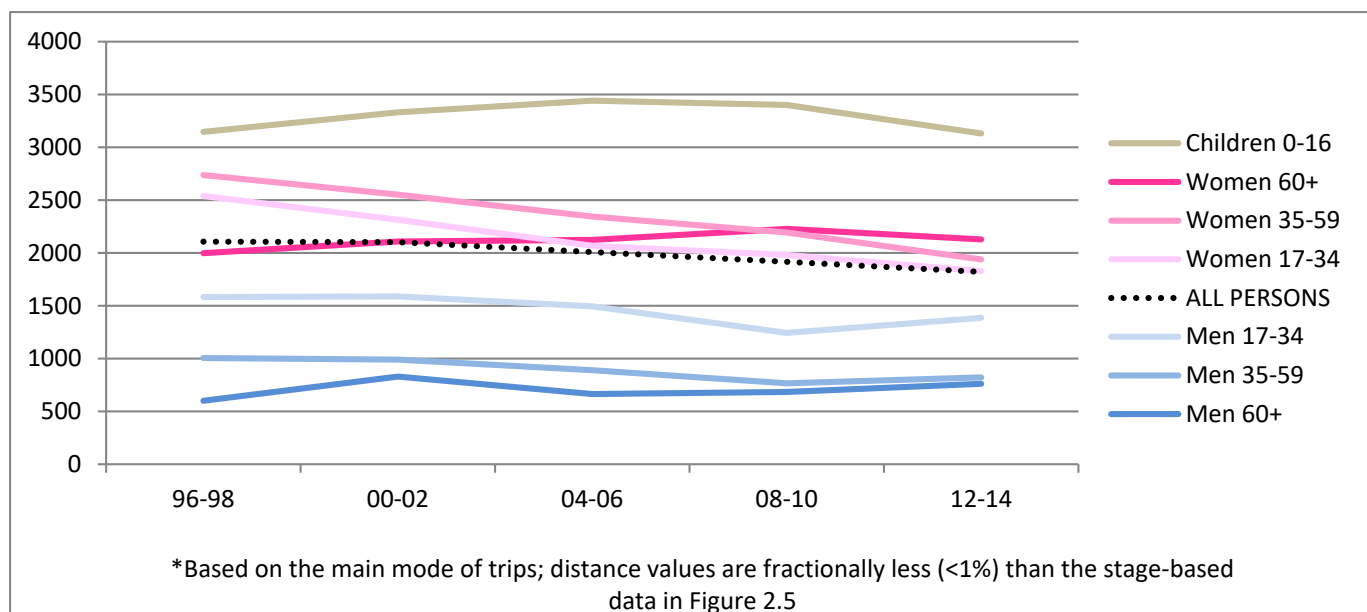
4.2.2 Travel and driving have increased steadily amongst both men and women over 60. This is largely explained by an age cohort effect over time, which is described in more detail in Annex C. However although the driver mode share by distance amongst women of this age has increased by three-quarters between 1996-98 and 2012-14 it remains less than half that of men (34% compared with 71% – see Figure 4.3). On the other hand men under 60, and particularly men under 35, have experienced large falls – more so in driving than in travel generally. As a result their driver mode share has fallen; from 78% to 71% amongst the over 35s and, even more dramatically, from 67% to 51% amongst the under 35s. Women under 60 show a more stable pattern although with total travel falling a little in more recent years. Driver mode share has increased amongst women aged over 35 (from 48% to 55%) but fallen amongst those under 35 (45% to 42%).

Figure 4.3 Car driver share of travel distance* by age and gender 1996-98 to 2012-14



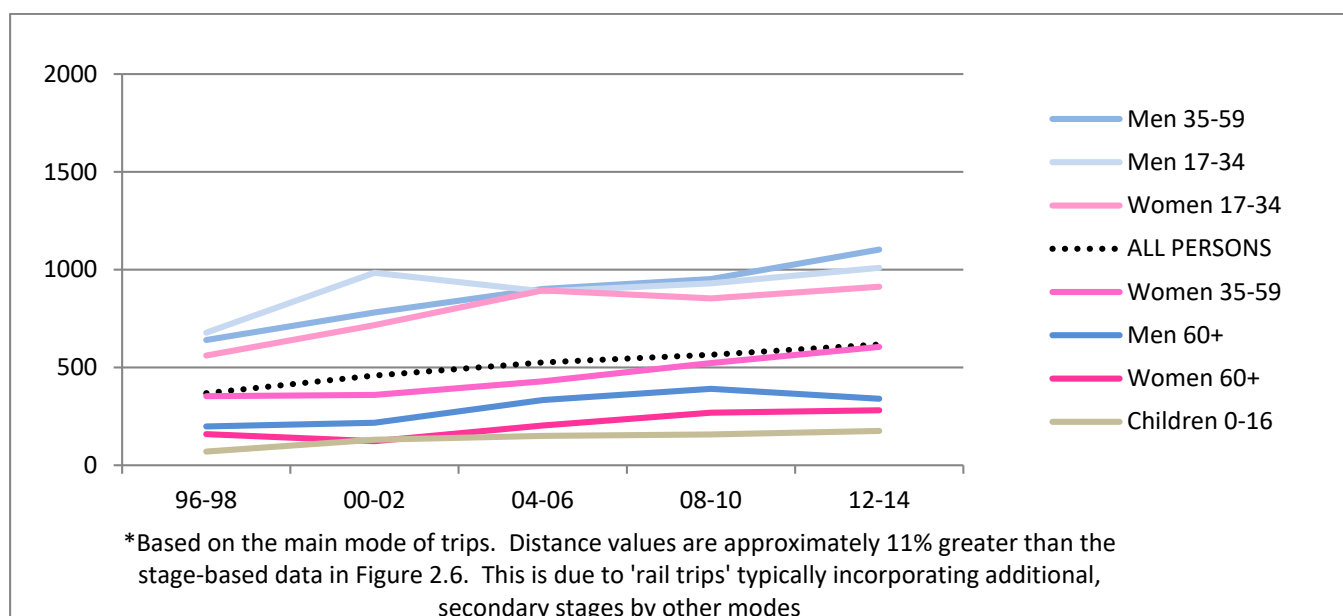
4.2.3 Car passenger travel also shows differing trends between age/gender groups (Figure 4.4). In absolute terms it is highest amongst children whose use appears to have peaked in 2004-06. Otherwise it is higher amongst women than men – the more so with older age groups. The greatest change has occurred amongst women aged 35-59 whose travel distance as car passengers has fallen by a quarter since 1996-98 and currently represents a mode share of 27%.

Figure 4.4 Car passenger miles per person per year* by age and gender 1996-98 to 2012-14



4.2.4 Rail is distinctive in that its substantial overall growth in proportionate terms is reflected in all age/gender groups (Figure 4.5). In terms of both distance and mode share rail use is greatest amongst adults of working age, although less so for women aged over 35. Younger men and women have very similar characteristics, travelling by rail for an average of almost 1,000 miles a year with a distance mode share of 14%. However the growth in rail use has been proportionately greater amongst the over 35s, rising by an average of 72% since 1996-98 compared with 56% amongst the under 35s.

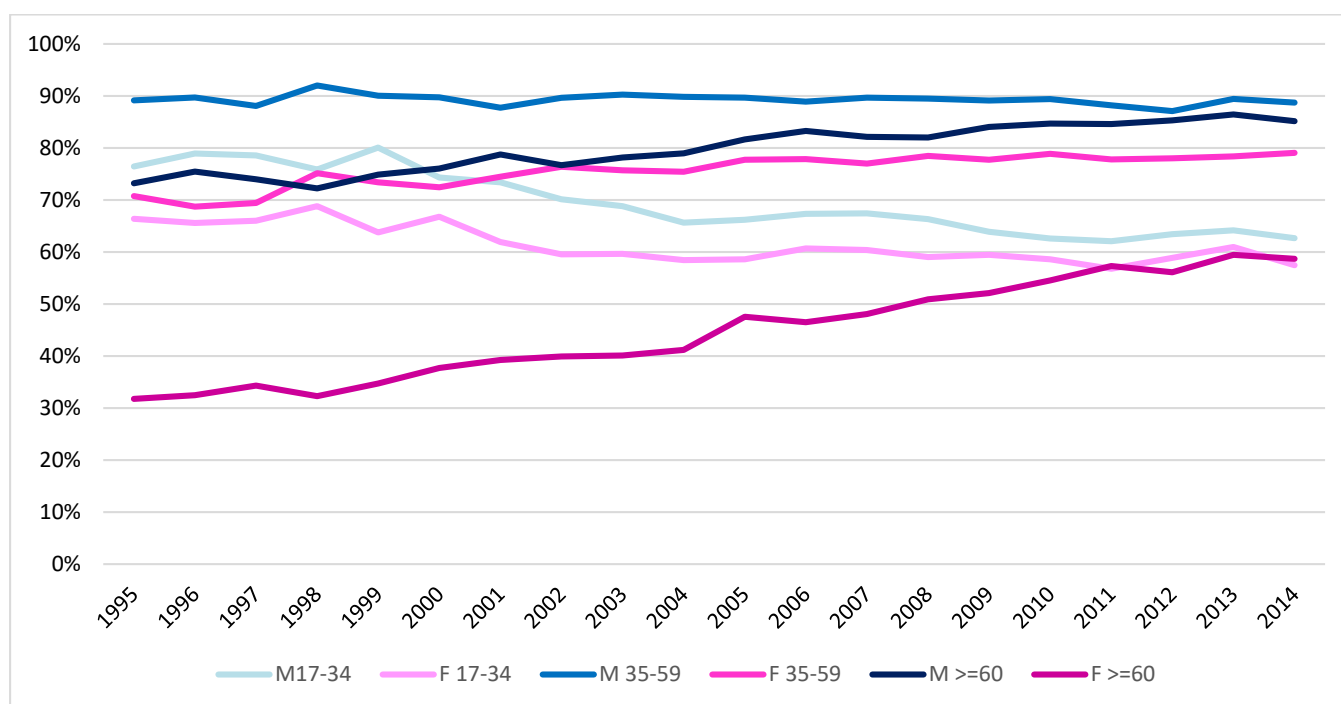
Figure 4.5 Rail miles per person per year* by age and gender 1996-98 to 2012-14



4.3 Overall trends in licence holding and car availability by age and gender

4.3.1 Throughout the adult age range licence holding is more common amongst men than women although the difference is narrowing between successive generations (Figure 4.6).

Figure 4.6 Proportion of adults 17+ with a driving licence by age and gender, 1995-2014



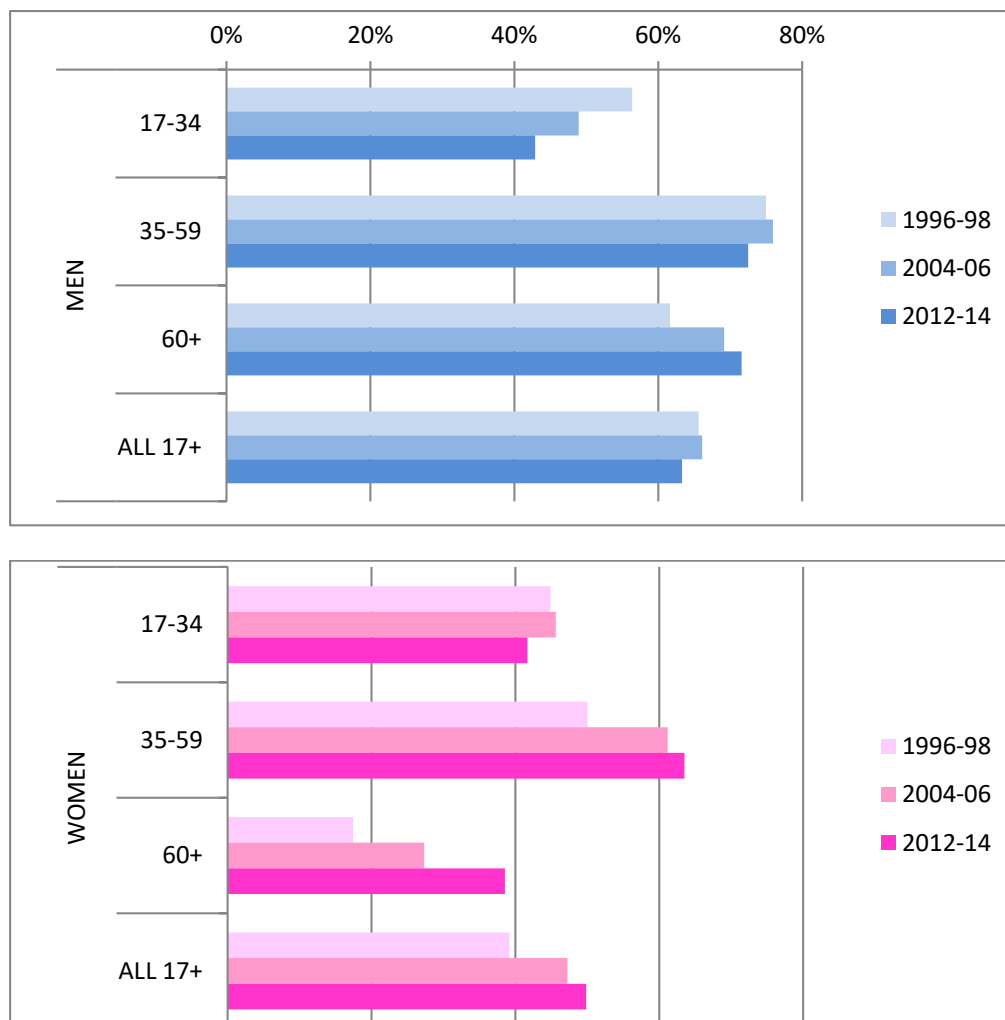
4.3.2 In the middle age group licence holding is stable amongst men at an implied ‘saturation’ level of around 90%. Amongst women in this group the rate has been rising slowly over the last 20 years and is now within 10 points of men.

4.3.3 Amongst the older age group licence holding has been increasing more rapidly in both sexes due primarily to the ‘cohort ‘ effect of people who have acquired licences when younger moving into this group (see Annex C). Licence holding amongst older men has now reached the same level as those a generation younger.

4.3.4 As highlighted in the original OTM report younger adults have not followed the pattern of their predecessors in terms of licence acquisition. Licence holding amongst men and women aged under 35 *fell* by about 10 points and 5 points respectively between 1995 and 2005 since when it has remained broadly stable at around 65% and 60% respectively.

4.3.5 Changes in licence holding feeds through into changes in car availability although this is also affected by household composition and car ownership. Figure 4.7 shows the proportion of each age/gender group having sole or main use of a car in 1996-98, 2004-06 and 2012-14.

Figure 4.7 Main drivers by age (17+) and gender 1996-98, 2004-06 and 2012-14

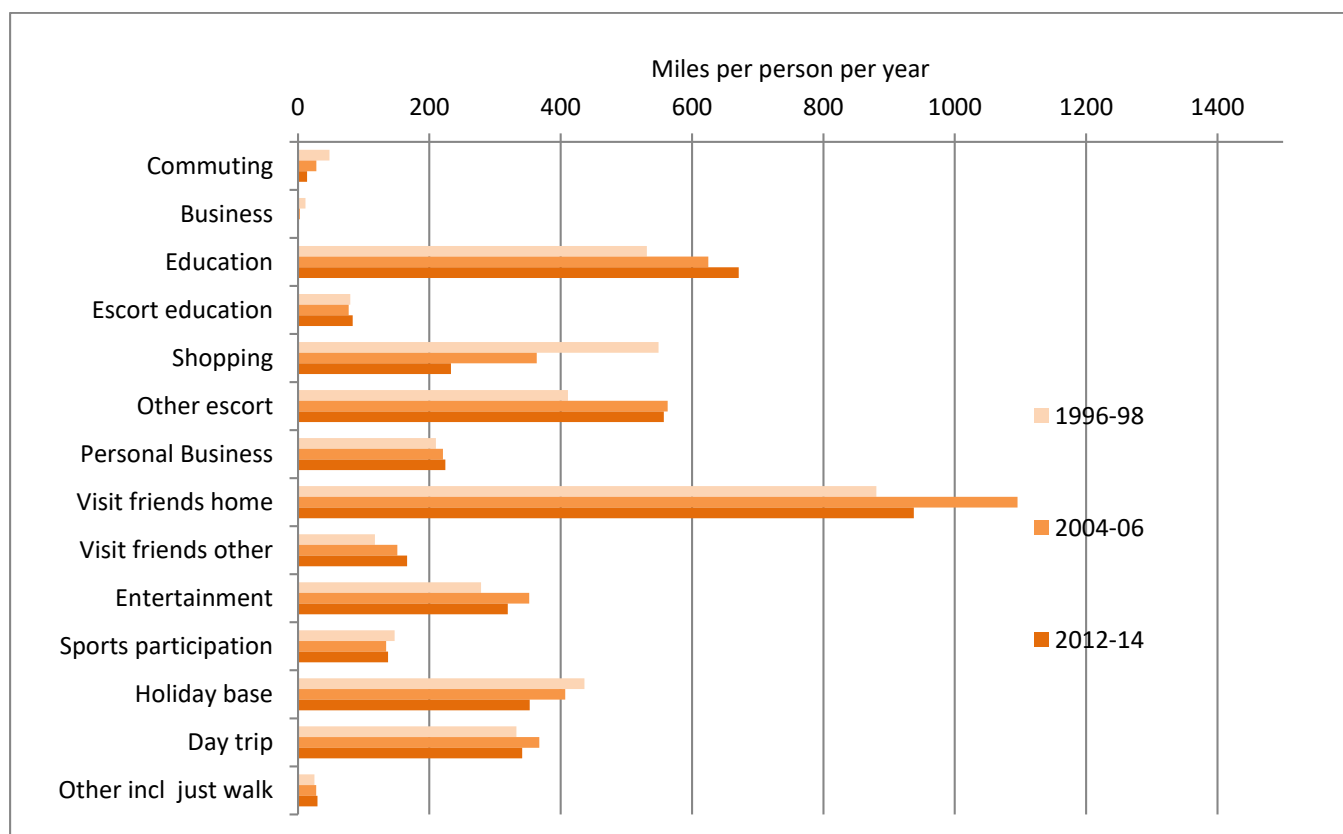


- 4.3.6 Amongst women the proportion has increased by a quarter over the two periods to 50% overall. However the change is very skewed by age. Amongst women over 60 'main driver' access has more than doubled whilst amongst women under 35 it has fallen by 4 points during the same time. Currently main driver access is close to 40% amongst both groups.
- 4.3.7 Main driver status remains more common amongst men as a whole (at 63%). Amongst those aged over 60 it has increased by 10 points since 1996-98 to 72% and there continues to be a very large difference (33 points) between them and women of the same age. However reductions in access by those aged under 60 has resulted in a 3 point drop amongst men overall. Those aged 17-34 experienced a particularly sharp fall (of 15 points) and in 2012-14 had the same, relatively low level of access as their female peers. Because of the links between car availability and car use the exact balance of these changes in availability between age and gender groups is of fundamental importance in influencing the overall trend in per capita car mileage (see Figure 4.2 previously).

4.4 Travel, car availability and mode share: Children 0-16

- 4.4.1 Children are considered here as a single group although in practice there will be considerable differences between the individual ages according to school or pre-school attendance and, amongst older children, their ability and opportunity to travel independently.
- 4.4.2 On average children travelled 4,070 miles a year in 2012-2014 (78 miles a week). 31% of their trips were for education purposes, 16% for other escort and 13% for visiting friends and relatives at home. ('Other escort' in this context is likely to mean passively accompanying trips made to fulfil the purposes of other family members rather than supervising or otherwise facilitating the trips of others). However education trips are relatively short (2.7 miles on average) so that in terms of distance they only comprise 16% of children's travel whilst visiting friends and relatives at home comprises 23% (Figure 4.8).

Figure 4.8 Children 0-16 Travel by trip purpose 1996-98, 2004-06 and 2012-14



- 4.4.3 The overall volume of children's travel was the same in 2012-14 as in 1996-98 although it had risen to, and subsequently fallen back from, a somewhat higher level in the intervening period. Within this total however there was a general trend towards fewer but longer trips (Table 4.1).

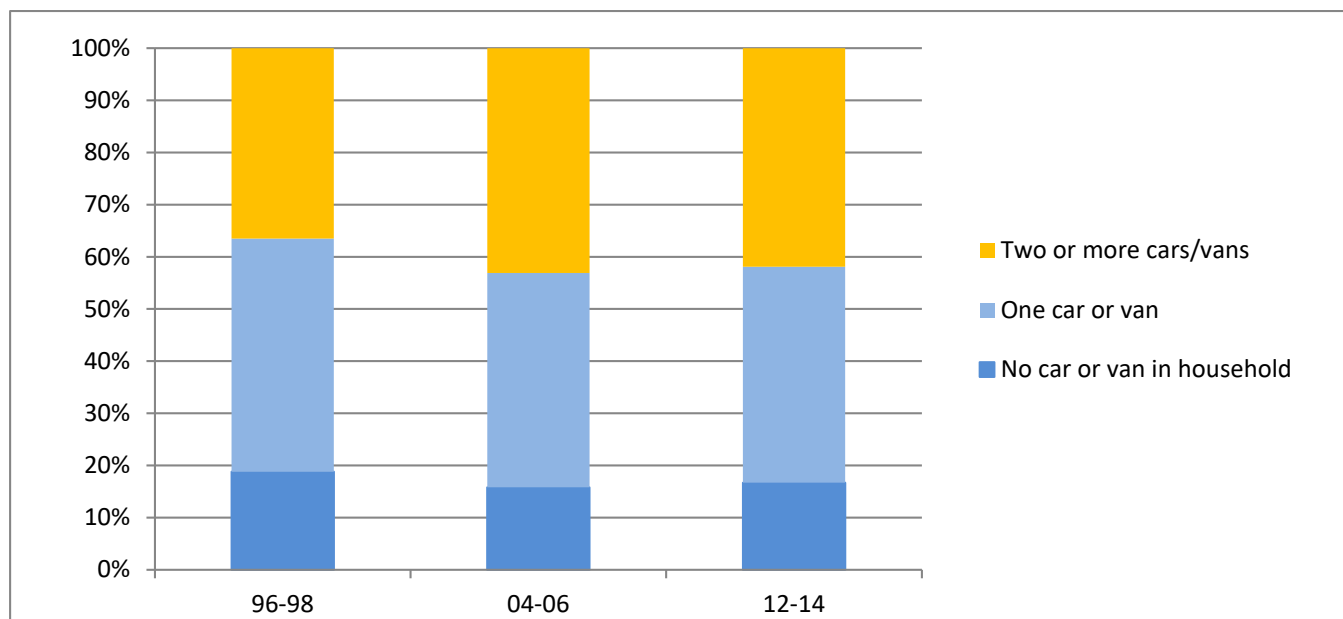
Table 4.1 CHILDREN 0-16 Tripmaking by trip purpose 2012-14 and change from 1996-98

	% making trips*		trips per year per tripmaker*		miles per trip		miles per person per year**	
	2012-14	Change from 96/98	2012-14	Change from 96/98	2012-14	Change From 96/98	2012-14	Change From 96/98
Commute	1.4%	-72%	250	-22%	3.9	32%	14	-71%
Business^								
Education	53.2%	3%	472	-6%	2.7	30%	671	26%
Escort education	10.0%	-10%	452	-8%	1.9	27%	83	4%
Shopping	25.7%	-50%	200	-25%	4.5	11%	233	-58%
Other escort	47.0%	37%	278	-11%	4.3	10%	557	36%
Personal Business	29.2%	-3%	226	-4%	3.4	15%	224	7%
Visit friends home	50.1%	-9%	229	-20%	8.2	45%	938	6%
Visit friends other	20.7%	35%	143	-4%	5.6	8%	166	42%
Entertainment	31.5%	28%	174	3%	5.8	-13%	319	15%
Sports participation	16.9%	-11%	155	-10%	5.2	17%	137	-7%
Holiday base	5.6%	0%	138	-13%	45.5	-10%	353	-19%
Day trip	19.8%	38%	143	4%	12.1	-29%	341	3%
Other inc just walk	11.9%	49%	273	-7%	0.9	-16%	30	18%
ALL					4.8	13%	4067	0%

*within NTS diary week ** average of all children 0-16 ^Figures not shown because of small number of respondents

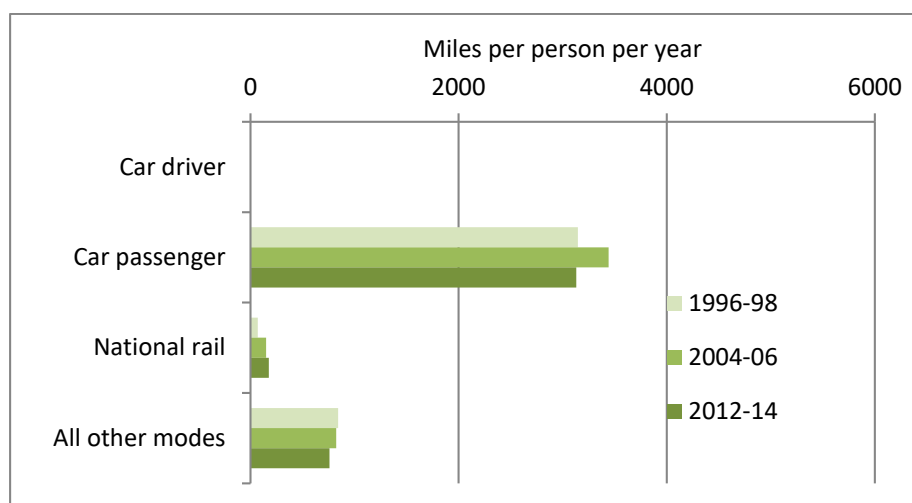
- 4.4.4 The most significant increases in individual purposes were in other escort trips (due mainly to an increased proportion of children making them) and in education trips (due to longer average trip length). The per capita distance travelled for these purposes was up by one third and one quarter respectively. The most significant reduction in travel mileage was for shopping (down by more than a half).
- 4.4.5 'Car availability' is an attribute that needs to be measured differently for children since it does not refer to licence holding and access to a car to drive but primarily to the presence of vehicles in their household in which they can travel as passengers. Hence availability is reported here simply in terms of the number of cars and vans within a child's household (Figure 4.9).

Figure 4.9 Children 0-16 Number of cars or vans in household, 1996-98, 2004-06 and 2012-14



- 4.4.6 In 2012-14, 1 in 6 children lived in a non car-owning household and rather more than 2 in 5 in both 1 and 2+ car owning households. The proportion living in 2+ households increased by six points between 1996-98 and 2004-06 but has fallen back a little since.
- 4.4.7 In 2012-14 the distance travelled by children living in non car-owning households averaged 2,000 miles a year, up by a fifth since 1996-98. This compares with 3,800 and 5,150 miles a year for children living in 1 and 2+ car households although these amounts are about 5% lower than previously. Peak travel in all cases occurred in the early 2000's.
- 4.4.8 In 2012-14, 77% of children's travel by distance was made as car passengers. This represents no net change since 1996-98 (Figure 4.10). Of the other modes National Rail and bus use in London made large proportionate gains (mainly due to an increased share of children using them) but bus use outside London declined (Table 4.2). Walking and cycling also declined despite increases in average trip length.

Figure 4.10 Children 0-16 Travel by main mode of trips 1996-98, 2004-06 and 2012-14



(continued on next page)

Children 0-16 Travel by main mode of trips 1996-98, 2004-06 and 2012-14 (continued from previous page)

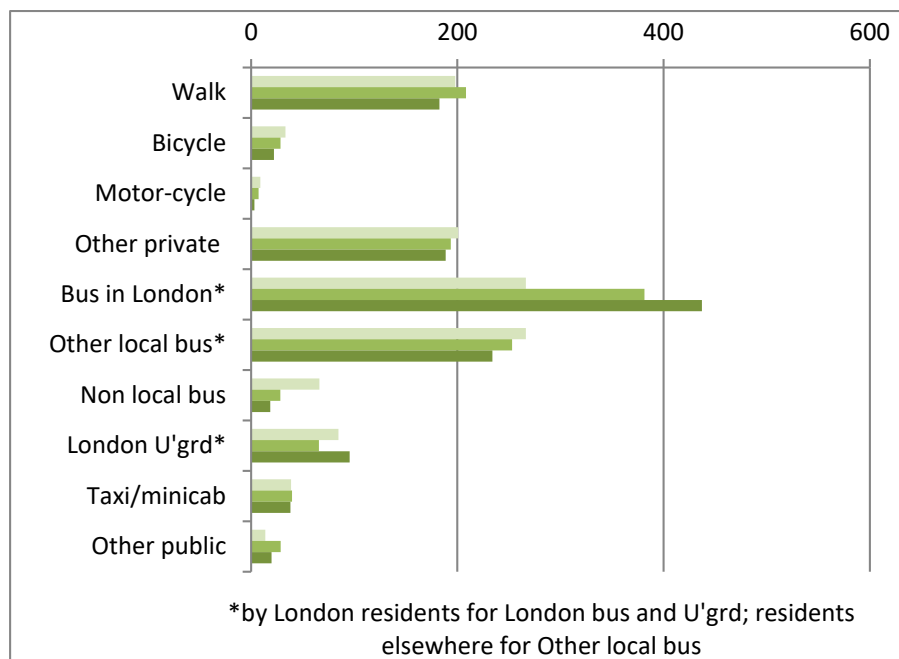


Table 4.2 Children 0-16 Tripmaking by main mode 2012-14 and change from 1996-98

	% making trips*		trips per year per tripmaker*		miles per trip		miles per person per year**	
	2012-14	Change from 1996-98	2012-14	Change from 1996-98	2012-14	Change from 1996-98	2012-14	Change from 1996-98
Walk	49%	-7%	567	-26%	0.7	35%	183	-8%
Bicycle	5%	-31%	256	-21%	1.7	21%	22	-33%
Car/van driver^								
Car/van passenger	82%	2%	596	-13%	6.4	13%	3132	0%
Motorcycle^								
Other private	5%	2%	272	-28%	13.3	30%	189	-6%
Bus in London***	42%	53%	310	2%	3.3	7%	437	64%
Other local bus***	18%	-26%	290	2%	4.9	17%	234	-12%
Non local bus^								
London Ugrd***	8%	21%	154	-34%	7.8	33%	96	13%
Surface rail	5%	80%	164	-9%	21.8	54%	176	152%
Taxi/minicab	5%	-20%	151	9%	4.7	13%	38	-2%
Other public	49%	-7%	567	-26%	0.7	35%	183	-8%

*within NTS diary week ** divided by all children 0-16 except where note *** applies

*** by London residents for London bus and Underground; by residents elsewhere for other local bus

^ Figures not shown because of small number of respondents

4.5 Travel, car availability and mode share: Men 17-34

4.5.1 In 2012-14 younger men aged 17-34 travelled 7,140 miles a year on average (137 miles a week), down almost 30% since 1996-98. Half of this is attributable to less commuting and business travel (Figure 4.11) due mainly to a smaller proportion of the population engaging in these types of trip (Table 4.3). Visiting friends at home, shopping and personal business are other significant purposes that experienced falls of a third or more in travel volume. However in the case of personal business and visiting friends lower trip rates were offset by rather longer trip lengths in their effect on per capita distance.

Figure 4.11 Men 17-34 Travel by trip purpose 1996-98, 2004-06 and 2012-14

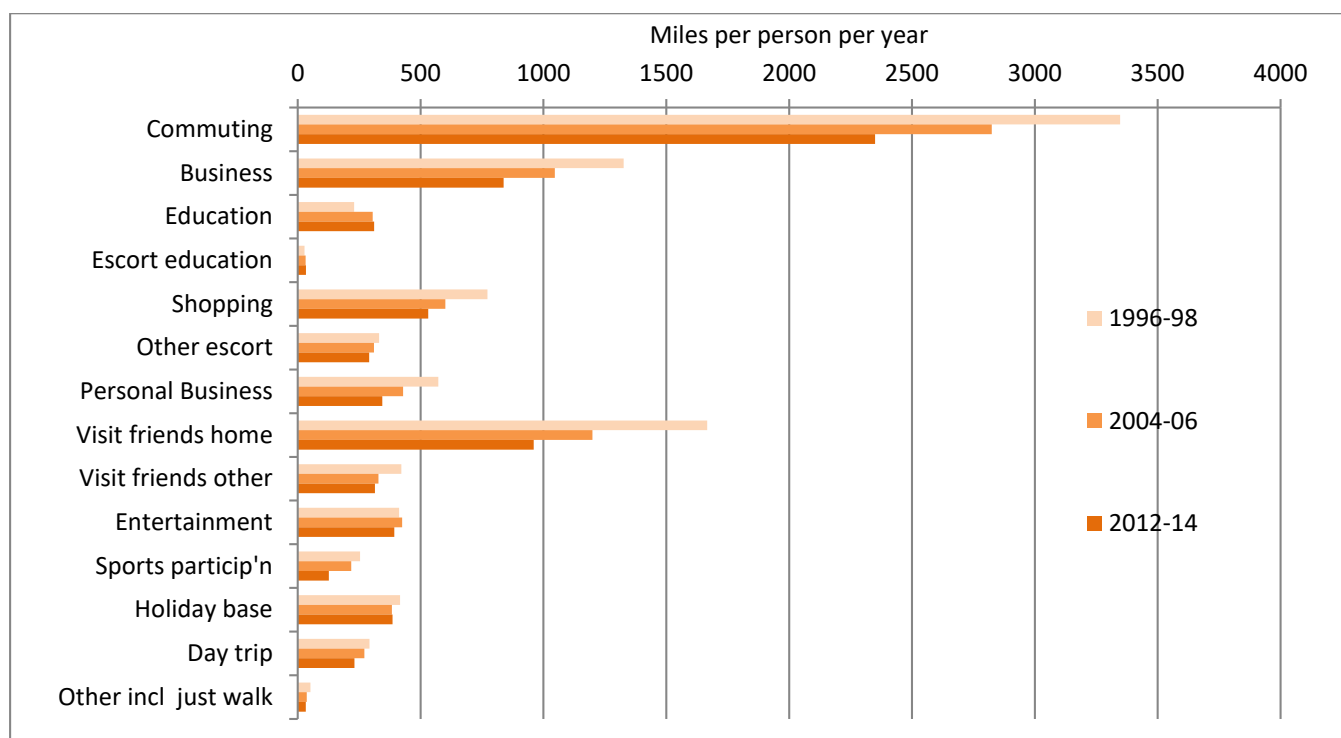


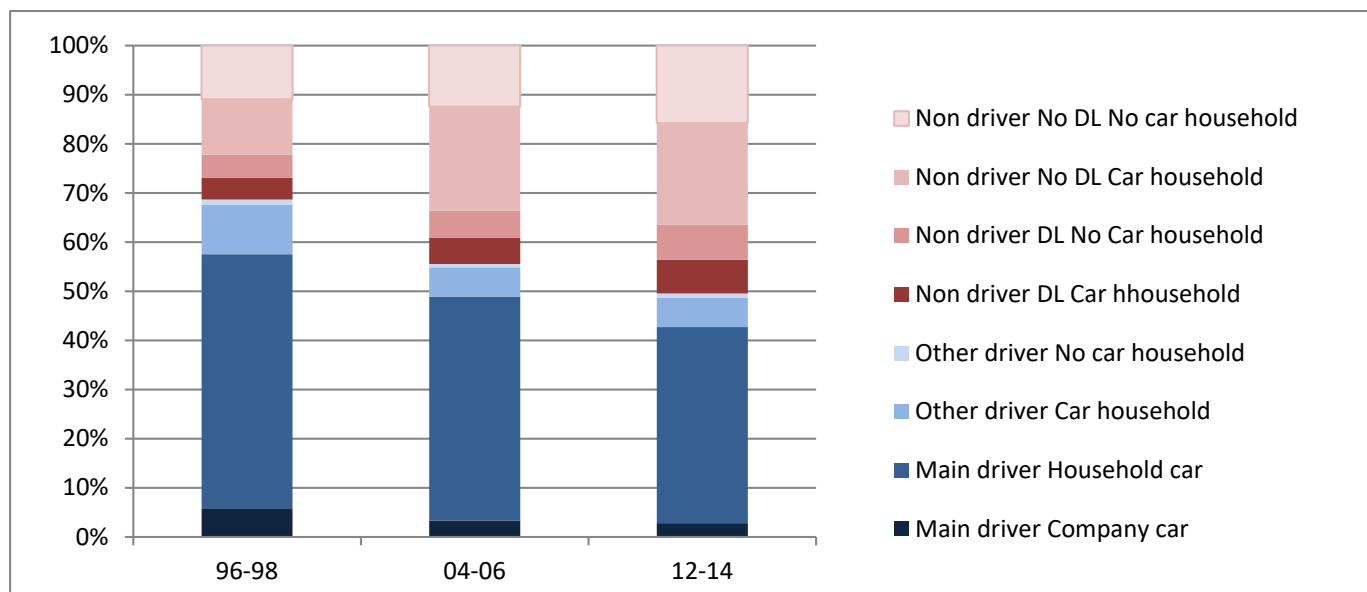
Table 4.3 Men 17-34 Tripmaking by trip purpose 2012-14 and change from 1996-98

	% making trips*		trips per year per tripmaker*		miles per trip		miles per person per year**	
	2012-14	Change from 96/98	2012-14	Change from 96/98	2012-14	Change from 96/98	2012-14	Change from 96/98
Commute	59.3%	-19%	441	-5%	9.0	-9%	2350	-30%
Business	12.3%	-27%	310	-8%	22.1	-5%	838	-37%
Education	13.0%	31%	344	-12%	7.0	9%	311	36%
Escort education	3.8%	10%	434	18%	2.0	-6%	34	23%
Shopping	52.0%	-18%	253	-13%	4.0	-4%	531	-31%
Other escort	17.5%	-29%	236	-1%	7.0	24%	291	-12%
Personal Business	30.0%	-32%	189	-17%	6.0	7%	344	-40%
Visit friends home	42.1%	-28%	208	-30%	11.0	15%	961	-42%
Visit friends other	30.9%	-19%	167	-24%	6.1	21%	314	-26%
Entertainment	25.9%	12%	191	26%	7.9	-32%	393	-5%
Sports participation	10.6%	-40%	158	-15%	7.6	-2%	126	-50%
Holiday base	7.4%	36%	123	-24%	42.3	-13%	386	-7%
Day trip	10.2%	-13%	128	-2%	17.7	-7%	230	-21%
Other inc just walk	8.5%	4%	262	-21%	1.5	-18%	33	-36%
ALL					8.5	-2%	7141	-29%

*within NTS diary week ** average of all men 17-34

- 4.5.2 Reduced participation is a feature of all trip purposes amongst younger men except education, entertainment and holidays. Education and escort education are the only purposes for which they increased travel between 1996-98 and 2012-14 although together these contribute only a very small proportion of the total distance travelled.
- 4.5.3 As highlighted earlier younger men are a group amongst whom there has been a particularly sharp drop in car availability over the last 20 years. Figure 4.12 shows the distribution between all eight categories. The proportion with main driver status fell by over 8 points between 1996-98 and 2004-06 plus a further 6 points thereafter to reach 43% in 2012-14. By that time almost 60% of men under 35 did not drive during their surveyed week.

Figure 4.12 Men 17-34 Drivers and car availability: 1996-98, 2004-06 and 2012-14



4.5.4 This drop in licence holding and car availability is a major factor underlying the very large (47%) reduction in younger men's driver mileage since 1996-98 (Figure 4.13). This reduction incorporates large falls in both the proportion making car driver trips and the frequency of trip-making amongst those who do drive (Table 4.4). By comparison their reduction in car passenger mileage is on a much smaller scale (12%).

Figure 4.13 Men 17-34 Travel by main mode of trips: 1996-98, 2004-06 and 2012-14

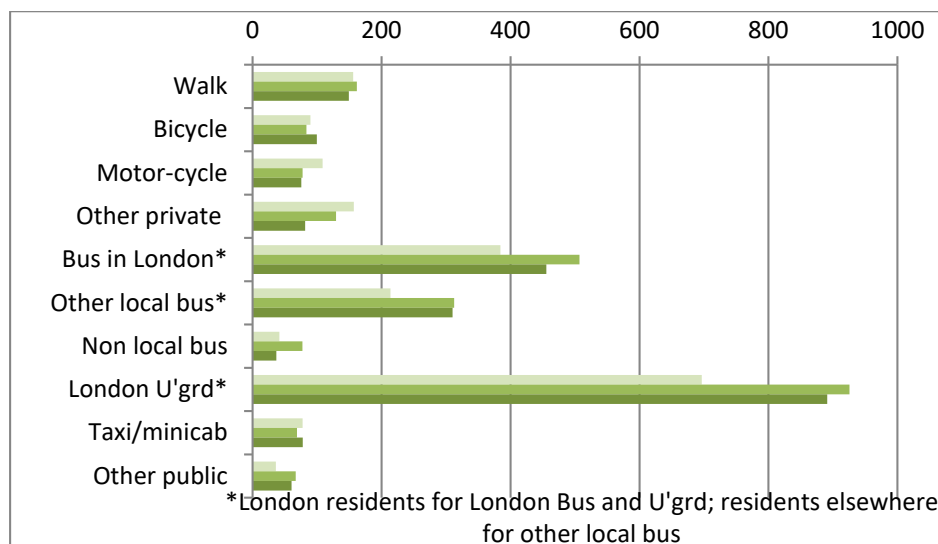
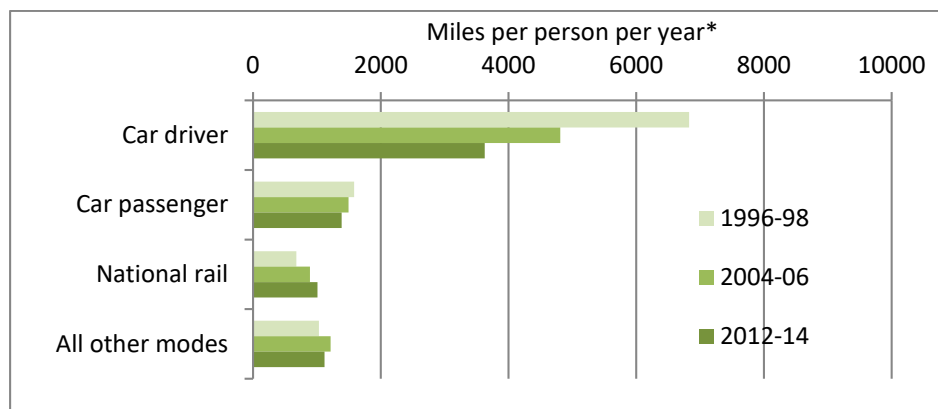


Table 4.4 Men 17-34 Tripmaking by main mode 2012-14 and change from 1996-98

	% making trips*		trips per year per tripmaker*		miles per trip		miles per person per year**	
	2012-14	Change from 1996-98	2012-14	Change from 1996-98	2012-14	Change from 1996-98	2012-14	Change from 1996-98
Walk	37.3%	-6%	488	-20%	0.8	27%	149	-4%
Bicycle	8.7%	-1%	356	1%	3.2	11%	100	11%
Car/van driver	48.0%	-28%	725	-24%	10.4	-3%	3626	-47%
Car/van passenger	44.4%	-7%	279	-3%	11.2	-3%	1386	-12%
Motorcycle	1.8%	-27%	481	4%	8.8	-11%	76	-30%
Other private^								
Bus in London***	38.5%	24%	355	2%	3.4	-5%	456	19%
Other local bus***	18.8%	7%	281	8%	5.9	26%	310	45%
Non local bus^								
London U'grd***	33.9%	20%	258	-25%	10.2	33%	891	28%
Surface rail	16.3%	79%	239	-1%	25.8	-19%	1009	49%
Taxi/minicab	11.5%	-16%	116	2%	5.9	13%	78	0%
Other public^								

*within NTS diary week ** divided by all men 17-34 except where note *** applies

*** by London residents for London bus and Underground; by residents elsewhere for other local bus

^ Figures not shown because of small number of respondents

4.5.5 The increased proportion of younger men using rail in any given week (79%) is similar to the population as a whole but their increase in rail travel is less (49%). This is because their average trip length has fallen more, which may reflect greater use of rail in a city region context.

4.5.6 Apart from rail there is no overall increase in the use of non-car modes amongst younger men, which is perhaps surprising given the scale of their reduction in driving. In particular there is only a relatively small recent increase in cycling.

4.6 Travel, car availability and mode share: Women 17-34

4.6.1 In 2012-14 younger women aged 17-34 travelled 6,510 miles a year on average (125 miles a week), i.e. 91% of their male peers. However their commuting and business travel amounts to little more than half that of younger men (Figure 4.14). This is due to a combination of lower participation, less frequent trip-making and shorter trip lengths, particularly for business trips (Table 4.5). By contrast their travel for shopping and visiting friends and relatives at home is about a third greater, due mainly to higher rates of participation.

Figure 4.14 Women 17-34 Travel by trip purpose: 1996-98, 2004-06 and 2012-14

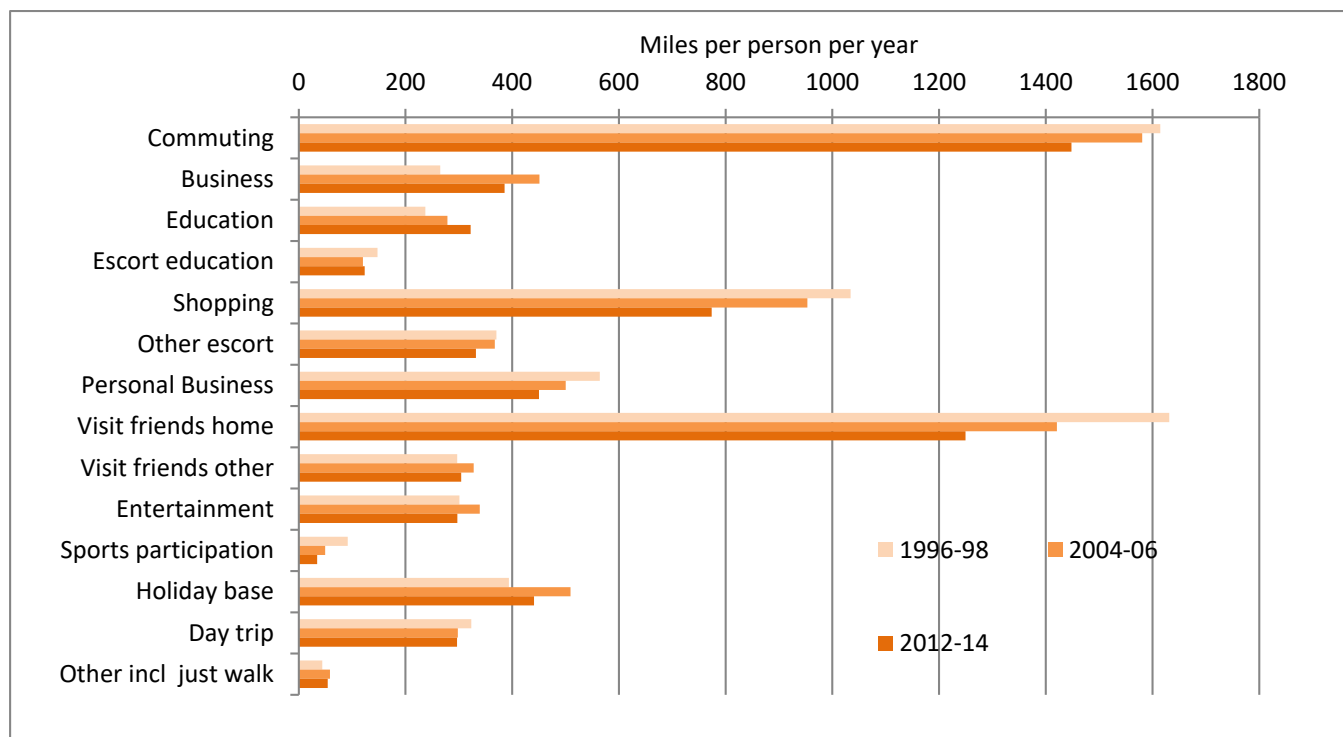


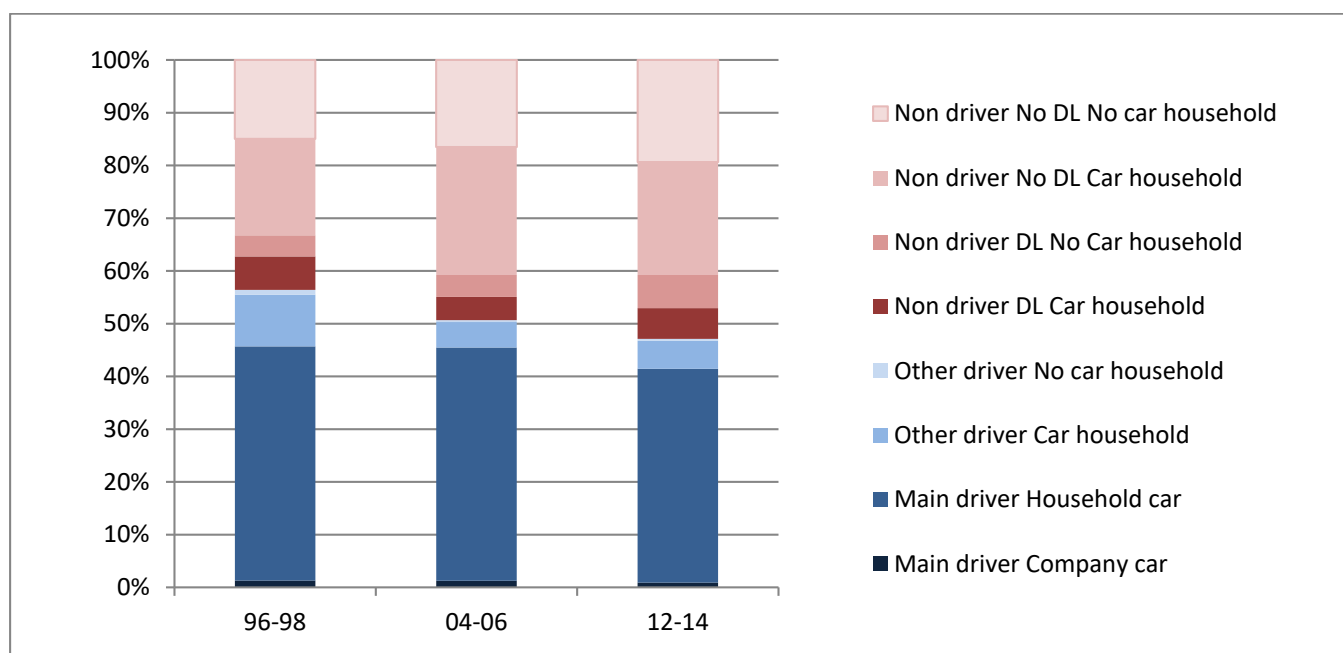
Table 4.5 Women 17-34 Tripmaking by trip purpose 2012-14 and change from 1996-98

	% making trips*		trips per year per tripmaker*		miles per trip		miles per person per year**	
	2012-14	Change from 96/98	2012-14	Change from 96/98	2012-14	Change from 96/98	2012-14	Change from 96/98
Commute	54.6%	-9%	362	-9%	7.3	8%	1448	-10%
Business	13.0%	6%	218	14%	13.8	18%	386	46%
Education	17.2%	7%	267	0%	7.0	28%	322	36%
Escort education	14.7%	-23%	563	-15%	1.5	26%	123	-16%
Shopping	72.1%	-13%	252	-23%	4.3	12%	774	-25%
Other escort	28.0%	-21%	258	-5%	4.6	20%	332	-10%
Personal Business	43.4%	-17%	178	-16%	5.8	15%	450	-20%
Visit friends home	53.9%	-22%	209	-28%	11.1	36%	1250	-23%
Visit friends other	36.5%	-3%	140	-11%	6.0	19%	305	3%
Entertainment	27.8%	6%	148	16%	7.2	-20%	297	-1%
Sports participation	7.5%	-41%	83	-23%	5.6	-16%	35	-62%
Holiday base	10.8%	22%	98	16%	41.8	-22%	441	12%
Day trip	18.1%	18%	122	23%	13.4	-37%	297	-8%
Other inc just walk	14.8%	14%	206	-8%	1.8	12%	54	23%
ALL					6.8	18%	6514	-11%

*within NTS diary week ** average of all women 17-34

- 4.6.2 Since 1996-98, travel by younger women has fallen at only a third of the rate of younger men and – again unlike men – almost all this decline has taken place since 2004-06. Overall their reduction in trip-making is only a little less than men’s but their travel has not fallen to the same extent because of an increase in the average length of their trips.
- 4.6.3 Reduced frequency of trip-making is particularly significant in respect of shopping and visiting friends/relatives at home, these being the purposes for which the greatest reduction in travel volume has occurred. It is also notable that the proportion of women in this age group engaging in escort education trips is down by almost a quarter.
- 4.6.4 Trip purposes experiencing the greatest travel growth amongst younger women have been business and education. This is attributable to a combination of increased participation and longer trip lengths.
- 4.6.5 Car availability has traditionally been lower amongst younger women than men and its decline has been less pronounced over the last 20 years (Figure 4.15). In the period from 1996-98 to 2004-06 the proportion with main driver status remained stable but there were fewer ‘other drivers’. However since 2004-06 the proportion of main drivers has fallen by four points (to 41%). This and the proportion of non-licence holders and other non-drivers are now almost exactly the same as younger men’s.

Figure 4.15 Women 17-34 Drivers and car availability: 1996-98, 2004-06 and 2012-14



- 4.6.6 The overall effect of these changes has been for younger women’s driving mileage to fall by only 15% since 1996-98 (Figure 4.16), i.e. a third of their male peers. (It is now 2,760 miles a year compared with the average of 3,630 for younger men). Car passenger travel has however fallen at a greater rate principally because it has not been bolstered by longer trip lengths (Table 4.6).

Figure 4.16 Women 17-34 Travel by main mode of trips: 1996-98, 2004-06 and 2012-14

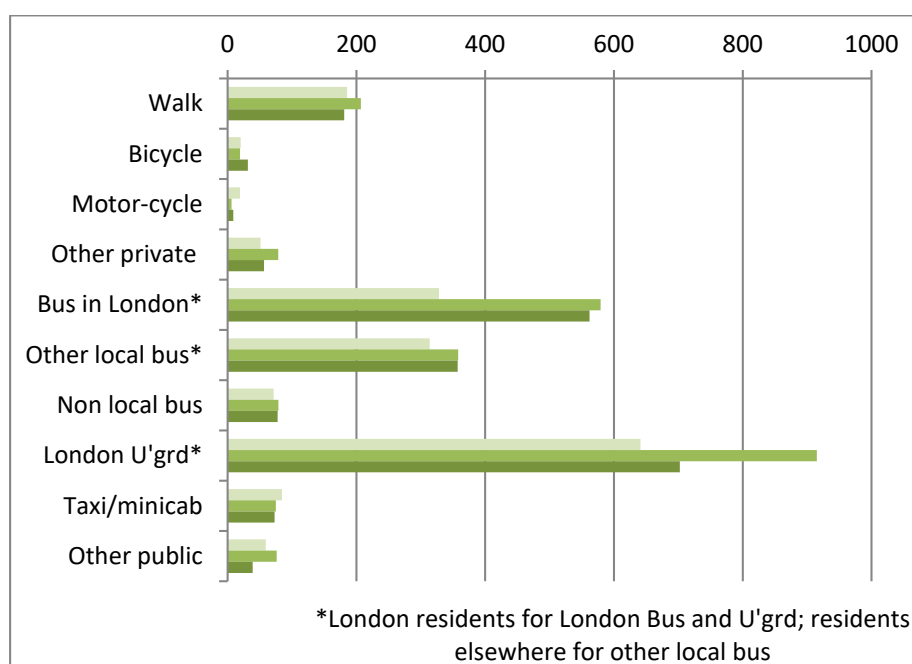
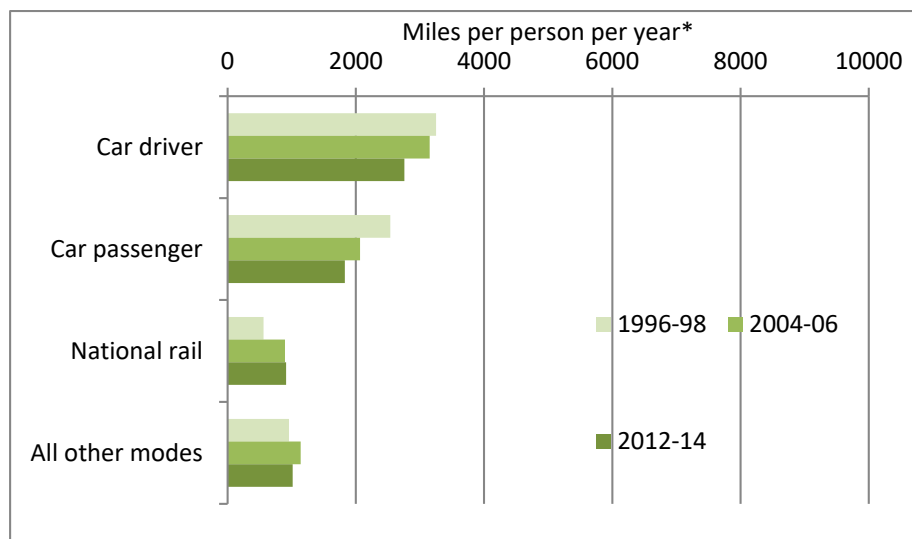


Table 4.6 Women 17-34 Tripmaking by main mode 2012-14 and change from 1996-98

	% making trips*		trips per year per tripmaker*		miles per trip		miles per person per year**	
	2012-14	Change from 1996-98	2012-14	Change from 1996-98	2012-14	Change from 1996-98	2012-14	Change from 1996-98
Walk	43.1%	-7%	553	-26%	0.8	42%	181	-2%
Bicycle	3.5%	-3%	355	28%	2.6	24%	31	55%
Car/van driver	46.5%	-17%	783	-14%	7.6	19%	2757	-15%
Car/van passenger	57.5%	-16%	316	-15%	10.1	1%	1828	-28%
Motor-cycle^								
Other private^								
Bus in London ***	44.9%	43%	313	3%	4.0	15%	562	71%
Other local bus***	24.2%	-8%	304	6%	4.9	16%	357	14%
Non local bus^								
London U'grd***	30.5%	19%	292	-9%	7.8	0%	702	10%
Surface rail	15.9%	91%	212	-5%	27.3	-10%	913	63%
Taxi/minicab	13.9%	-16%	116	-10%	4.5	15%	73	-14%
Other public^								

*within NTS diary week ** divided by all women 17-34 except where note *** applies

*** by London residents for London bus and Underground, by residents elsewhere for other local bus

^ Figures not shown because of small number of respondents

4.6.7 With non-car modes the largest increase amongst younger women has occurred in rail travel, with the proportion travelling in any given week almost doubling to 16% since 1996-98. During the same time the proportion of younger women residents using buses in London has increased from 31% to 45%.

4.7 Travel, car availability and mode share: Men 35-59

4.7.1 In 2012-14 men in the middle age group of 35-59 travelled 9,770 miles a year on average (187 miles a week). Although this represents a reduction of 16% since 1996-98 as a proportion it is little more than half that of men under 35. Most of the reduction has occurred since 2004-06.

4.7.2 A distinctive feature of this group is that half of all their travel is accounted for solely by commuting and business trips (Figure 4.17). For these and other main purposes the reduction in travel is generally attributable to less trip-making (both the proportion participating and the frequency of participation) offset by longer trip lengths (Table 4.7). In volume terms the reduction in business travel is most significant, followed by commuting, shopping and visiting friends or relatives at home. For this group shopping is conspicuous in *not* showing longer trip lengths.

Figure 4.17 Men 35-59 Travel by trip purpose 1996-98, 2004-06 and 2012-14

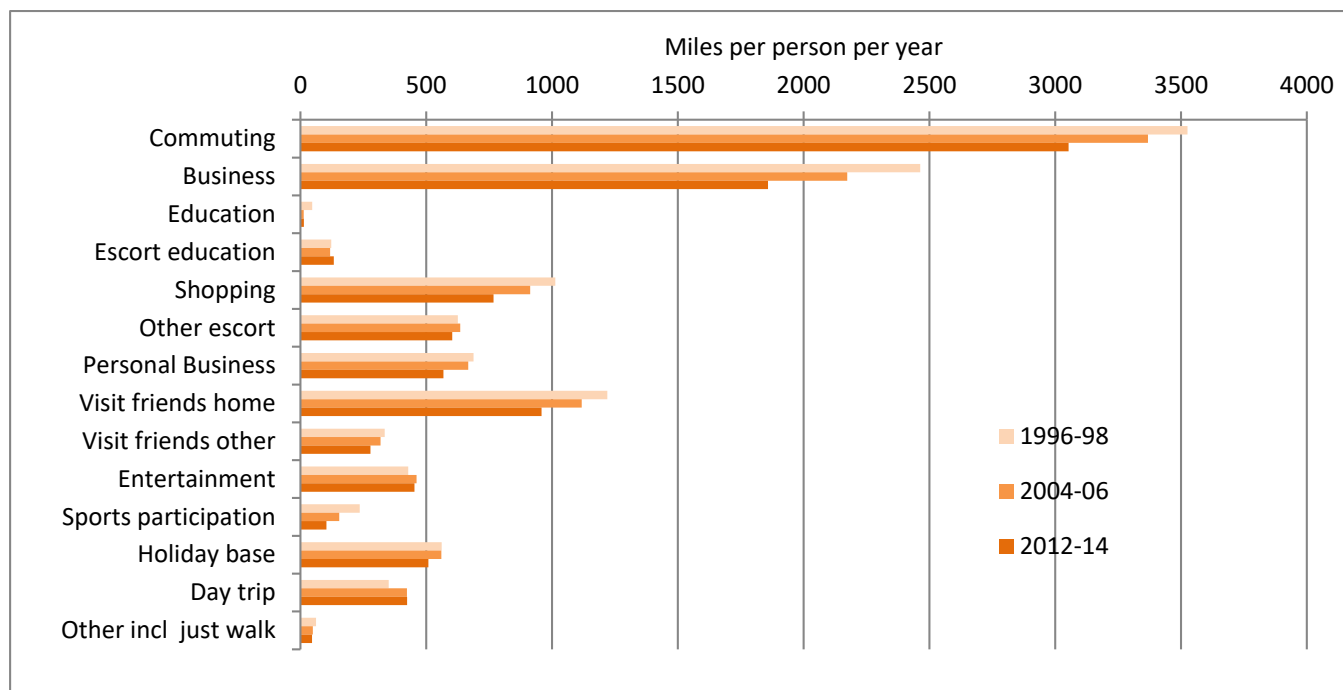


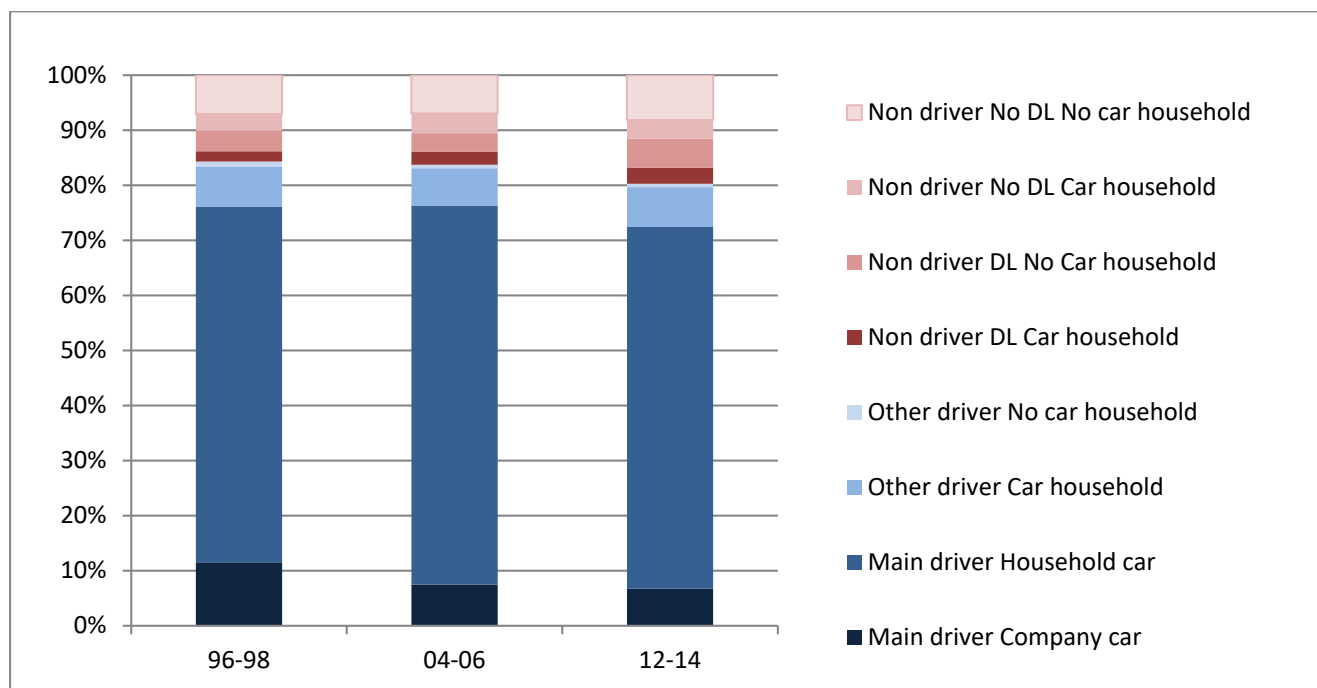
Table 4.7 Men 35-59 Tripmaking by trip purpose 2012-14 and change from 1996-98

	% making trips*		trips per year per tripmaker*		miles per trip		miles per person per year**	
	2012-14	Change from 96/98	2012-14	Change from 96/98	2012-14	Change from 96/98	2012-14	Change from 96/98
Commute	61.4%	-13%	430	-9%	11.6	9%	3053	-13%
Business	22.0%	-20%	320	-26%	26.4	27%	1858	-25%
Education^							14	
Escort education	11.0%	26%	398	18%	3.0	-28%	133	8%
Shopping	65.4%	-10%	275	-18%	4.3	2%	767	-24%
Other escort	32.0%	-8%	291	0%	6.5	6%	603	-4%
Personal Business	42.5%	-15%	210	-16%	6.4	16%	569	-17%
Visit friends home	37.4%	-22%	187	-21%	13.7	28%	958	-21%
Visit friends other	26.6%	-10%	161	-25%	6.5	24%	278	-17%
Entertainment	25.3%	16%	178	0%	10.1	-9%	453	6%
Sports participation	8.5%	-44%	151	-20%	8.0	-2%	103	-56%
Holiday base	8.1%	19%	136	-25%	46.5	0%	508	-9%
Day trip	17.8%	30%	165	18%	14.4	-22%	424	21%
Other inc just walk	12.7%	-6%	349	-15%	1.0	-8%	46	-25%
ALL					9.8	8%	9769	-16%

*within NTS diary week ** average of all men 35-59 ^Figures not shown because of small number of respondents

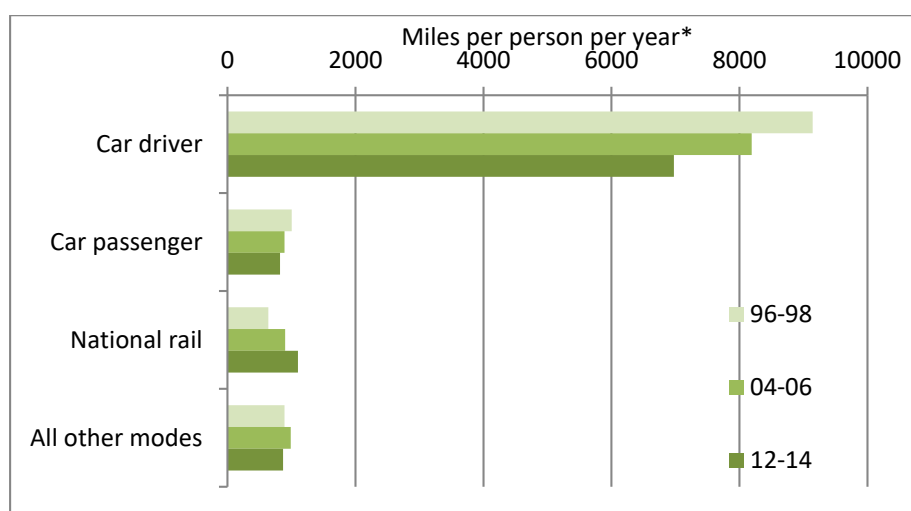
4.7.3 Traditionally middle-aged men have been the group with the highest car availability. Between 1996-98 and 2004-06 the proportion with sole or main use of a car remained steady at 76% notwithstanding a fall of 4 points (to 7.5%) in those with use of a company car (Figure 4.18). Since 2004-06 there has been a further small fall in those with company cars but the overall proportion with main driver status has *fallen* by 4 points. In 2012-14 12% of men in this age group did not have a driving licence whilst a further 8 % had a licence but did not drive within their surveyed week.

Figure 4.18 Men 35-59 Drivers and car availability: 1996-98, 2004-06 and 2012-14



4.7.4 This more recent reduction in car availability contributes to the overall reduction of 24% in car driver distance amongst this group since 1996-98 (Figure 4.19). However, as shown in Table 4.8 the principal source of the decline lies in less frequent use amongst those who do drive. Car passenger distance has also fallen although this is a relatively minor mode amongst this group.

Figure 4.19 Men 35-59 Travel by main mode of trips: 1996-98, 2004-06 and 2012-14



(continued on next page)

Men 35-59 Travel by main mode of trips: 1996-98, 2004-06 and 2012-14 (continued from previous page)

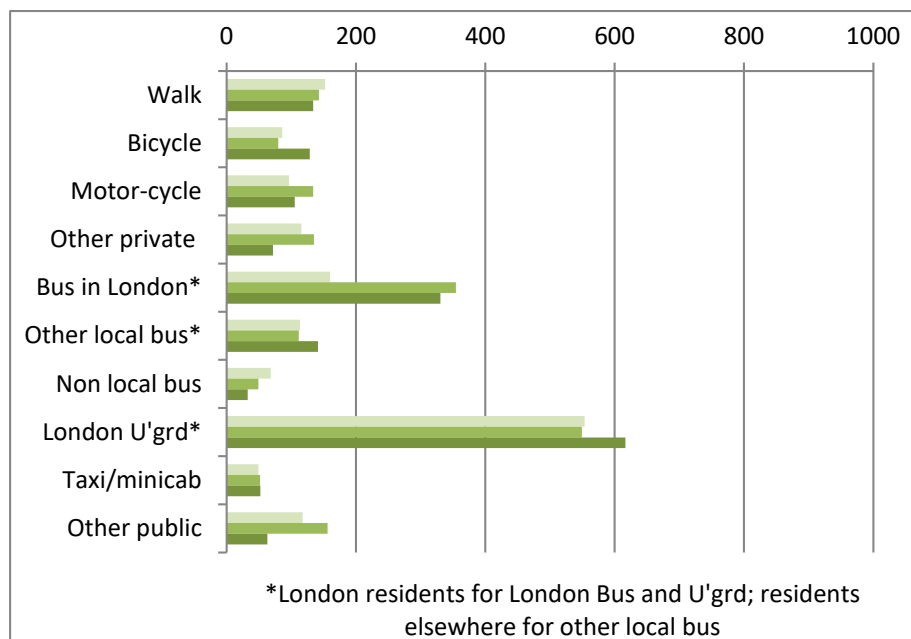


Table 4.8 Men 35-59 Tripmaking by main mode 2012-14 and change from 1996-98

	% making trips*		trips per year per tripmaker*		miles per trip		miles per person per year**	
	2012-14	Change from 1996-98	2012-14	Change from 1996-98	2012-14	Change from 1996-98	2012-14	Change from 1996-98
Walk	33.1%	-10%	507	-20%	0.8	-20%	134	23%
Bicycle	8.7%	22%	341	-7%	4.3	33%	129	50%
Car/van driver	76.1%	-7%	833	-21%	11.0	4%	6976	-24%
Car/van passenger	31.2%	-11%	206	-7%	12.8	-1%	823	-18%
Motor-cycle	2.2%	7%	402	-12%	11.8	15%	105	9%
Other private^								
Bus in London ***	26.9%	38%	292	5%	4.2	40%	330	106%
Other local bus***	9.2%	2%	265	-3%	5.8	25%	141	24%
Non local bus^								
London Ugrd***	24.7%	21%	290	-8%	8.6	0%	617	11%
Surface rail	12.2%	86%	251	-3%	36.0	-4%	1102	72%
Taxi/minicab	7.5%	6%	114	-9%	6.1	6%	52	6%
Other public^								

*within NTS diary week ** divided by all men 35-59 except where note *** applies

*** by London residents for London bus and Underground, by residents elsewhere for other local bus

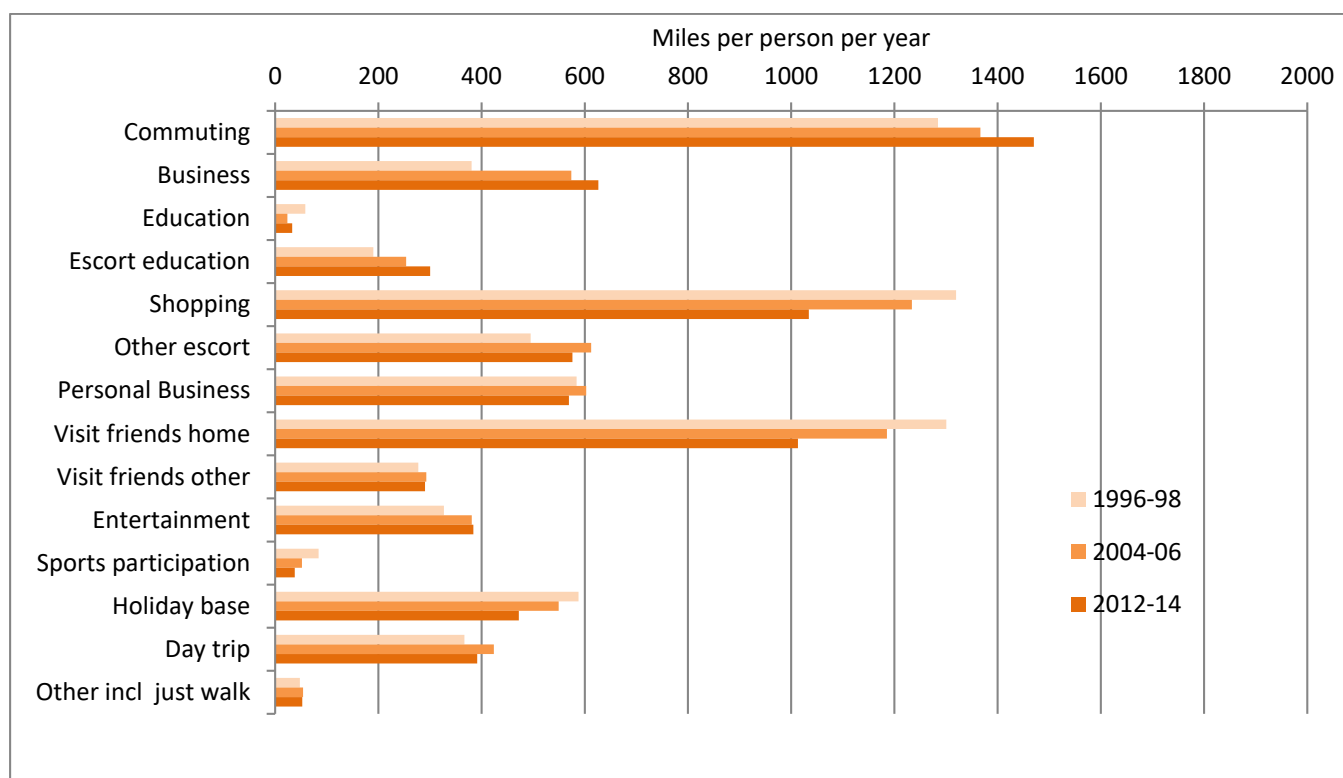
^ Figures not shown because of small number of respondents

- 4.7.5 In volume terms the reduction in driver mileage amongst middle aged men is greater than their reduction in overall travel. As a result their car driver mode share has fallen appreciably (from 78% to 71%).
- 4.7.6 Rail has experienced a large rate of growth similar to other groups (72%) but otherwise there is no net change in the distance travelled by non-car modes.

4.8 Travel, car availability and mode share: Women 35-59

- 4.8.1 In 2012-14 women in the middle age group 35-59 travelled 7,290 miles a year on average (139 miles a week), i.e. 74% of their male peers. Unlike middle-aged men however, this does not represent a decline since 1996-98 (although there has been a small rise and fall in the intervening years). Furthermore whereas for men business and commuting were the main source of reductions in travel, for women these have been the principal sources of *increase* (Figure 4.20).

Figure 4.20 Women 35-59 Travel by trip purpose 1996-98, 2004-06 and 2012-14



- 4.8.2 Table 4.9 demonstrates that this increased travel is attributable to a greater proportion of women engaging in business trips (within their surveyed week) but not in the case of commuting. Both purposes were characterised by lower rates of trip-making but significantly longer trip lengths.

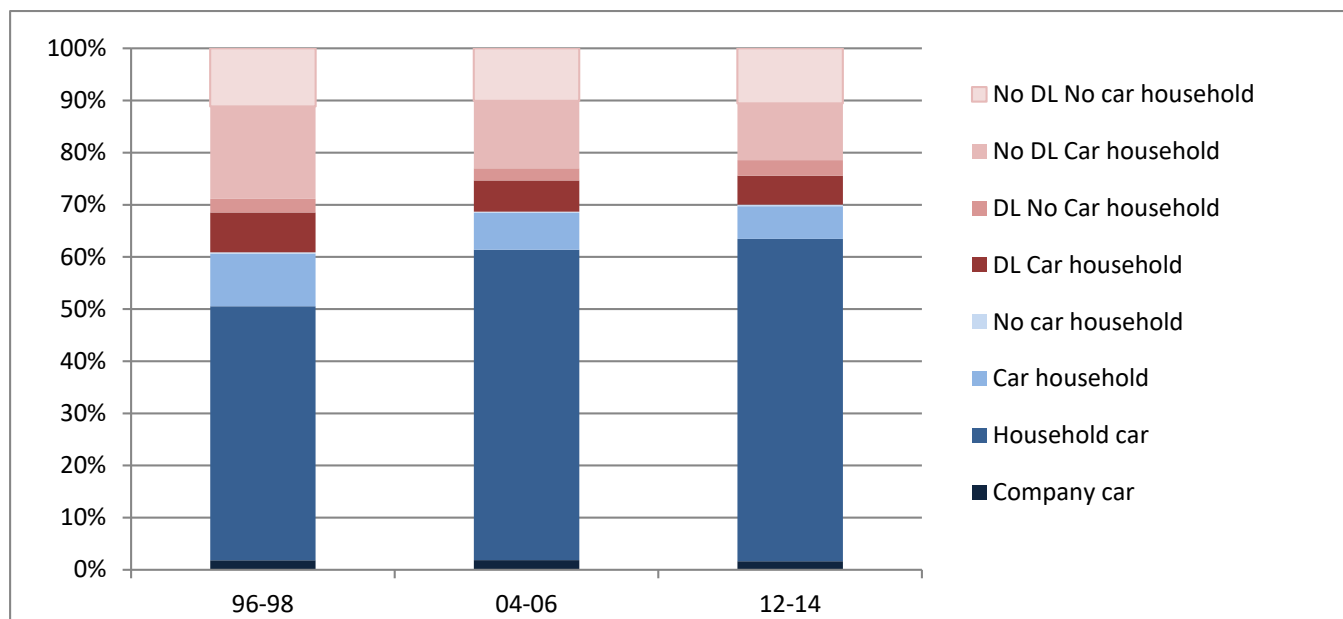
Table 4.9 Women 35-59 Tripmaking by trip purpose 2012-14 and change from 1996-98

	% making trips*		trips per year per tripmaker*		miles per trip		miles per person per year**	
	2012-14	Change from 96/98	2012-14	Change from 96/98	2012-14	Change from 96/98	2012-14	Change from 96/98
Commute	56.0%	0%	380	-12%	6.9	30%	1470	14%
Business	15.3%	43%	305	-8%	13.5	26%	626	65%
Education	1.4%	-70%	193	18%	12.7	59%	33	-44%
Escort education	20.2%	25%	585	4%	2.5	22%	300	58%
Shopping	80.0%	-8%	293	-22%	4.4	9%	1034	-22%
Other escort	35.9%	4%	299	2%	5.4	10%	576	16%
Personal Business	49.7%	-3%	214	-13%	5.4	16%	569	-3%
Visit friends home	46.2%	-15%	207	-19%	10.6	13%	1013	-22%
Visit friends other	30.0%	15%	149	-10%	6.5	1%	290	5%
Entertainment	28.1%	22%	179	-3%	7.6	-2%	384	17%
Sports participation	5.2%	-44%	143	-15%	5.0	-5%	38	-55%
Holiday base	7.7%	6%	133	-26%	46.6	3%	472	-20%
Day trip	18.6%	37%	174	22%	12.1	-36%	392	7%
Other inc just walk	14.8%	17%	357	-9%	1.0	3%	53	10%
ALL					6.5	11%	7251	-1%

*within NTS diary week ** average of all women 35-59

- 4.8.3 In 2012-14 shopping and visiting friends and relatives at home were as important in terms of travel volume as commuting and business trips. However, since 1996-98 travel for these purposes has declined by almost a quarter. By contrast travel for escort purposes has increased – the opposite trend to women aged under 35.
- 4.8.4 Average trip lengths have increased for most trip purposes with the notable exception of day trips. In this case shorter trips have the effect of largely offsetting increases that would otherwise have arisen from increased participation and frequency of trip-making.
- 4.8.5 Car availability amongst middle-aged women experienced a sharp increase between 1996-98 and 2004-06 when the proportion with sole or main use of a car rose from 50% to 61% (Figure 4.21). Since then it has increased by a further 2 points. In 2012-14, 30% of women in this age group did not drive within a particular (surveyed) week, of whom two-thirds did not possess a driving licence.

Figure 4.21 Women 35-59 Drivers and car availability: 1996-98, 2004-06 and 2012-14



4.8.6 Given this increased car availability it is unsurprising that the proportion making one or more car driver trips in their surveyed week should increase by 14% (Table 4.10). This is the principal factor contributing to the overall increase in their per capita driver mileage of 520 miles a year, all of which occurred prior to 2008 (Figure 4.22). By contrast their car passenger mileage has fallen steadily since 1996-98 and by 800 miles a year in all.

Figure 4.22 Women 35-59 Travel by main mode of trips: 1996-98, 2004-06 and 2012-14

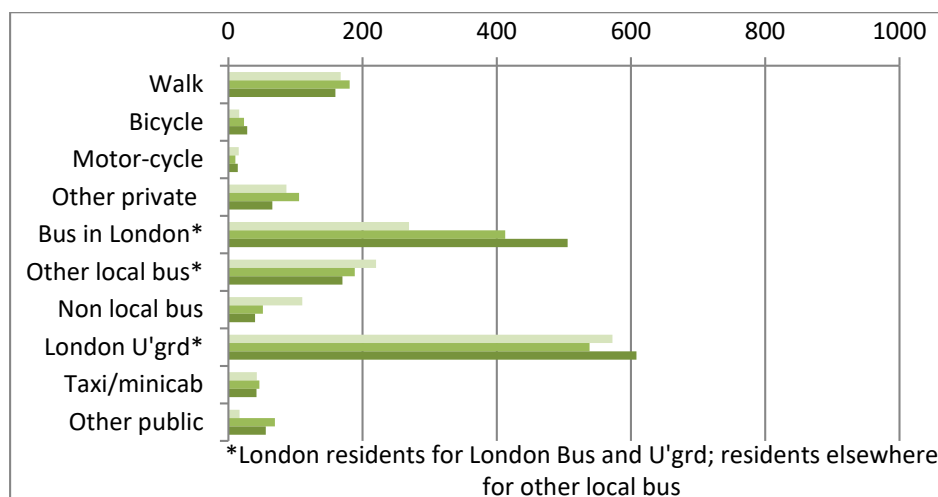
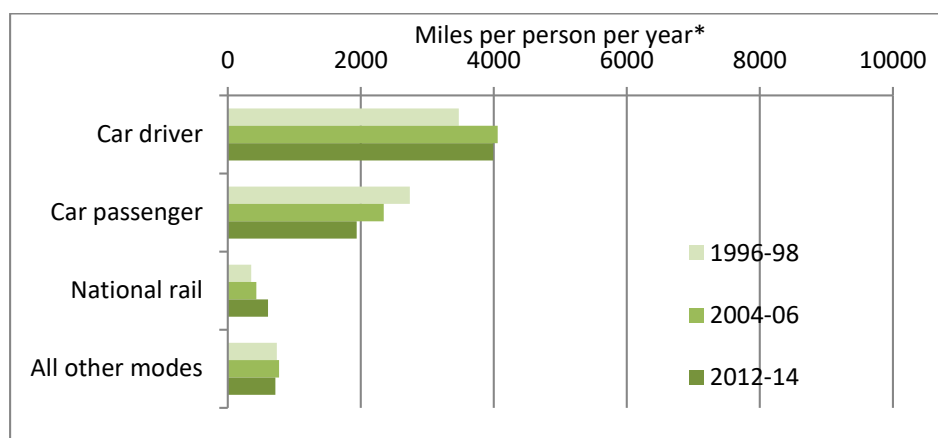


Table 4.10 Women 35-59 Tripmaking by main mode 2012-14 and change from 1996-98

	% making trips*		trips per year per tripmaker*		miles per trip		miles per person per year**	
	2012-14	Change from 1996-98	2012-14	Change from 1996-98	2012-14	Change from 1996-98	2012-14	Change from 1996-98
Walk	38.8%	-15%	564	-14%	0.7	30%	159	-5%
Bicycle	3.5%	-7%	313	-2%	2.6	88%	28	73%
Car/van driver	67.0%	14%	916	-8%	6.5	10%	3992	15%
Car/van passenger	57.9%	-16%	308	-16%	10.9	0%	1939	-29%
Motor-cycle ^								
Other private	1.7%	-24%	217	3%	18.0	3%	65	-24%
Bus in London ***	38.5%	31%	336	17%	3.9	23%	505	88%
Other local bus***	13.3%	-40%	281	12%	4.5	15%	170	-23%
Non local bus^								
London U'grd***	21.5%	34%	262	-2%	10.9	-23%	608	6%
Surface rail	9.4%	69%	199	-4%	32.6	5%	605	71%
Taxi/minicab	8.9%	2%	111	-18%	4.2	17%	42	-1%
Other public^								

*within NTS diary week ** divided by all women 35-59 except where note *** applies

*** by London residents for London bus and Underground, by residents elsewhere for other local bus

^ Figures not shown because of small number of respondents

4.8.7 With non car modes the proportion using rail has increased in a similar fashion to other groups. Use of buses in London has increased sharply but has fallen elsewhere.

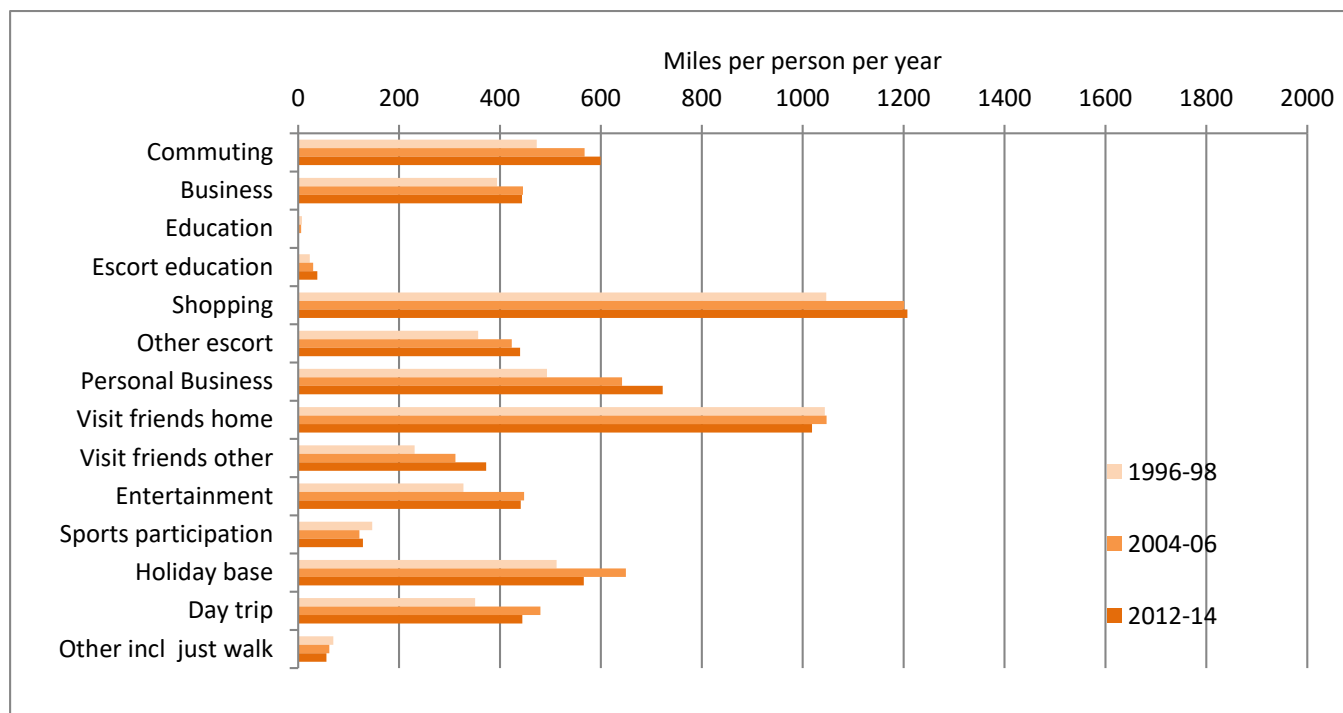
4.8.8 The overall effect of these changes is for the car driver share of travel by women in this age group to increase from 47% to 55%.

4.9 Travel, car availability and mode share: Men 60+

4.9.1 In 2012-14 men in the older age group over 60 travelled 6,480 miles a year on average (124 miles a week). This is 18% more than in 1996-98 with almost all of the increase occurring prior to 2004-06.

4.9.2 A distinctive feature of this group is that their travel is divided between a range of purposes, almost all of which have been the source of increased travel (Figure 4.23). However only commuting, personal business and visiting friends other than at home have seen this increase continued beyond 2004-06.

Figure 4.23 Men 60+ Travel by trip purpose 1996-98, 2004-06 and 2012-14



4.9.3 As can be seen in Table 4.11 there is an almost universal pattern of a greater proportion of the group making trips of a particular purpose within the surveyed week offset by a reduced frequency of trip-making. At the same time there have been considerable increases in trip length (averaging 27%) and it is these which are the primary contributor to this group's overall increase in travel.

Table 4.11 Men 60+ Tripmaking by trip purpose 2012-14 and change from 1996-98

	% making trips*		trips per year per tripmaker*		miles per trip		miles per person per year**	
	2012-14	Change from 96/98	2012-14	Change from 96/98	2012-14	Change from 96/98	2012-14	Change from 96/98
Commute	16.0%	13%	412	-18%	9.1	35%	599	27%
Business	7.3%	24%	316	-32%	19.3	33%	444	13%
Education^								
Escort education	4.6%	19%	262	-6%	3.2	40%	38	65%
Shopping	80.3%	2%	370	-16%	4.1	34%	1208	15%
Other escort	27.1%	4%	264	-4%	6.1	23%	440	23%
Personal Business	56.9%	13%	247	-8%	5.2	42%	723	47%
Visit friends home	41.8%	-10%	210	-13%	11.6	25%	1018	-2%
Visit friends other	31.3%	30%	176	-16%	6.8	48%	373	62%
Entertainment	27.0%	42%	206	-4%	7.9	0%	441	35%
Sports participation	8.6%	-12%	187	-22%	8.0	24%	128	-13%
Holiday base	7.6%	24%	152	-24%	49.7	15%	566	11%
Day trip	20.6%	53%	199	9%	11.0	-23%	444	27%
Other inc just walk	14.6%	-4%	388	-25%	1.0	12%	56	-20%
ALL					6.9	27%	6478	18%

*within NTS diary week ** average of all men 60+ ^Figures not shown because of small number of respondents

4.9.4 The car availability of men over 60 has increased throughout the period since 1996-98, but mostly in the earlier years (Figure 4.24). The proportion with sole or main use of a car increased from 61% to 68% by 2004-06 with a smaller rise to 70% since.

Figure 4.24 Men 60+ Drivers and car availability: 1996-98, 2004-06 and 2012-14

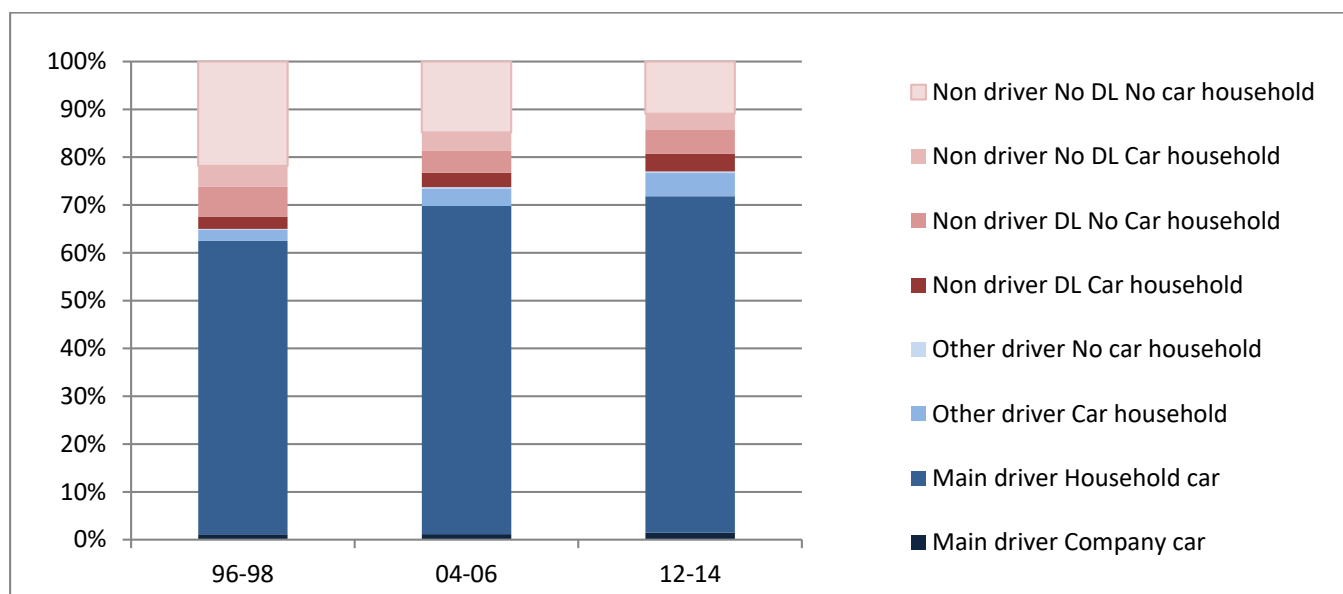


Table 4.12 Men 60+ Tripmaking by main mode 2012-14 and change from 1996-98

	% making trips*		trips per year per tripmaker*		miles per trip		miles per person per year**	
	2012-14	Change from 1996-98	2012-14	Change from 1996-98	2012-14	Change from 1996-98	2012-14	Change from 1996-98
Walk	32.5%	-23%	531	-27%	0.8	28%	132	-28%
Bicycle	4.4%	4%	334	-13%	3.3	97%	48	80%
Car/van driver	72.7%	19%	801	-8%	7.9	7%	4592	17%
Car/van passenger	31.9%	12%	230	3%	10.4	10%	762	27%
Motor-cycle^								
Other private	3.4%	10%	252	-3%	15.6	35%	130	26%
Bus in London ***	44.5%	14%	305	9%	3.3	13%	446	46%
Other local bus***	19.0%	-2%	251	-14%	4.9	31%	234	12%
Non local bus^								
London U'grd***	14.8%	29%	212	-2%	9.3	14%	290	39%
Surface rail	5.8%	89%	161	12%	36.7	-25%	340	71%
Taxi/minicab	5.7%	-3%	119	-13%	4.5	72%	31	47%
Other public^								

*within NTS diary week ** divided by all men 60+ except where note *** applies

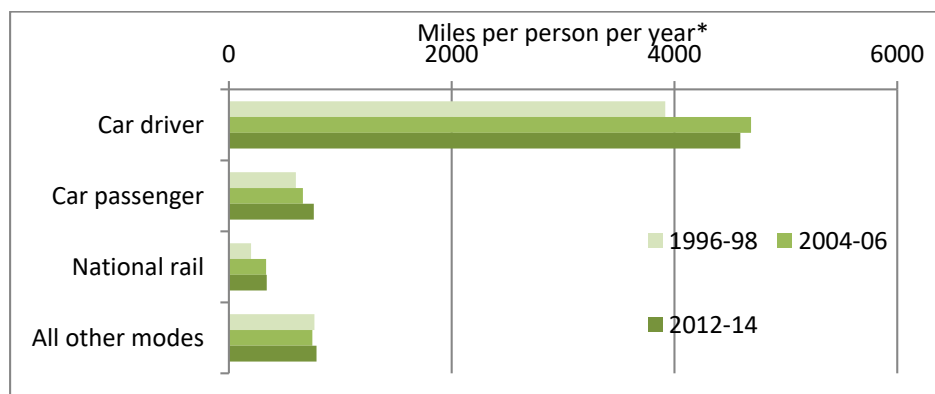
*** by London residents for London bus and Underground, by residents elsewhere for other local bus

^ Figures not shown because of small number of respondents

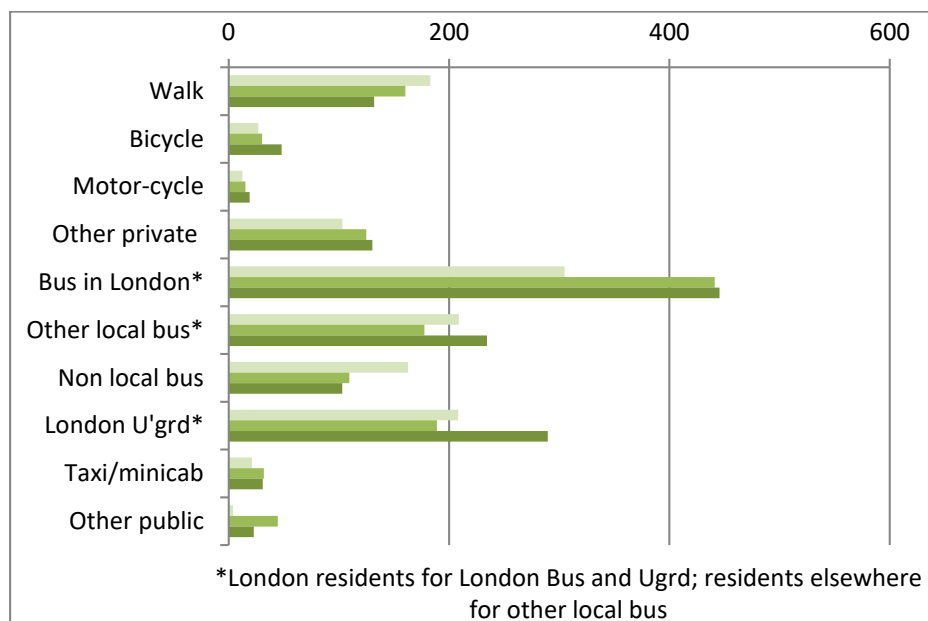
4.9.5 The distance travelled by older men has increased for all modes except walking (Table 4.12). An earlier decline in the use of buses outside London has since reversed – a change probably associated with the introduction of a more generous concessionary fare regime.

4.9.6 Per capita driver mileage increased by 20% from 1996-98 to 2004-06 although with a slight decline since (Figure 4.25). Coupled with the changes in use of other modes the driver mode share has returned to its earlier level of 71%.

Figure 4.25 Men 60+ Travel by main mode of trips: 1996-98, 2004-06 and 2012-14



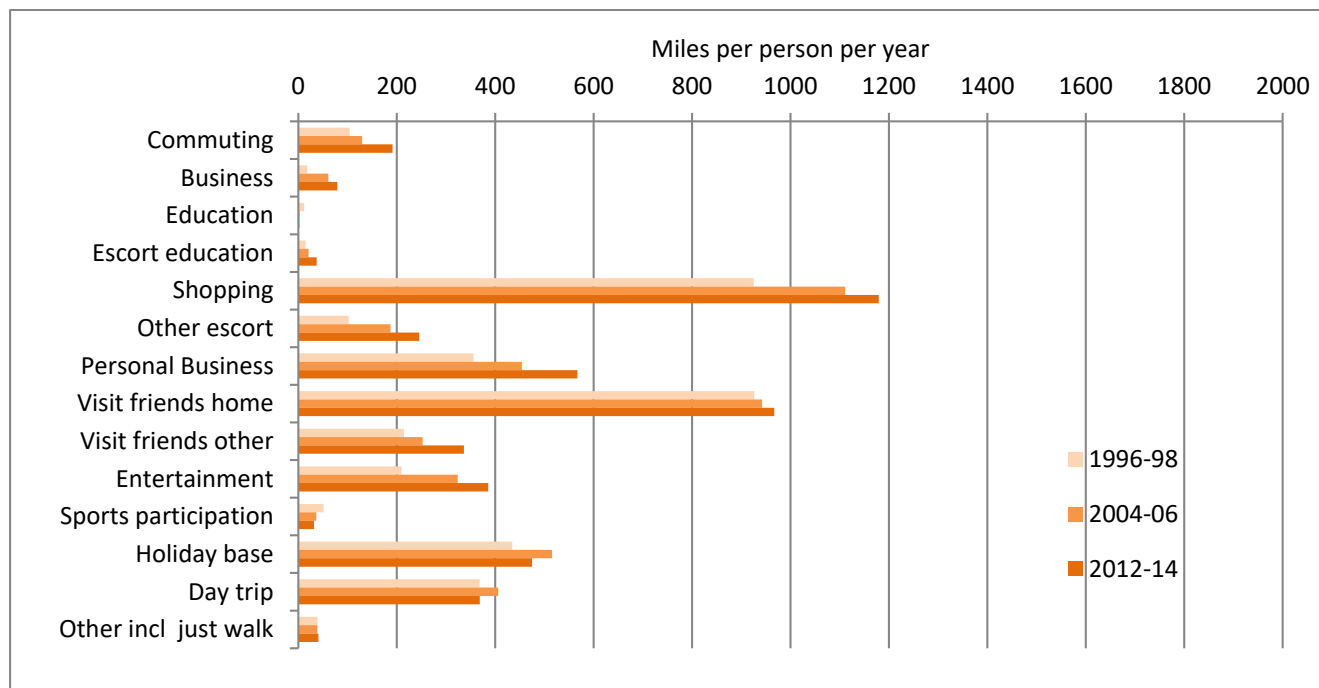
(continued on next page)



4.10 Travel, car availability and mode share: Women 60+

4.10.1 In 2012-14 women over 60 travelled 4,910 miles a year on average (94 miles a week) – 76% of their male peers. As with older men, shopping and visiting friends and relatives at home are the main trip purposes (Figure 4.26). Personal business, entertainment, holiday and day trips are also prominent. However, travel for commuting and business purposes is of very minor significance and in distance terms is only a quarter of men's.

Figure 4.26 Women 60+ Travel by trip purpose: 1996-98, 2004-06 and 2012-14



4.10.2 The overall distance travelled by older women has grown by 30% since 1996-98, most of this prior to 2004-06. This is reflected in most trip purposes, notably shopping where the

trend is the opposite of that amongst younger women. However visiting friends and relatives at home is conspicuous in not showing any significant increase.

4.10.3 Table 4.13 shows some large percentage changes in respect of individual purposes although these are mostly on a low absolute base. Like older men the general pattern is of greater participation in the various activities but less frequent trip-making in each. With this group however the balance is such that there is an overall *increase* (albeit small) in the overall rate of trip-making. The increases in average trip length are substantial and it is these which give rise to the scale of increased travel overall.

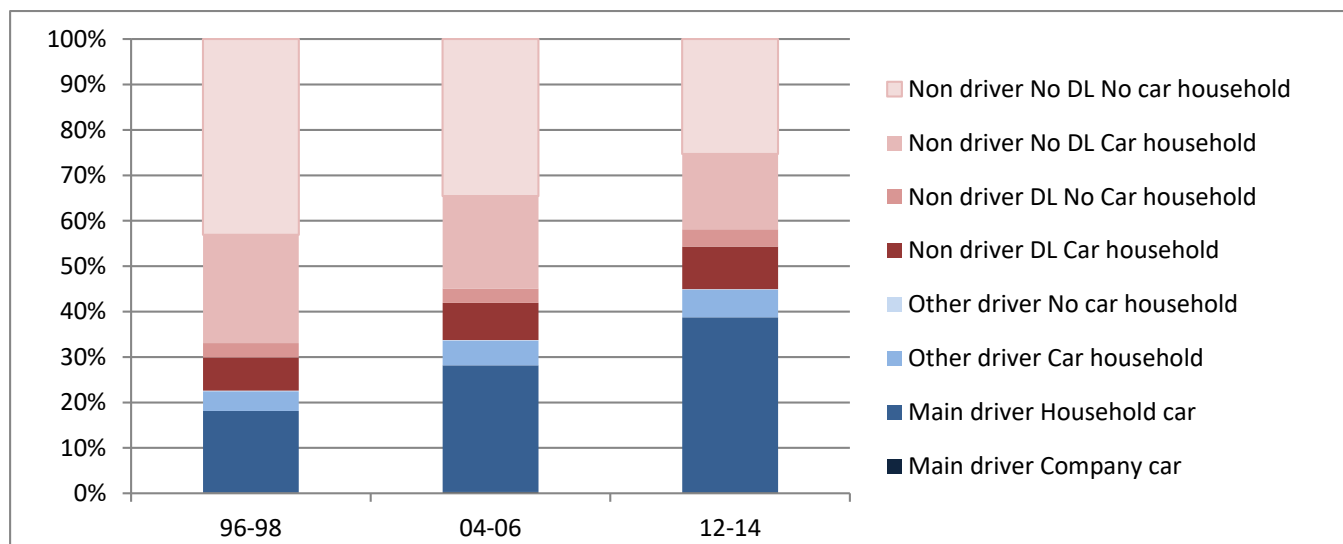
Table 4.13 Women 60+ Tripmaking by trip purpose 2012-14 and change from 1996-98

	% making trips*		trips per year per tripmaker*		miles per trip		miles per person per year**	
	2012-14	Change from 96/98	2012-14	Change from 96/98	2012-14	Change from 96/98	2012-14	Change from 96/98
Commute	10.0%	50%	352	-13%	5.4	41%	191	84%
Business^							79	
Education^							2	
Escort education	4.8%	68%	239	-28%	3.3	100%	37	152%
Shopping	82.5%	5%	329	-13%	4.3	39%	1179	27%
Other escort	18.1%	49%	209	22%	6.5	33%	246	141%
Personal Business	56.2%	16%	226	-6%	4.5	47%	567	59%
Visit friends home	43.9%	-4%	211	-16%	10.4	29%	967	4%
Visit friends other	31.3%	48%	157	-5%	6.8	12%	336	57%
Entertainment	29.4%	41%	205	-3%	6.4	36%	386	84%
Sports participation	4.2%	-14%	178	-6%	4.3	-26%	32	-37%
Holiday base	6.9%	23%	135	-26%	51.0	19%	475	9%
Day trip	16.3%	33%	170	13%	13.5	-32%	368	0%
Other inc just walk	11.9%	16%	384	-19%	0.9	13%	41	5%
ALL					6.3	25%	4907	30%

*within NTS diary week ** average of all women 60+ ^ Figures not shown because of small number of respondents

4.10.4 Older women are the group in which car availability has increased most over the last 15-20 years. However although the proportion with sole or main use of a car has doubled since 1996-98 it remains at the relatively low level of 39% (Figure 4.27). In 2012-14 rather more than this did not possess a driving licence.

Figure 4.27 Women 60+ Drivers and car availability: 1996-98, 2004-06 and 2012-14



4.10.5 This increased car availability is reflected in a doubling of the proportion of older women making driving trips within their surveyed diary week (Table 4.14). Because of a lengthening in average trip distance their increase in per capita driver mileage was even greater.

Table 4.14 Women 60+ Tripmaking by main mode 2012-14 and change from 1996-98

	% making trips*		trips per year per tripmaker*		miles per trip		miles per person per year**	
	2012-14	Change from 1996-98	2012-14	Change from 1996-98	2012-14	Change from 1996-98	2012-14	Change from 1996-98
Walk	30.1%	-21%	495	-23%	0.7	34%	106	-18%
Bicycle	1.4%	-30%	275	-29%	2.2	68%	8	-13%
Car/van driver	41.9%	99%	658	-1%	6.0	15%	1649	128%
Car/van passenger	65.0%	3%	373	1%	8.8	2%	2127	6%
Motor-cycle^								
Other private	4.0%	-2%	197	9%	19.1	20%	148	27%
Bus in London ***	46.3%	-3%	304	-4%	3.1	3%	442	-3%
Other local bus***	28.7%	-13%	246	-11%	5.0	38%	351	8%
Non local bus	1.2%	-54%	129	7%	87.2	25%	133	-42%
London U'grd***	9.9%	-16%	147	-21%	7.7	0%	108	-34%
Surface rail	5.6%	55%	127	1%	39.6	6%	281	77%
Taxi/minicab	8.4%	-2%	130	-3%	4.1	43%	45	39%
Other public^								

*within NTS diary week ** divided by all women 60+ except where note *** applies

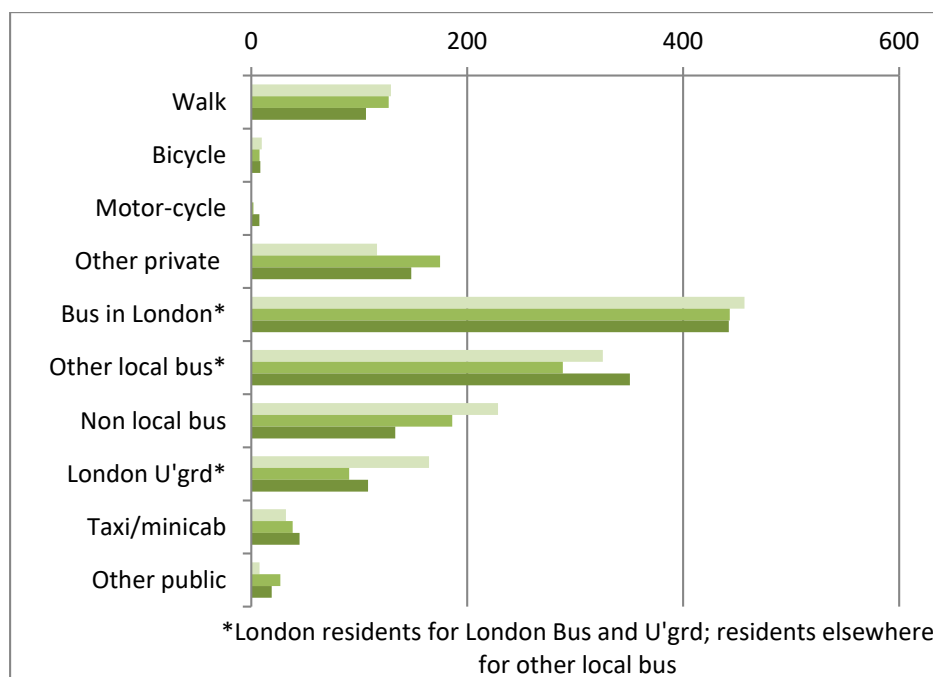
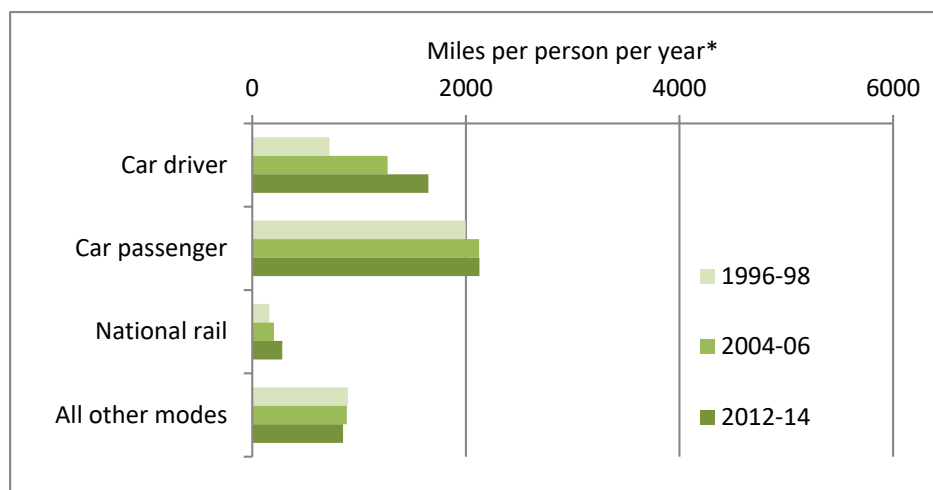
*** by London residents for London bus and Underground, by residents elsewhere for other local bus

^ Figures not shown because of small number of respondents

4.10.6 Surprisingly there is no corresponding reduction in their car passenger travel which remains the predominant mode. However walking shows a significant fall in participation and frequency.

4.10.7 As with older men there has been a reversal in the previous decline in local bus use but a continuing fall in the use of non local buses (Figure 4.28). In volume terms however this is more than countered by increased use of rail, albeit at a relatively low level.

Figure 4.28 Women 60+ Travel by main mode of trips: 1996-98, 2004-06 and 2012-14



5. Other Socio-economic Influences

5.1 Introduction

5.1.1 This chapter considers a number of socio-economic attributes additional to age and gender which are known to have an influence on travel and on which data is collected in NTS. These are considered here in the order of household income, economic activity, occupation and home location.

5.2 Household Income

5.2.1 The NTS data set classifies households into five equal groups on the basis of their equivalised income (i.e. their total net income adjusted according to the number of adult and child members).

5.2.2 Car ownership is closely correlated with this equivalised income with the highest quintile of households currently having twice the level of ownership as the lowest (0.78 cars per adult compared with 0.39). Between 1996-98 and 2004-06 ownership increased by between 4 and 7 points amongst all groups and, except for the highest quintile has remained essentially the same since (Figure 5.1). By contrast ownership amongst the highest group has *fallen* by 6 points in the years since 2004-06, with rather more than half of this attributable to a continuing decline in company car ownership (Figures 5.2 and 5.3).

Figure 5.1 Cars per adult by household income quintile 1996-98 to 2012-14

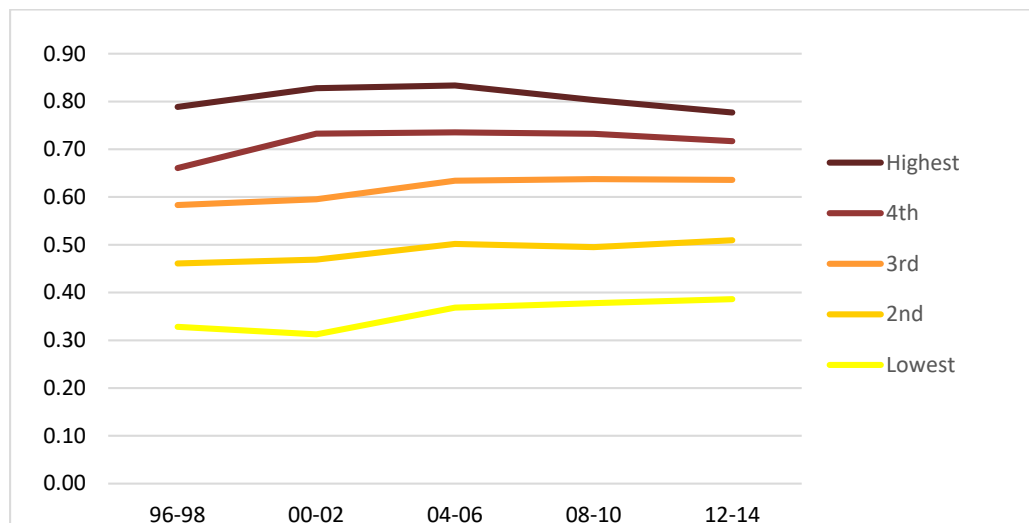


Figure 5.2 Private cars per adult by household income quintile 1996-98 to 2012-14

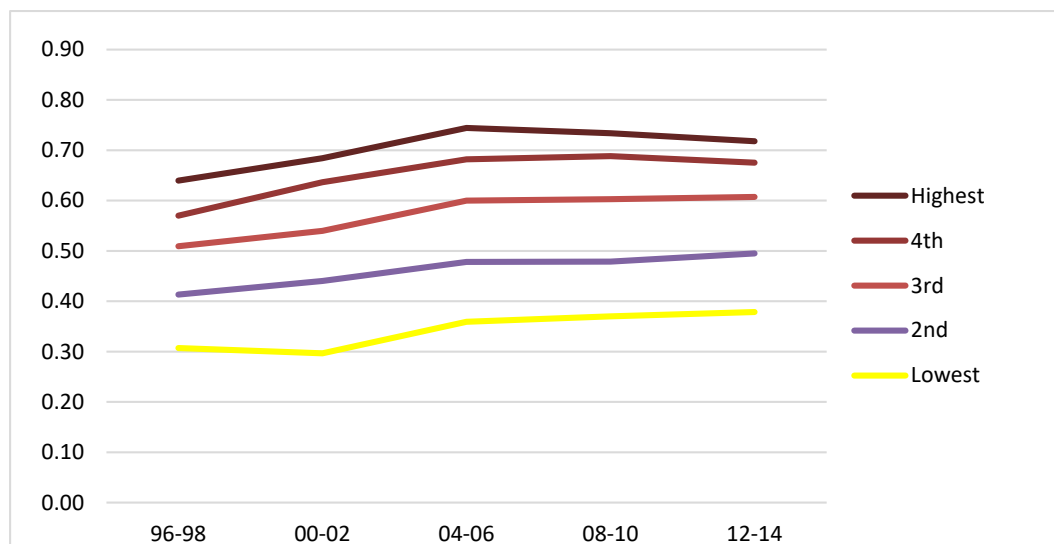
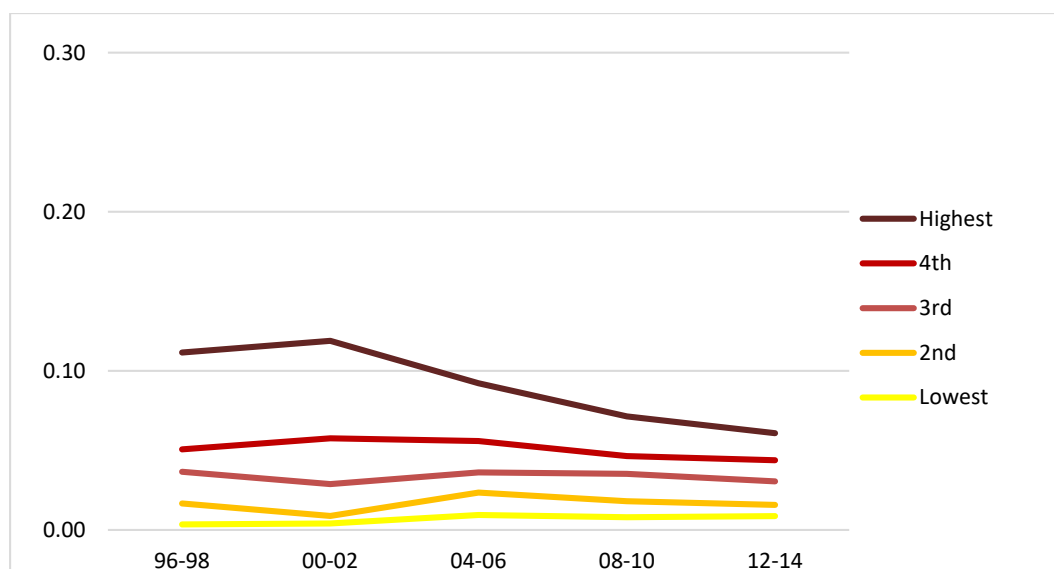


Figure 5.3 Company cars per adult by household income quintile 1996-98 to 2012-14



5.2.3 Licence holding increased more evenly throughout the years from 1996-98 amongst all but the highest income group (Figure 5.4). As a result – in combination with the changes in car ownership – the proportion of adults with a driving licence and access to a car in their household has continued to rise to the present day amongst the two lowest income groups (Figure 5.5). Otherwise it has tended to decline a little, from a peak in 2004-06 amongst the third quintile, 2000-02 amongst the second quintile, and since 1996-98 amongst the highest quintile.

Figure 5.4 Licence holding amongst adults by household income quintile 1996-98 to 2012-14

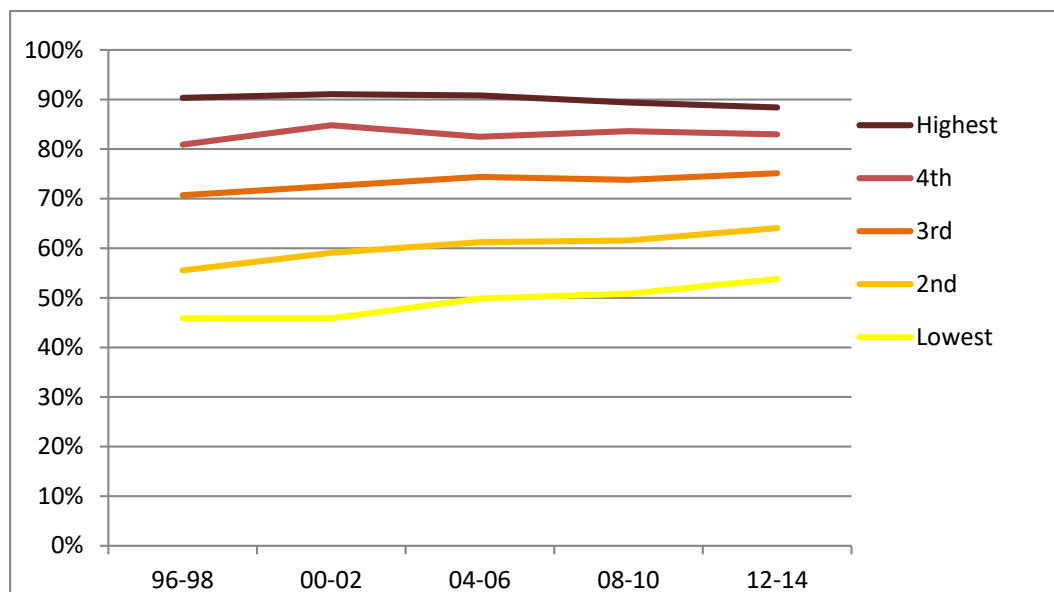
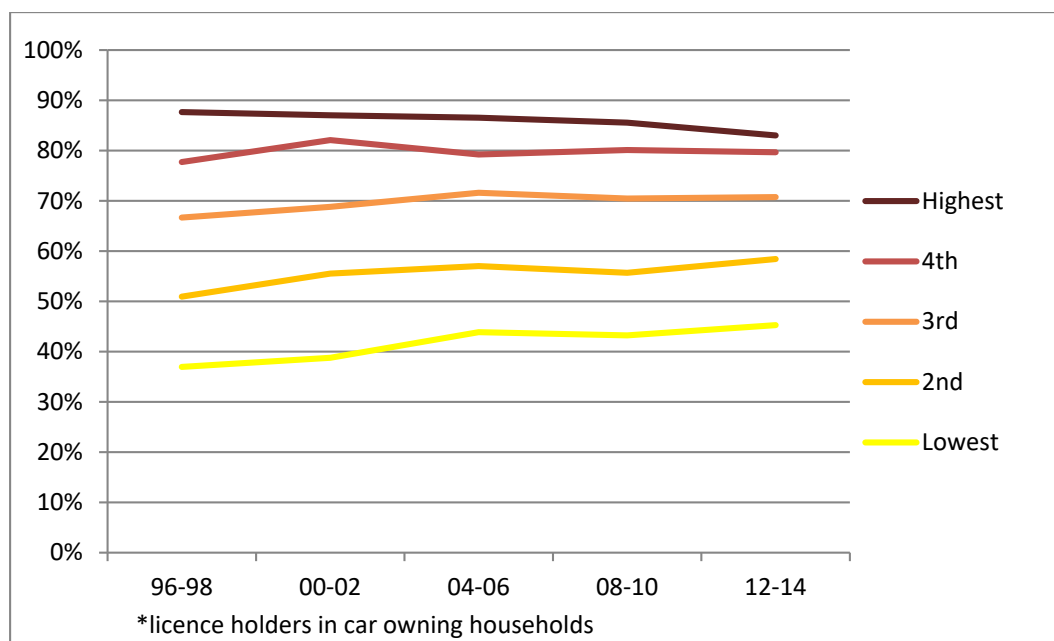


Figure 5.5 Adults with driver access* by household income quintile 1996-98 to 2012-14



5.2.4 Travel per person varies widely between the income groups, currently between 3,980 and 9,970 miles a year (76 and 191 miles a week). However the difference has narrowed over the last two decades, mainly as a result of decline amongst the higher quintiles 4 and 5 (Figure 5.6). The decline in travel generally amongst these groups (of 980 and 2,020 miles a year respectively) is very similar to their reduction in car driver miles (Figure 5.7) whilst of this car driver reduction about 70% is attributable to the drop in company car mileage (Figures 5.8 and 5.9). Throughout the period since 1996-98 between 75% and 80% of company car owners have been members of the top two income quintiles.

Figure 5.6 Stage miles per person per year by household income quintile 1996-98 to 2012-14

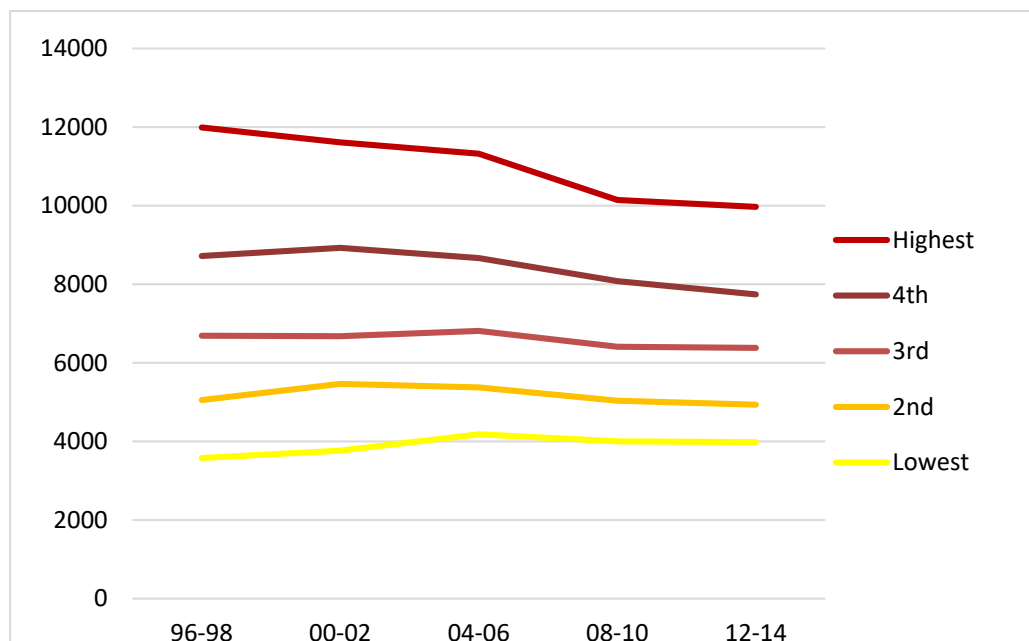


Figure 5.7 Car driver stage miles per person per year by household income quintile 1996-98 to 2012-14

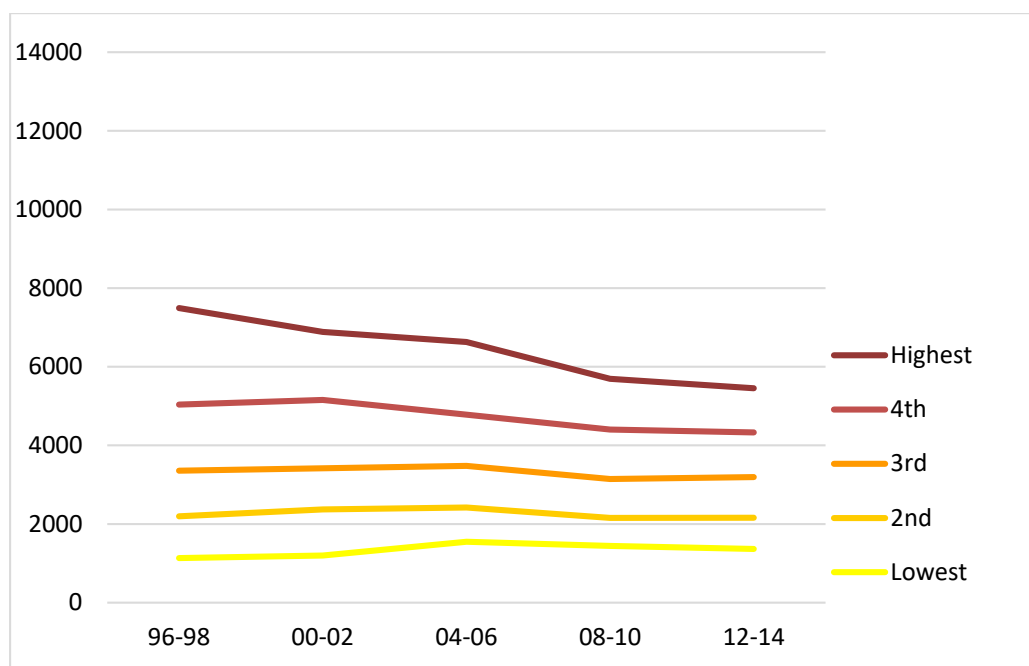


Figure 5.8 Private car driver stage miles per person per year by household income quintile 1996-98 to 2012-14

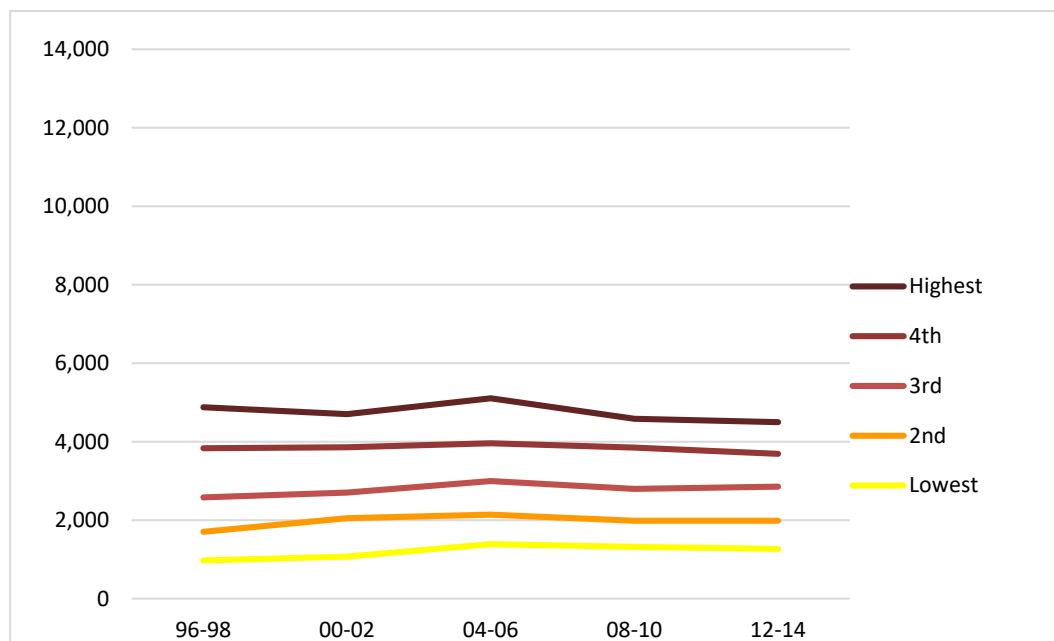
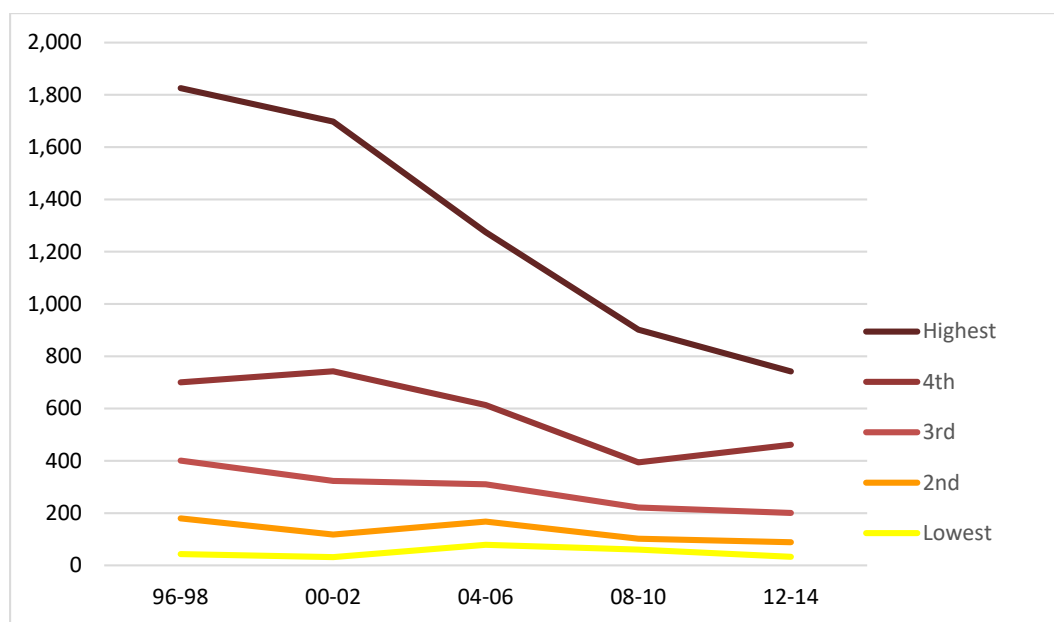
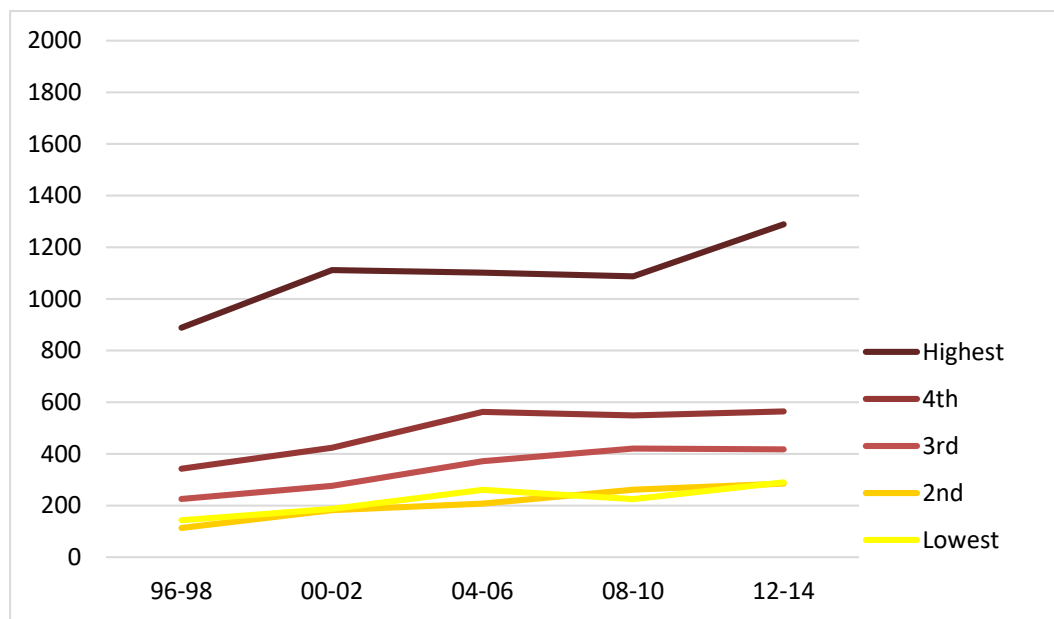


Figure 5.9 Company car driver stage miles per person per year by household income quintile 1996-98 to 2012-14



5.2.5 Rail travel is concentrated amongst the highest income quintile with an average of 1,290 miles per person per year (25 miles a week) compared with 290-565 miles amongst the other groups. However although the former has increased by almost a half over the last two decades the majority of the increased rail travel during this time has come from members of the four lower income groups (Figure 5.10).

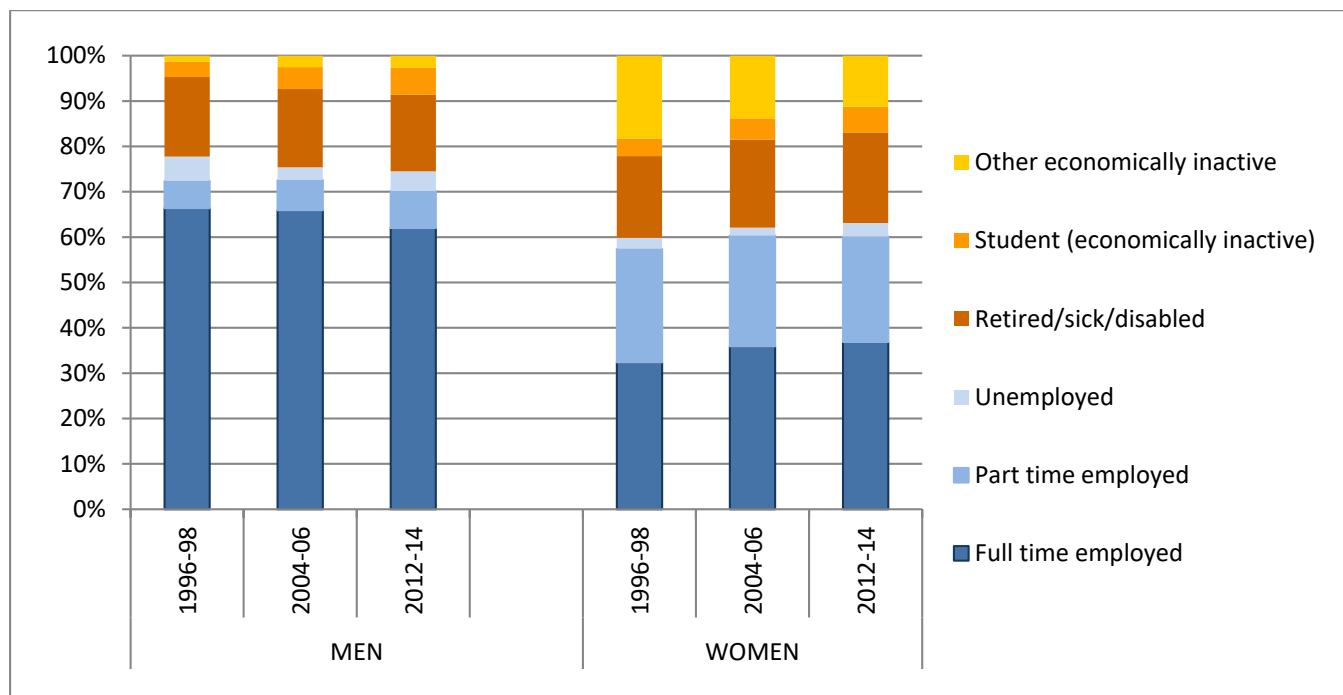
Figure 5.10 Rail stage miles per person per year by household income quintile 1996-98 to 2012-14



5.3 Economic activity

5.3.1 In 2012-14 70% of men aged 16-74 were in employment, with full-time workers comprising 62% (down 4 points from 1996-98) and part-time workers 8% (up 2) – see Figure 5.11. 60% of women were in employment with full-time workers comprising 37% (up 5 points) and part-time 23% (down 2). The proportion of economically inactive students increased from 3.7% to 5.8% during the period.

Figure 5.11 Economic activity of men and women aged 16-74: 1996-98, 2004-06 and 2012-14



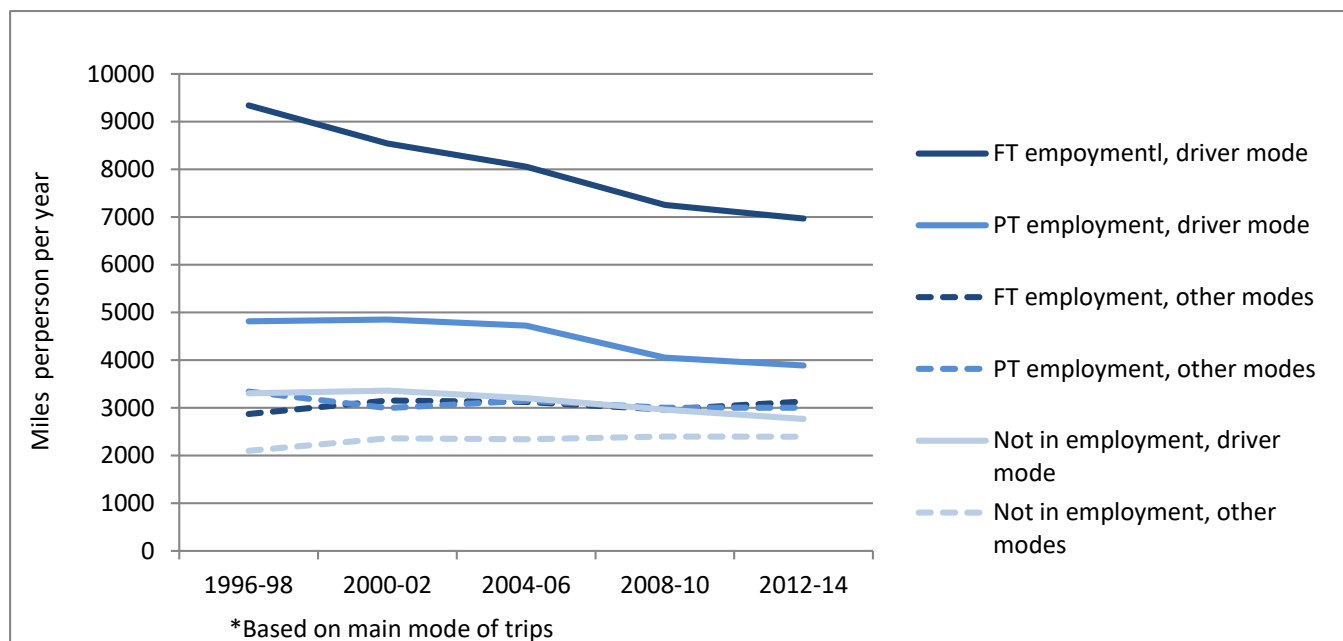
5.3.2 As might be expected participation in employment – and full-time employment as opposed to part-time – is associated with higher amounts of personal travel (Figure 5.12). Amongst people in work, women travel less in total than men (7,868 miles a year compared with 9,726 in 2012-14). Their average trip length is less than three quarters of men's but their trip rate (for all purposes) is 11% higher. This reflects the fact that women's journeys to work are themselves shorter on average whilst many more women work part-time and make a greater proportion of their other trips locally. Largely because of declining travel by men the differences between men and women have tended to narrow over the last two decades.

Figure 5.12 Travel by gender and employment status (all aged 16-74) 1996-98 to 2012-14



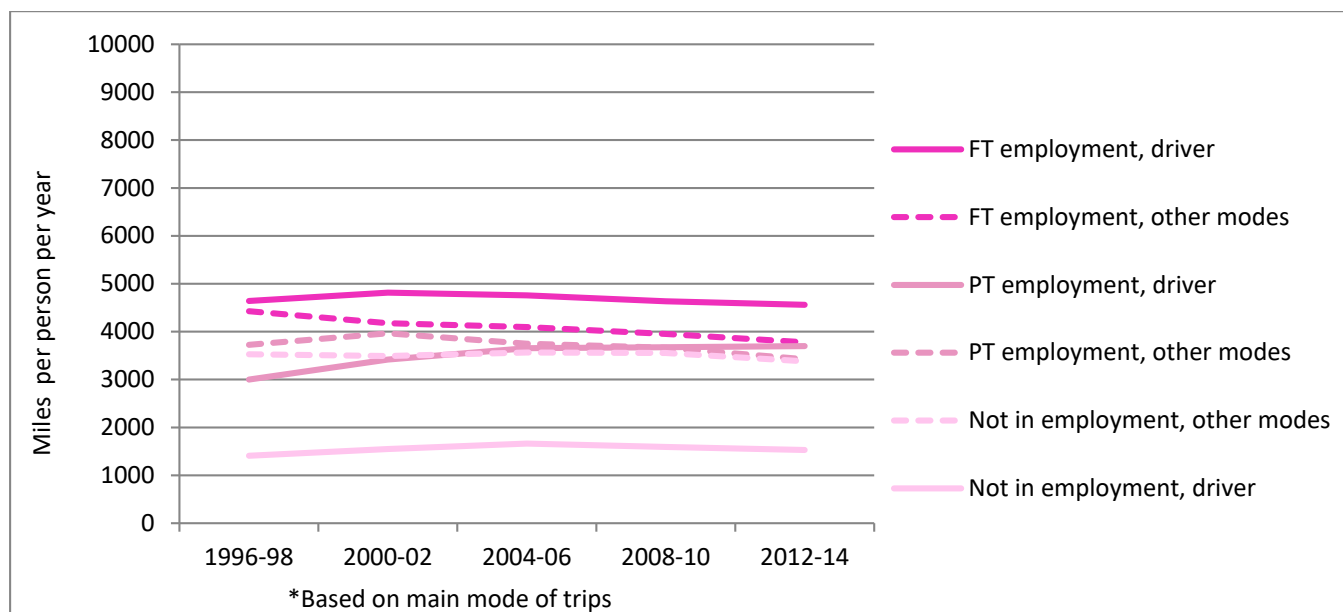
5.3.3 For the most part men make a much higher share of their travel as car drivers (Figure 5.13). However all men (categorised by employment status) have reduced their car driver mileage and, except for the relatively few part-time workers, increased their travel by other modes. As a result the car driver mode share by distance has fallen from 76% to 69% amongst men in full-time work, 59% to 56% in part-time work and 61% to 54% amongst those not in work. Just over half of the decline in car driver mileage by men in full-time work is attributable to their reduced ownership and use of company cars (see Annex C).

Figure 5.13 Men 16-74: Travel by car driver and other modes* by employment status 1996-98 to 2012-14



5.3.4 Women in part-time work are the only group categorised by employment status whose travel has increased overall (Figure 5.14). They have also seen disproportionate growth in car driving with an increased mode share by distance of 7 points to 52% as a result. Otherwise travel amongst women in full-time work and those not in work has declined rather more in non-driver modes. As a result the driver mode share of women in these categories has increased from 51% to 55% and from 29% to 31% respectively.

Figure 5.14 Women 16-74: Travel by car driver and other modes* by employment status 1996-98 to 2012-14

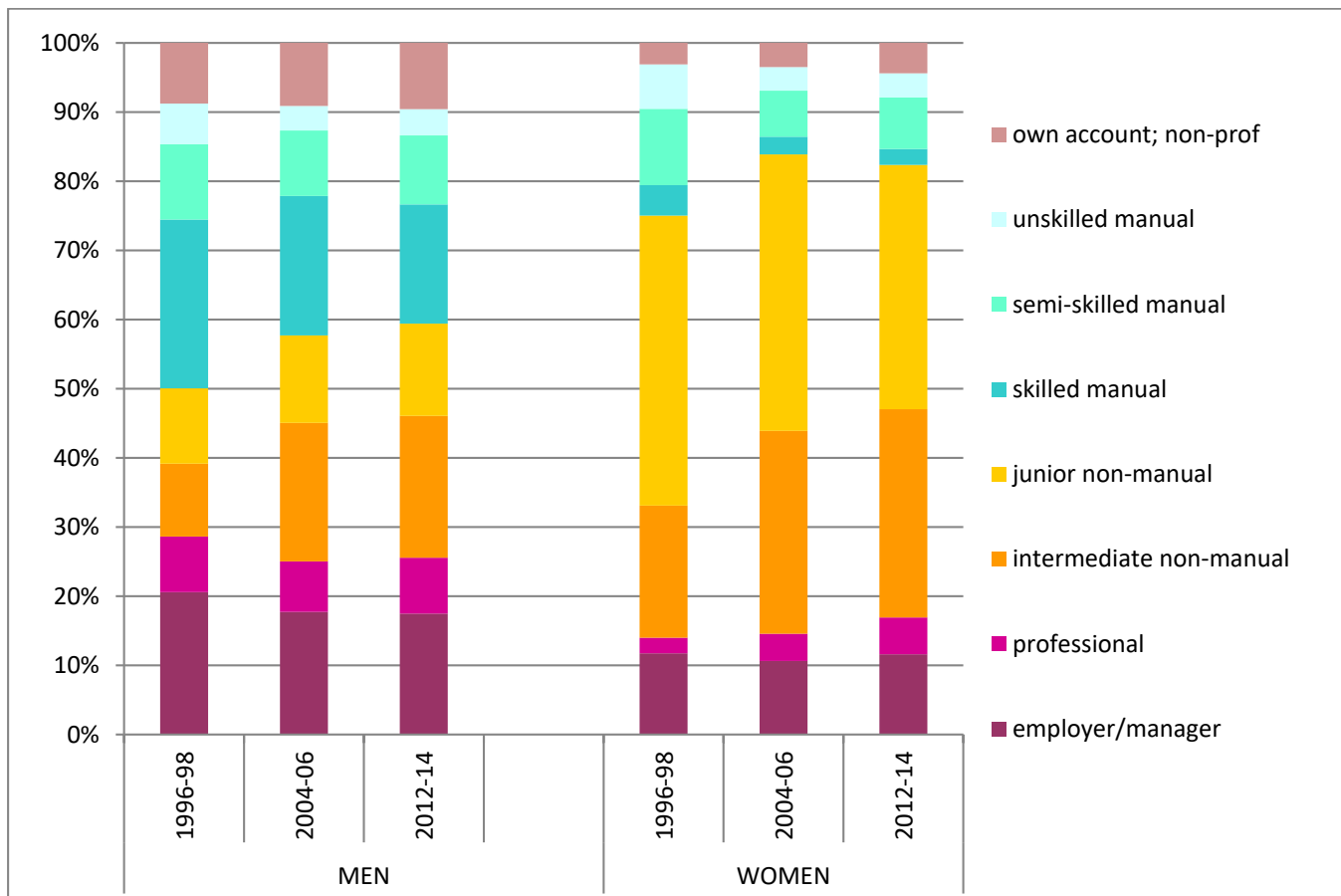


5.4 Occupation

5.4.1 Male workers are split fairly evenly between the three main groups of professional/managerial, other non-manual and manual occupations. (The latter includes 'own account' non-professional workers). By contrast two-thirds of women are in the intermediate 'other

non-manual' group (Figure 5.15). This group has expanded in both sexes since 1996-98 (by 12 and 5 points respectively) mainly at the expense of manual occupations.

Figure 5.15 Proportion of workers by occupation and gender 1996-98, 2004-06 and 2012-14



- 5.4.2 The proportion of men working as employers or managers has fallen by 3 points during this time whilst the proportion of women working as professionals has grown by this amount. Own account occupations (which tend to be associated with working at or from home) are more common amongst men than women.
- 5.4.3 Trip-making, trip length and driver mode share all tend to fall with the occupational (socio-economic) scale. However the resultant differences in travel per person by car driver and other modes are less pronounced amongst women than men (Figures 5.16 and 5.17). This relationship with gender and occupation is also evident in connection with rail travel but the trends in volume are distinctive in showing increases in all categories (Figure 5.18).

Figure 5.16 Male workers' car driver and other travel* by occupational group 1996-98 to 2012-14

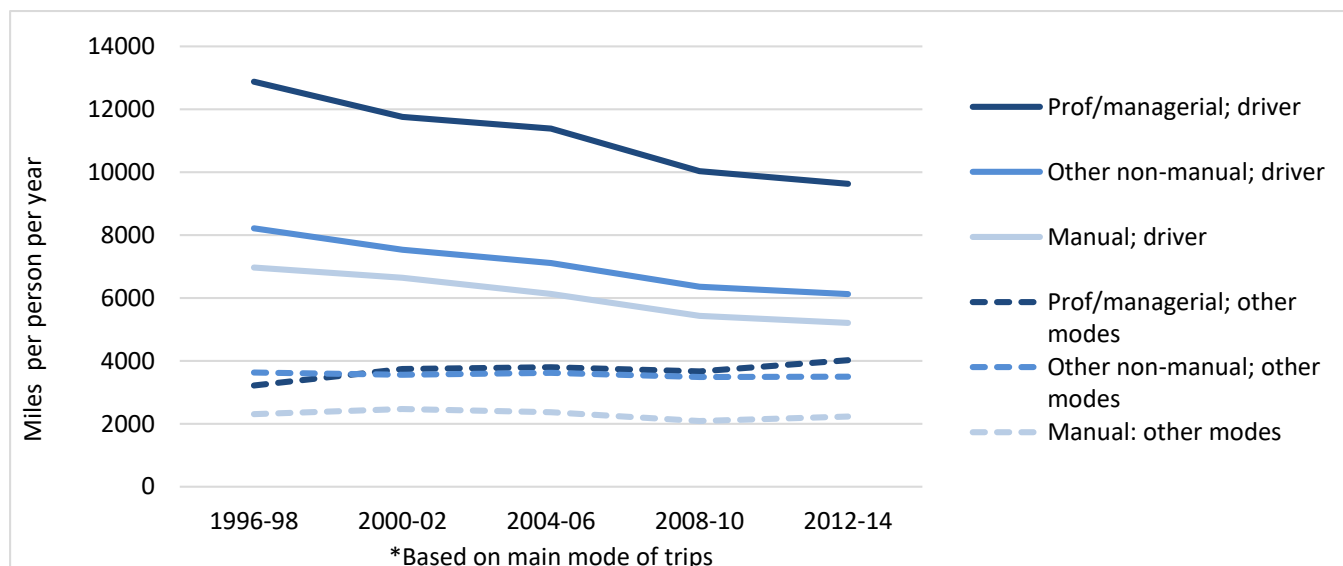


Figure 5.17 Female workers' car driver and other travel* by occupational group 1996-98 to 2012-14

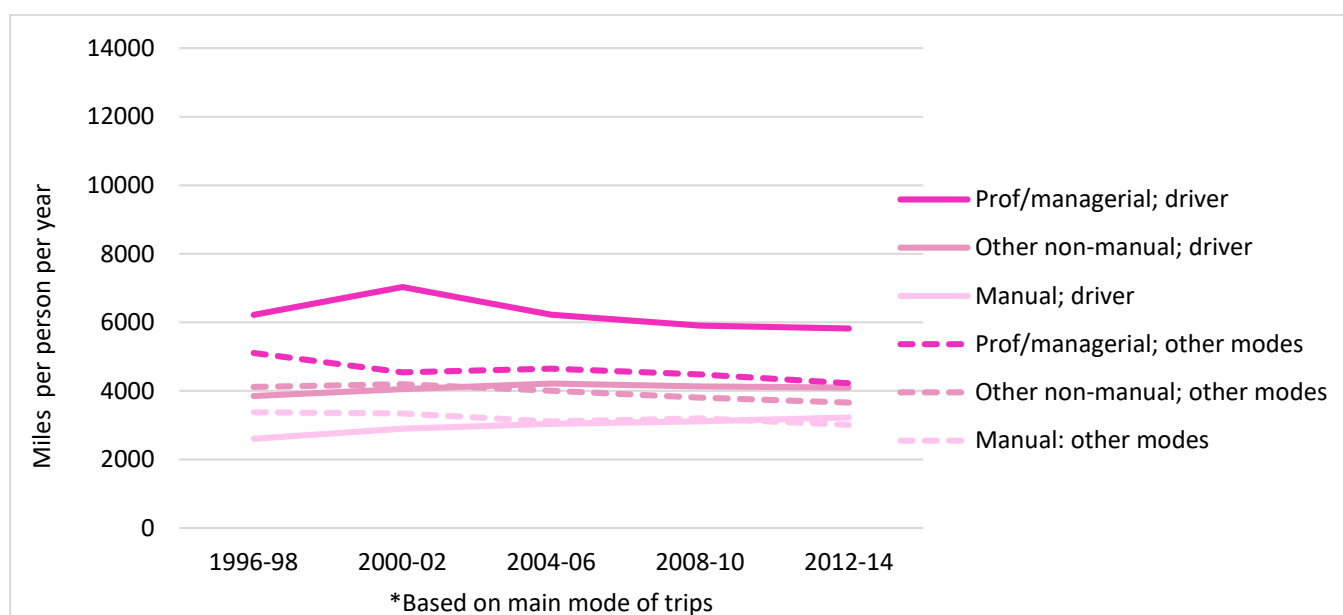
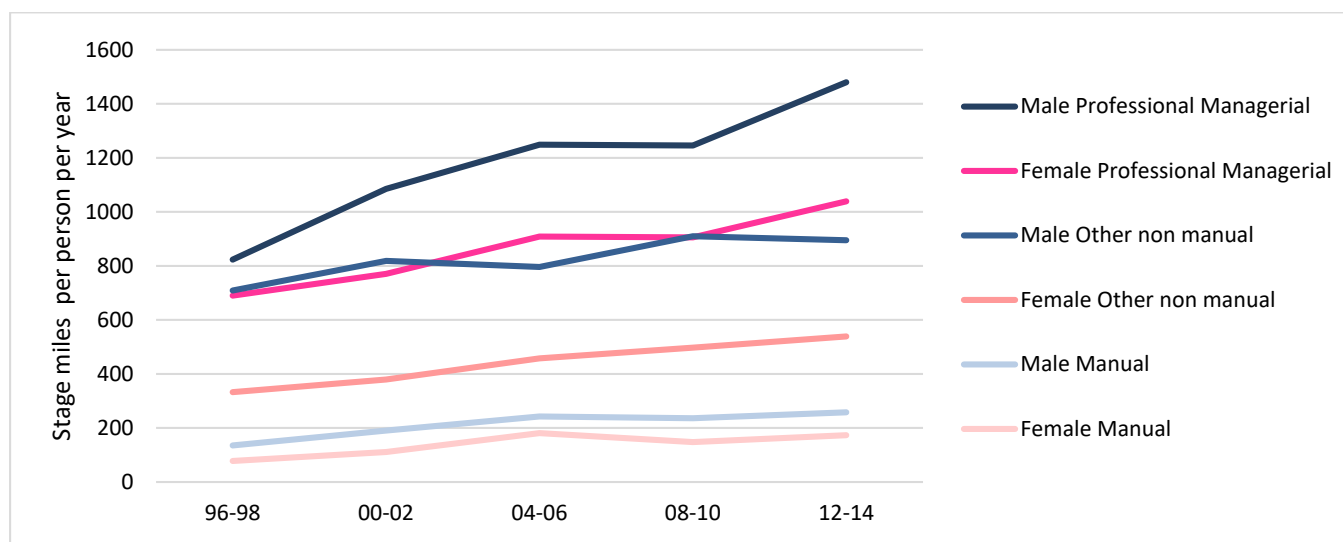


Figure 5.18 Workers' rail travel by gender and occupational group 1996-98 to 2012-14

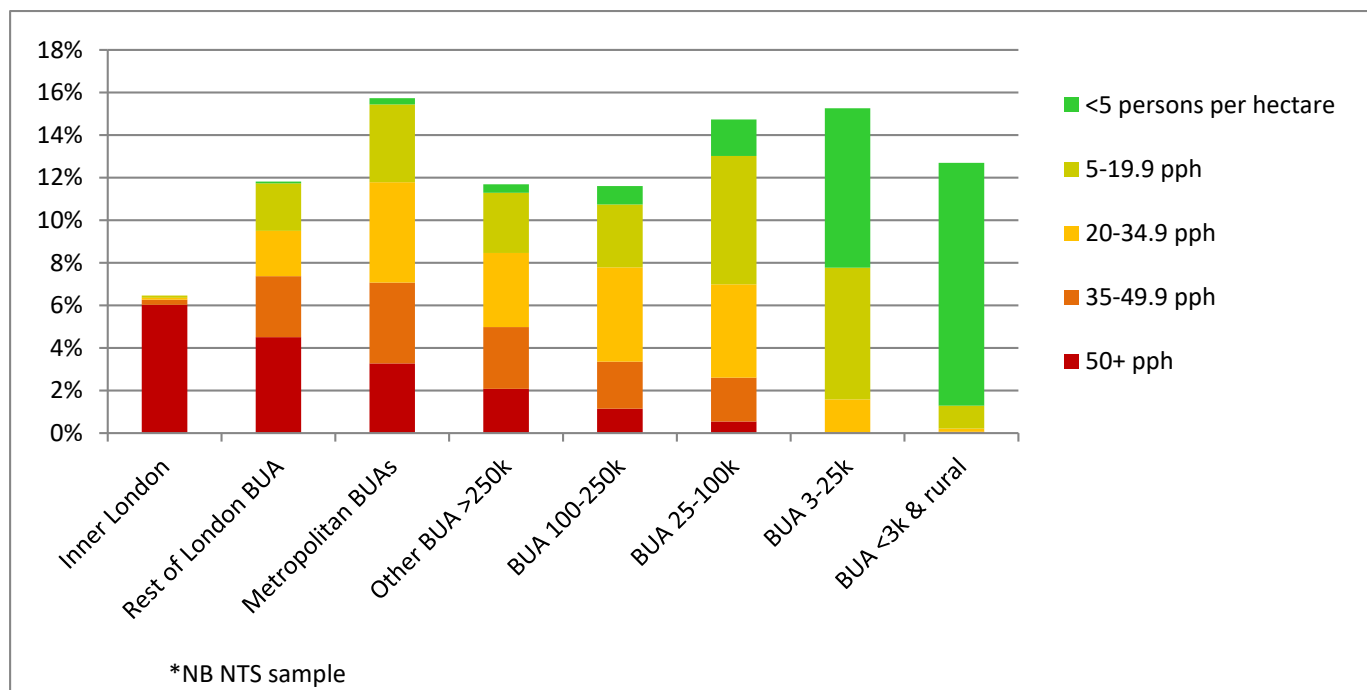


- 5.4.4 Amongst male workers the frequency of trip-making (for all purposes) has fallen by around a fifth since 1996-98 in all three main occupational groups. Average trip length has increased a little amongst professional/managerial workers with their total travel falling slightly less as a result (by 13%). Car driver miles have fallen by 25% in all three groups (i.e. by more than their total travel) but professional managerial workers are distinctive in *increasing* their non driver miles by the same proportion. As a consequence their driver mode share of distance travelled has fallen as much as 9 points, from 80% to 71%. The driver mode share of other male groups has fallen rather less – by 5 points to 64% for other non-manual workers and to 70% for manual and own account workers.
- 5.4.5 Female workers have reduced their trip-making by a smaller proportion (-9% to -12%) since 1996-98 but with increases in trip length amongst other non-manual and manual groups. As a result the change in total travel ranges from – 11% amongst professional/managerial women to +4% amongst women in manual occupations. There is an even greater spread in the change in car driver miles (-6% to +24%), but a fairly uniform reduction in non-driver miles. As a consequence women's driver mode share has increased by between 3 and 8 points to 58%, 53% and 52% for the three main occupational groups.

5.5 Home location

- 5.5.1 Car ownership, travel distance and mode share are all influenced by home location. People living in smaller settlements typically travel longer distances to fulfil their needs, have higher car ownership and make more of their journeys by car. Conversely, larger settlements tend to be more self-contained and their higher development densities facilitate walking and use of public transport.
- 5.5.2 NTS classifies residences according to the size of built-up area (BUA) in which they are situated. In London and the metropolitan areas the single BUAs are very large, being the product of coalescence of many former individual settlements. (London's BUA is subdivided into Inner and Outer, i.e. the Inner London boroughs and the remainder which extends well beyond the GLA administrative boundary). Elsewhere, smaller BUAs mostly take the form of freestanding settlements of various sizes down to individual villages.
- 5.5.3 NTS also classifies residences according to the population density of the postcode sector in which they are situated. These have been grouped into five bands containing a roughly equal number of respondents. Except for Inner London at one extreme and villages at the other there are in fact a range of densities to be found within each size of built-up area (Figure 5.19).

Figure 5.19 Share of national population* by size of built-up area (BUA) and density of postcode sector 2012-14



5.5.4 Figures 5.20 and 5.21 show the links between car ownership, population density and size of built-up area and the fact that the differences between places are tending to widen over time.

Figure 5.20 Cars and vans per adult by population density of postcode sector 1996-98 to 2012-14

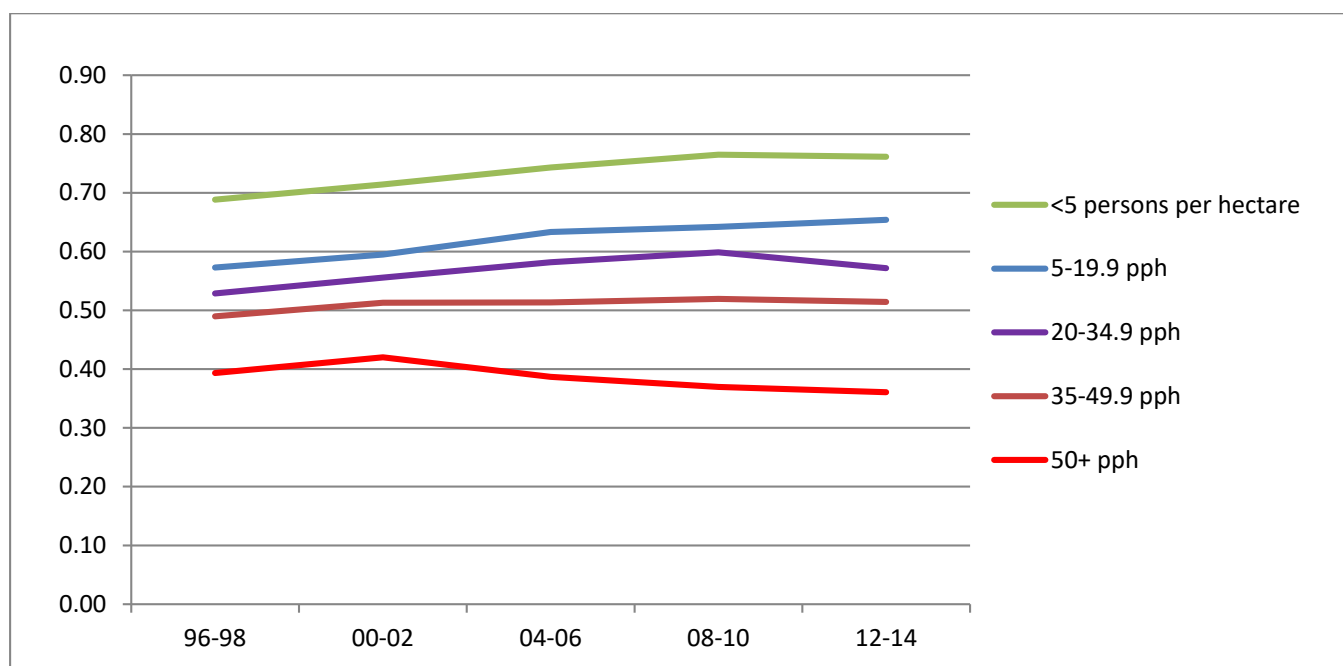
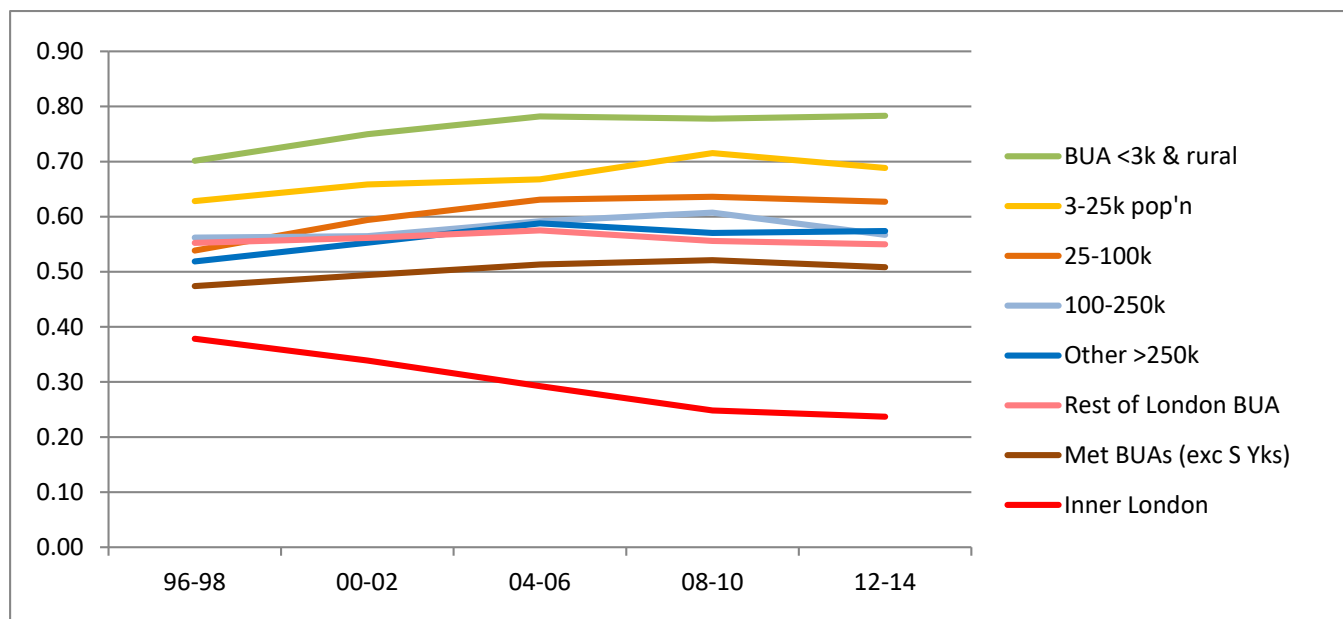
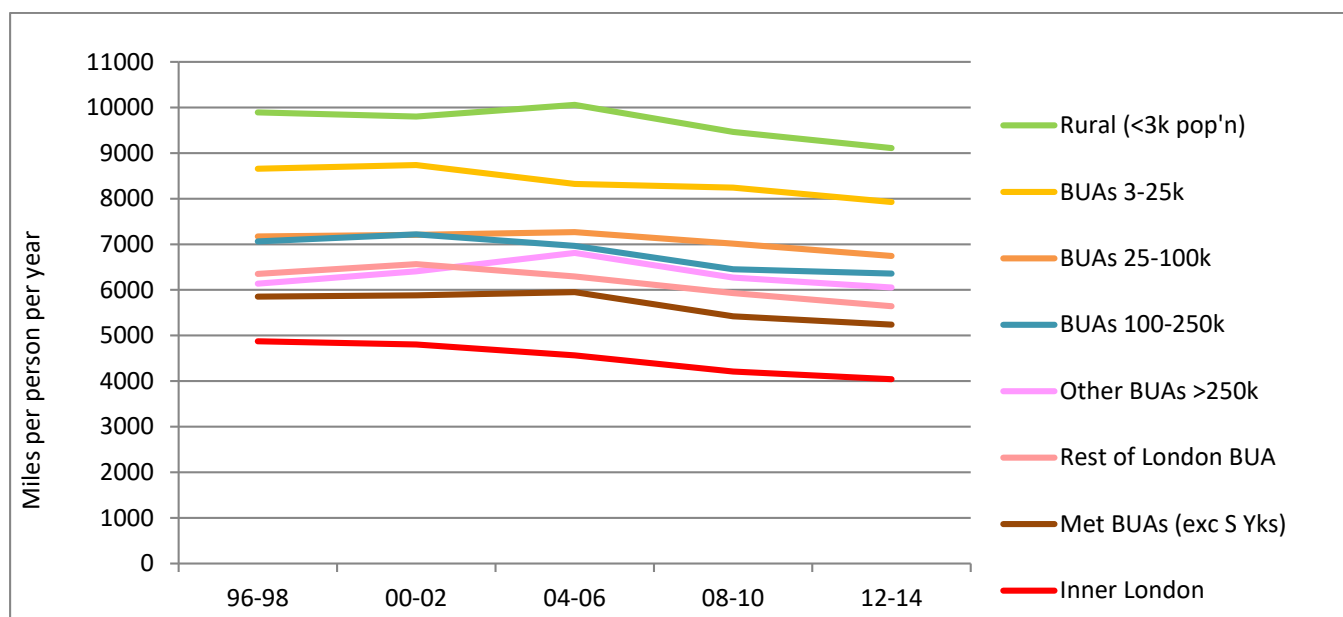


Figure 5.21 Cars and vans per adult by size of built-up area (BUA) 1996-98 to 2012-14



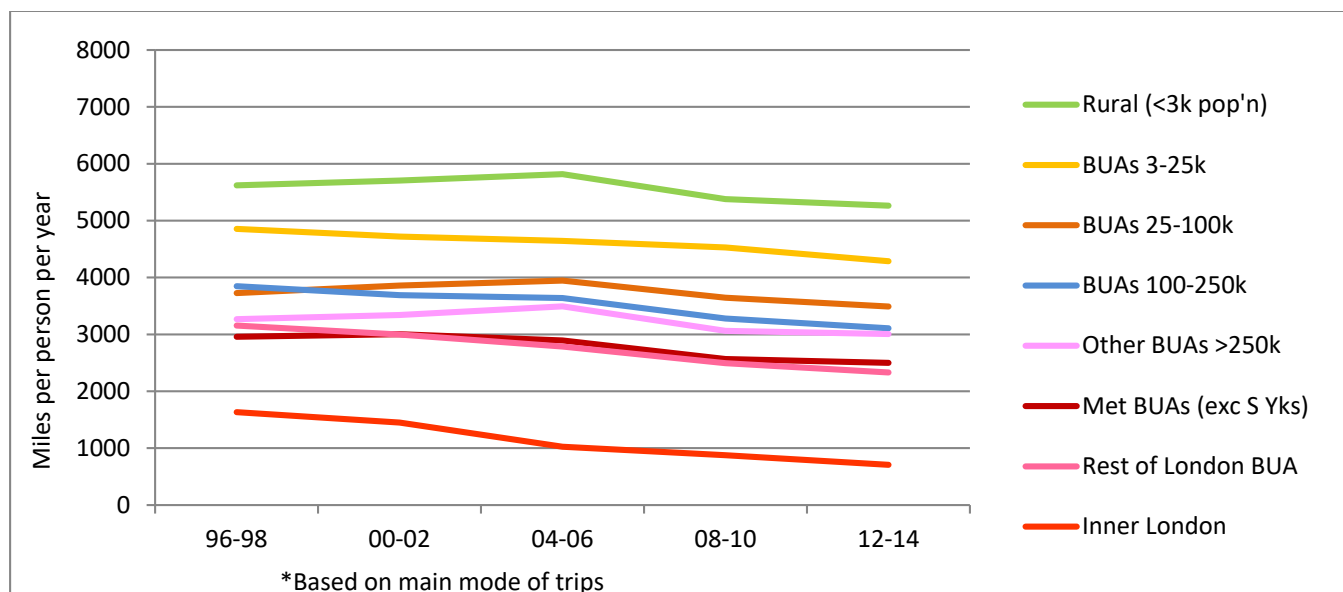
- 5.5.5 Inner London is exceptional in that car ownership amongst its residents has fallen throughout the years since 1996-98 and by more than a third overall. All other built-up areas of more than 25,000 population saw increases in car ownership the first decade but have stabilised or fallen slightly since. (These are averages across the whole built-up area. Evidence from the Population Census identifies divergent trends between inner cities and more suburban areas). Only in smaller towns is there some indication of a continued increase in their relatively high car ownership levels.
- 5.5.6 Total travel per person currently varies between 4,040 and 9,110 miles a year according to the size of built-up area, mainly due to differences in average trip length (Figure 5.22). It has declined in all areas over the last twenty years. In both proportionate and absolute terms the greatest decline has occurred in Inner London and the least in large non-metropolitan cities.

Figure 5.22 Travel by size of built-up area (BUA) 1996-98 to 2012-14



5.5.7 Car driver mileage per person shows greater variation between sizes of built-up area because of additional differences in mode share. Even excluding Inner London the average distance currently ranges between 2,330 and 5,260 miles a year (Figure 5.23).

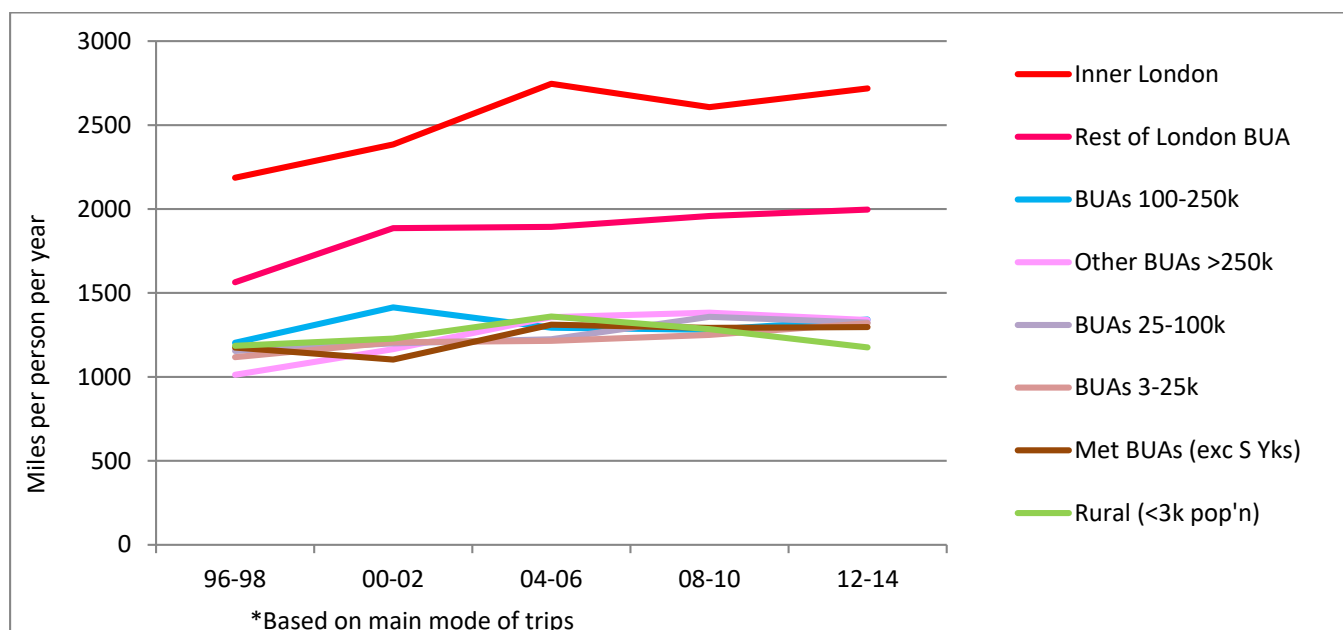
Figure 5.23 Car driver travel* by size of built-up area (BUA) 1996-98 to 2012-14



5.5.8 Driving has fallen in almost all areas since 2000-02, although at different rates. Proportionately the decline has been greatest in London with falls of a half and a fifth in the Inner and Outer BUAs respectively. Elsewhere it has been in the range of -8% to -17% with the smallest fall in the least urbanised areas.

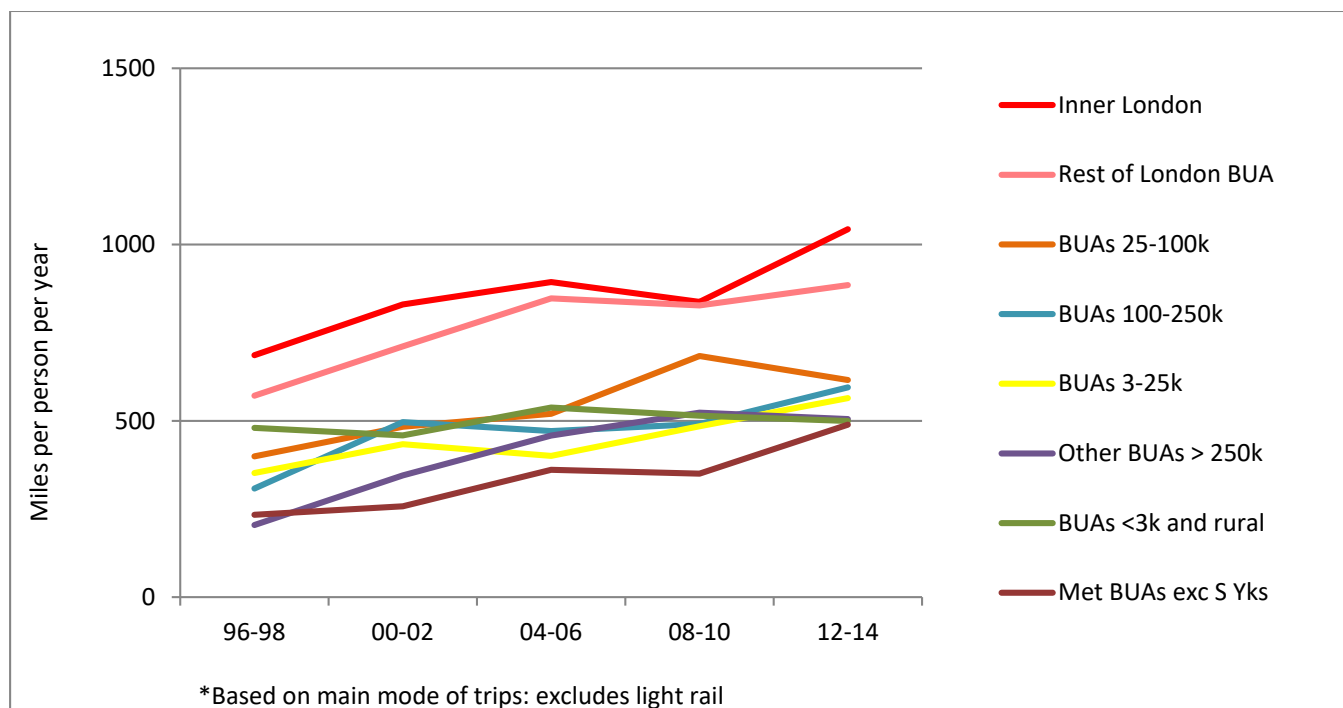
5.5.9 The amount of travel collectively by modes other than the car (i.e. excluding both car driver and car passenger) is remarkably similar across the wide range of area types outside London – not, as one might imagine, the mirror image of car mileage (Figure 5.24). This is partly due to the interplay between average trip frequency (which is higher in more urbanised areas) and average trip length (which is higher in less urbanised ones).

Figure 5.24 Travel by non-car modes* by size of built-up area (BUA), 1996-98 to 2012-14



- 5.5.10 This interplay also underlies the modest growth in travel by non-car modes since 1996-98 in all but the least urbanised areas. In fact non-car trips per person in these areas have declined by between 19% and 26% but this has been offset by an increase of between 40% and 60% in the average length of these trips due very largely to greater rail use.
- 5.5.11 In Inner London residents' travel by non-car modes is roughly double that elsewhere (and 50% higher in Outer London). However the majority of growth in the London area occurred prior to 2004-06. Although residents make more use of surface rail it too has followed this pattern and in the outer part of the London BUA particularly has not increased more recently at the rate it has in other urbanised parts of the country⁶ (Figure 5.25).

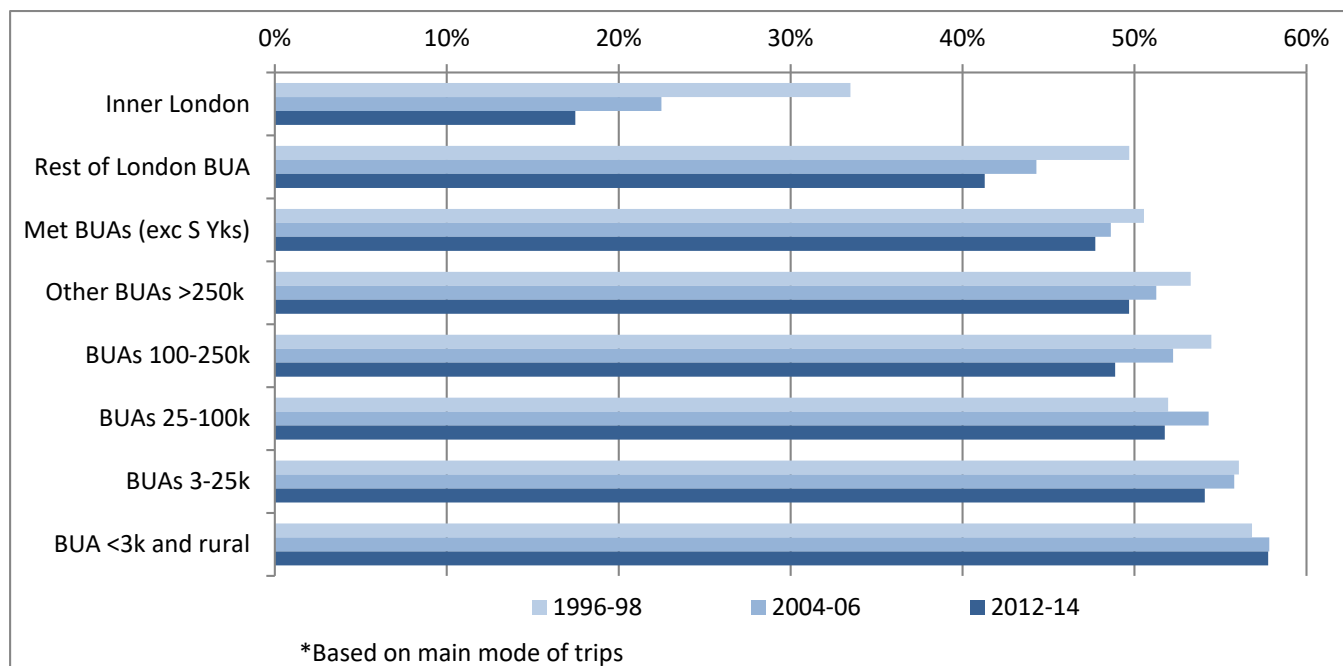
Figure 5.25 Surface rail travel by size of built-up area (BUA) 1996-98 to 2012-14



- 5.5.12 As a result of these changes the car driver share of travel distance has declined a little in most areas (Figure 5.26). However excluding the extremes of London and rural areas it currently falls within a fairly narrow range of 48-54%.

⁶ Note however that all trends in rail travel by spatial category derived from NTS need to be interpreted with caution because the sampling of respondents within individual categories will vary from year to year in terms of distance to a rail station and the level of service available from it. In particular the apparent reduction in rail travel from the smallest (most rural) BUA category since 2004-06 needs to be seen in this light.

Figure 5.26 Car driver distance mode share* by size of built-up area (BUA) 1996-98, 2004-06 and 2012-14



6. The Effect of Changes in Population Composition and Distribution

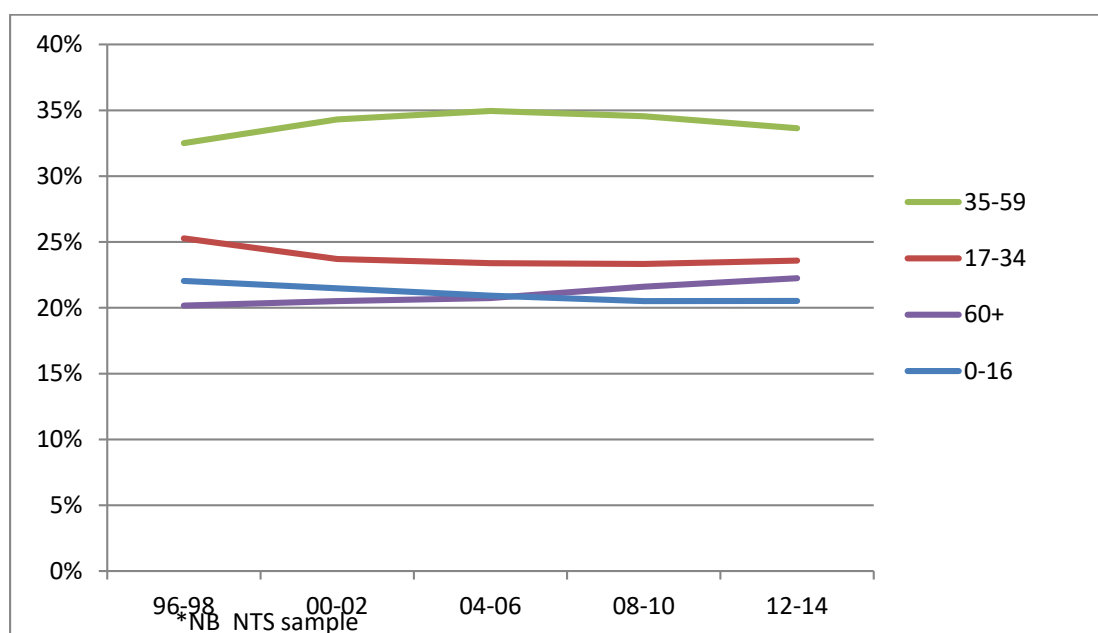
6.1 Introduction

6.1.1 In this chapter each of the socio-economic categories considered in chapters 4 and 5 is examined to identify the changes which have occurred in their composition and the effect this has had on travel overall. This is done by comparing actual outcomes with those which would have arisen with the same change in individual travel behaviour (in terms of distance travelled by mode) but without the change in population composition.

6.2 Age and gender

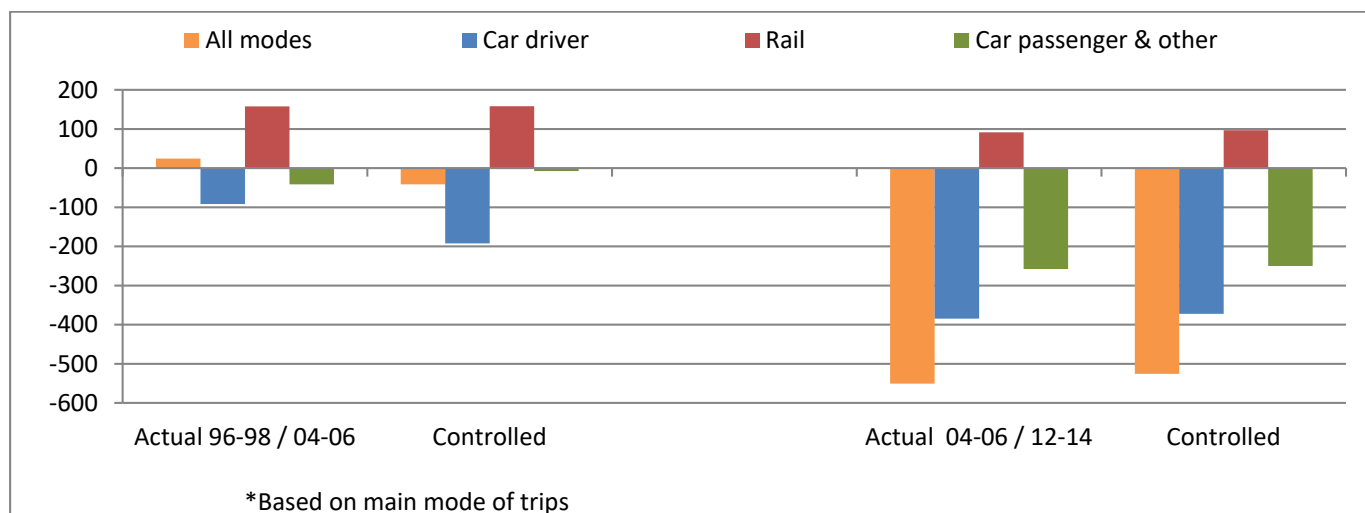
6.2.1 Amongst the population sampled in NTS there was a shift of 3 percentage points between 1996-98 and 2004-06 in the proportion of people above and below the age of 35 (Figure 6.1). There was almost no change during the subsequent period to 2012-14 in this respect although there were further small adjustments between the individual age and gender groups.

Figure 6.1 Proportion of the population* by age group 1996-98 to 2012-14



6.2.2 Per capita travel volumes were little altered in the initial period to 2004-06. However the reduction in per capita car driver mileage would have been twice as great (192 miles a year compared with the actual 92) but for the change in age composition (Figure 6.2). The increased rail mileage was not affected by it. Although there was much greater change in per capita travel volumes after 2004-06 the minor changes in age/gender composition had no material impact.

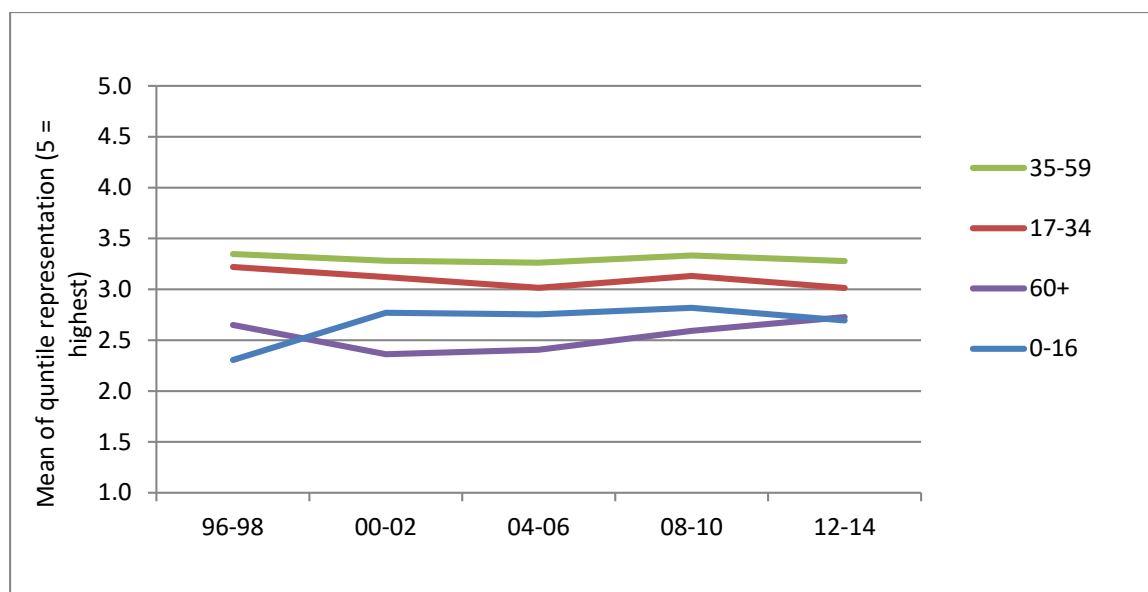
Figure 6.2 Change (miles per person per year by mode*) 1996-98 to 2004-06 and 2004-06 to 2012-14 actual and controlled for age and gender



6.3 Household income

6.3.1 The representation of age groups within the household income quintiles has altered over time. To illustrate the overall change a measure is used here which aggregates the proportion in each quintile into a single score on a 1-5 scale (Figure 6.3).

Figure 6.3 Equivalised household income levels by age group of individual 1996-98 to 2012-14



6.3.2 The relative position of children has improved since 2000-02 as has that of people aged over 60. (The proportion of over 60's in the top two quintiles has increased by a half during that time – see Figure 6.5). Meanwhile the relative position of younger adults worsened up until 2004-06 with the proportion in the bottom three quintiles increasing from 51% to 59% (Figure 6.4). The apparent stabilisation of *household* incomes amongst this age group since then is likely to have been influenced by the increasing proportion continuing to live in their parents' home (see Annex D on household composition).

Figure 6.4 AGE 17-34 proportion by equivalised household income quintile 1996-98 to 2012-14

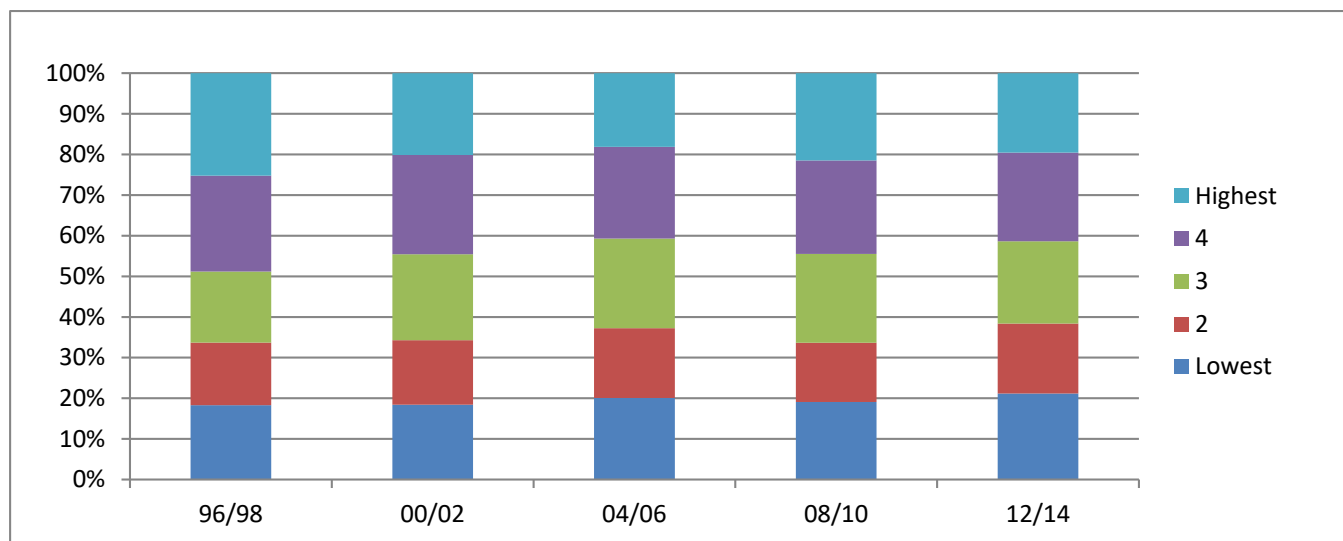
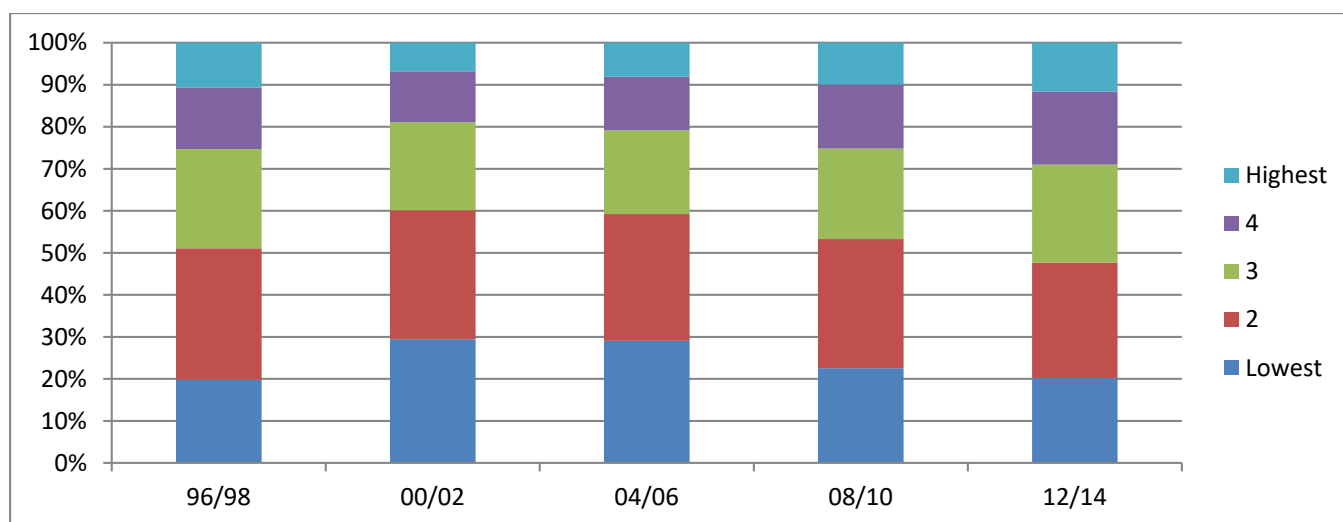


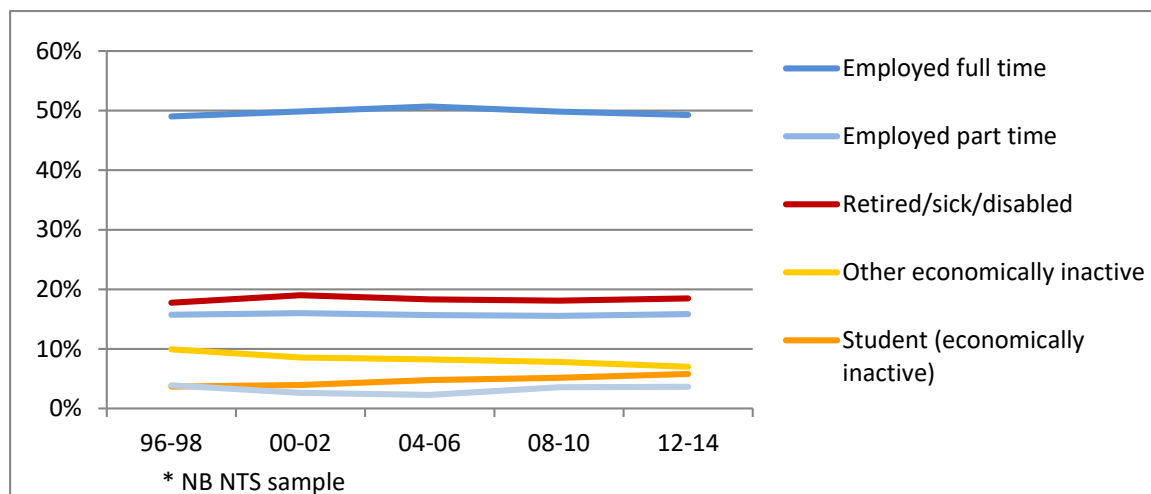
Figure 6.5 AGE 60+ proportion by equivalised household income quintile 1996-98 to 2012-14



6.4 Economic activity

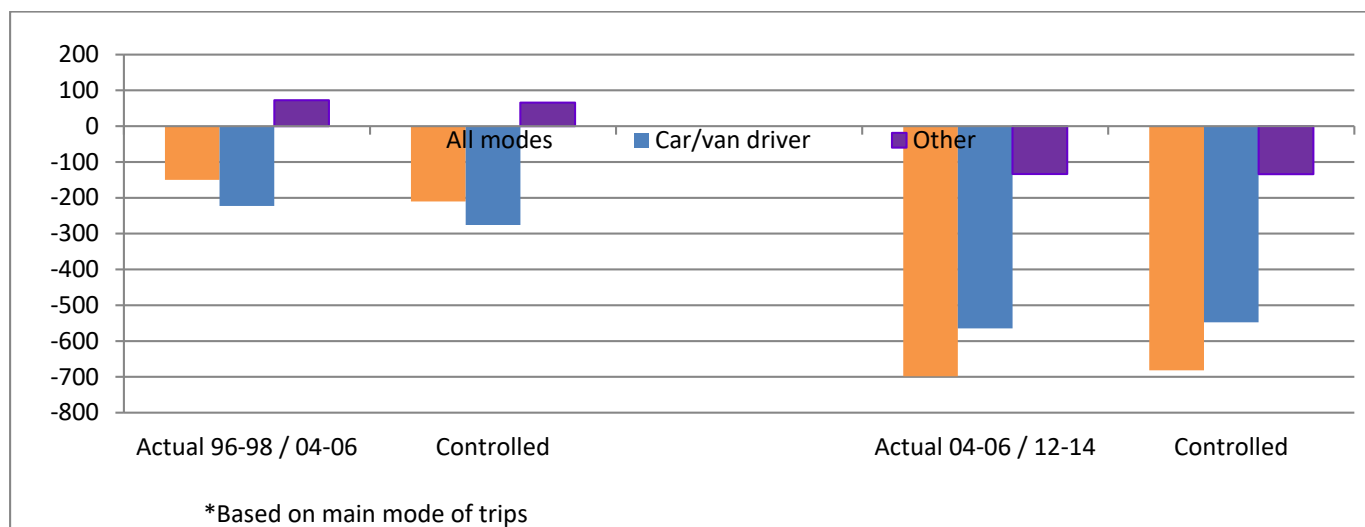
6.4.1 There has been remarkable stability since the late 1990s in the economic composition of the working age population taken as a whole (Figure 6.6). This is particularly true of the recession period. As noted in section 5.3 however there has been a gradual shift between men and women in the proportion working full and part-time. There has also been an increase in the proportion of economically inactive students offset by a decline in other economically inactive people (excluding retired, sick and disabled).

Figure 6.6 Economic activity amongst working age population (16-74)*, 1996-98 to 2012-14



6.4.2 As might be expected these changes have had only a small effect on travel outcomes and that mainly during the period 1996-98 to 2004-06 when the change in total travel was small (Figure 6.7). During that period actual travel and car driver mileage fell by slightly less than would have occurred with unchanged economic composition. During the subsequent period they fell fractionally more.

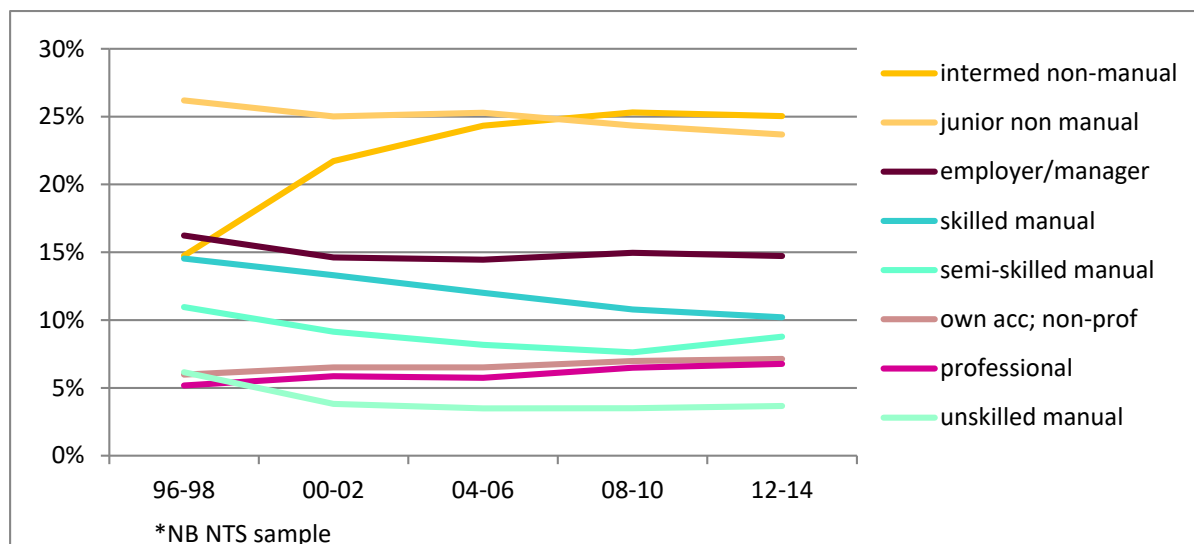
Figure 6.7 Change (miles per year per person aged 16-74, by mode*) 1996-98 to 2004-06 and 2004-06 to 2012-14; actual and controlled for economic activity



6.5 Occupation

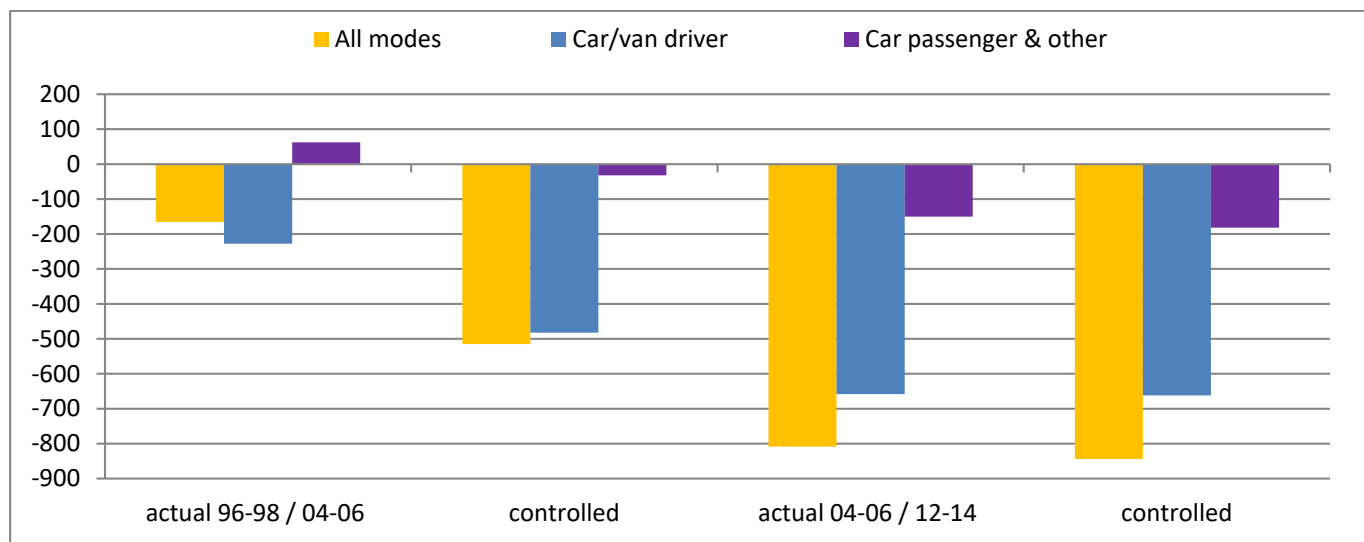
6.5.1 Figure 6.8 shows the changing occupational mix of the working population. Most of the change occurred prior to 2004-06 and consisted of a sharp increase in the proportion employed in intermediate non-manual occupations and a corresponding fall in manual occupations. As noted in section 5.4 this change was more marked amongst men than women although women remain much more strongly represented in the non-manual occupations outside the professional/managerial group.

Figure 6.8 Occupation of employed people* 1996-98 to 2012-14



6.5.2 Figure 6.9 shows the travel consequences of this change. Between 1996-98 and 2004-06 the decline in per capita travel and car driver mileage would have been more than twice as great (an additional 350 and 254 miles a year respectively) but for the change in occupational mix. Since 2004-06 there has been greater actual decline but in this case the (smaller) change in occupational mix has had almost no net effect.

Figure 6.9 Change (miles per year per worker) actual and controlled for occupation and gender 1996-98 to 2004-06 and 2004-06 to 2012-14



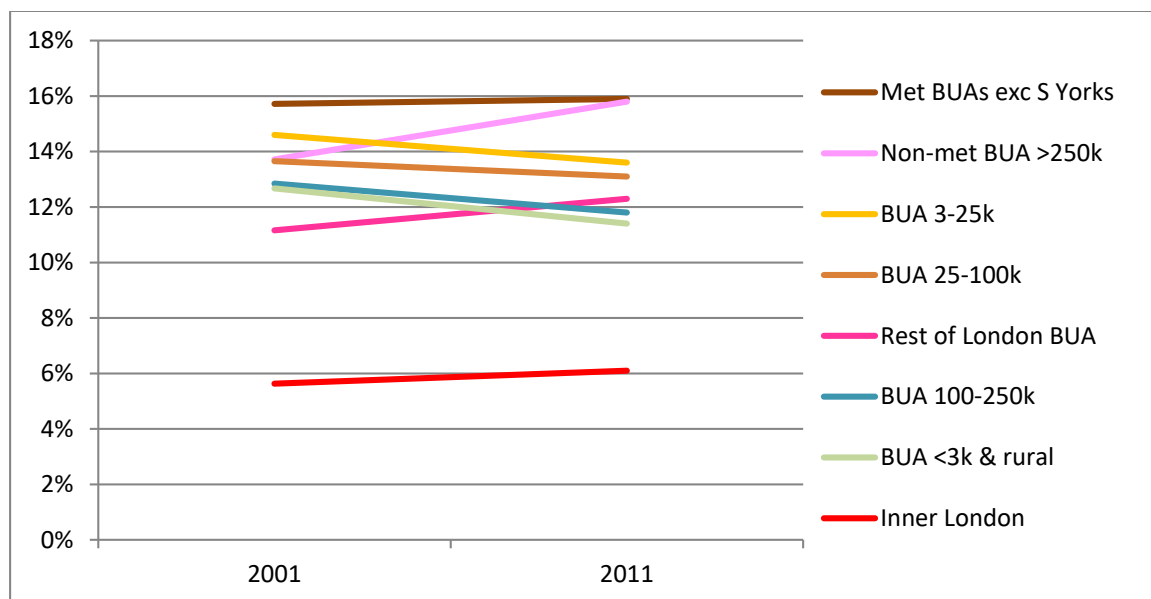
6.6 Home location

6.6.1 Between 2001 and 2011 the spatial distribution of the population shifted towards the major urban areas⁷. All areas with more than 250,000 in population increased their share of the total and collectively by 4 points to 50% (Figure 6.10). As noted in section 5.5 travel and

⁷ The (100%) Population Census is used here as the source of information on population distribution and not NTS itself. This is because there appears to be an erroneous skew in NTS sampling towards smaller built-up areas in recent years.

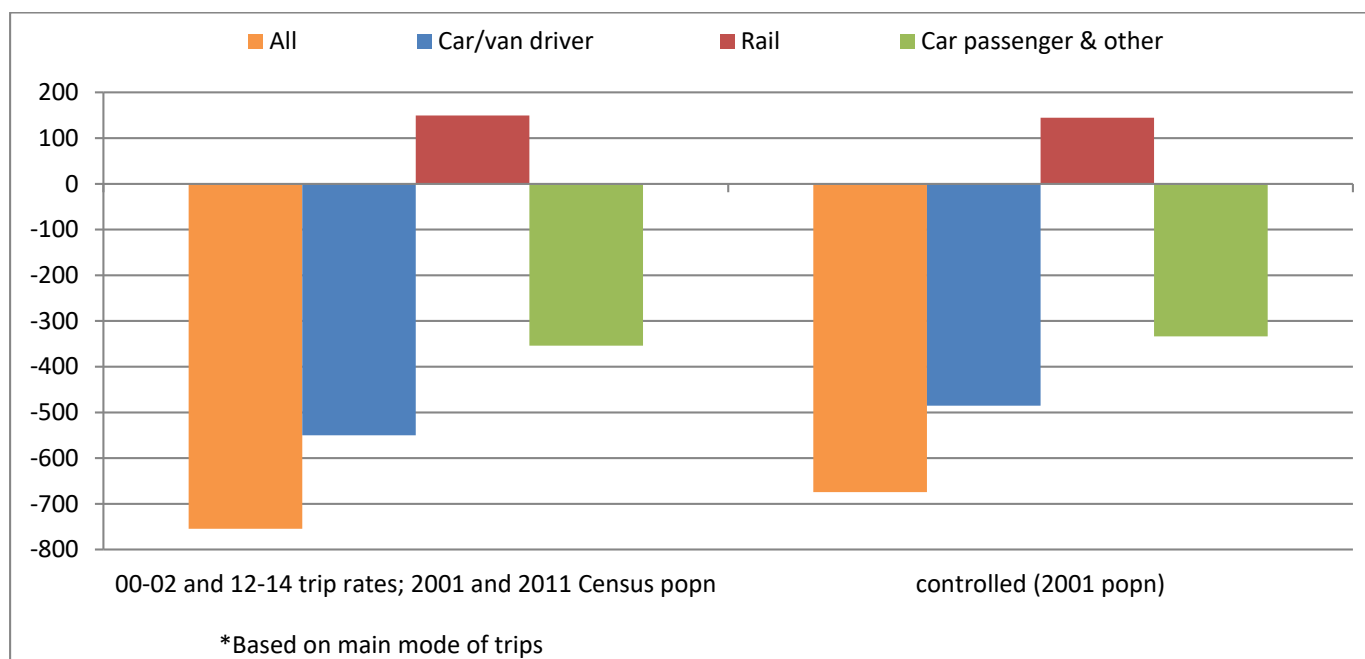
car use tends to be lower in the larger urban areas and one would therefore expect this change in population distribution to be reflected in a greater overall reduction in recent years than would have occurred otherwise.

Figure 6.10 Share of national population by size of built-up area (BUA); Census 2001 and 2011



6.6.2 The effect of the change can be gauged by comparing the travel outcomes for 2000-02 and 2012-14 (applying the actual NTS trip rates and the Census population distributions for 2001 and 2011) with those which would have arisen had the 2001 distribution been unaltered (Figure 6.11). On this basis per capita travel during this period fell by 755 miles a year of which car driver travel comprised 550 miles (i.e. by minus 10.4% and minus 14.6%). These reductions were 1.1 and 1.7 points greater (80 and 65 miles a year) than would have occurred but for the changed population distribution. Travel by other modes would not have been materially different.

Figure 6.11 Change in miles per person per year by mode*; actual 2000-02 to 2012-14 and controlled for home location

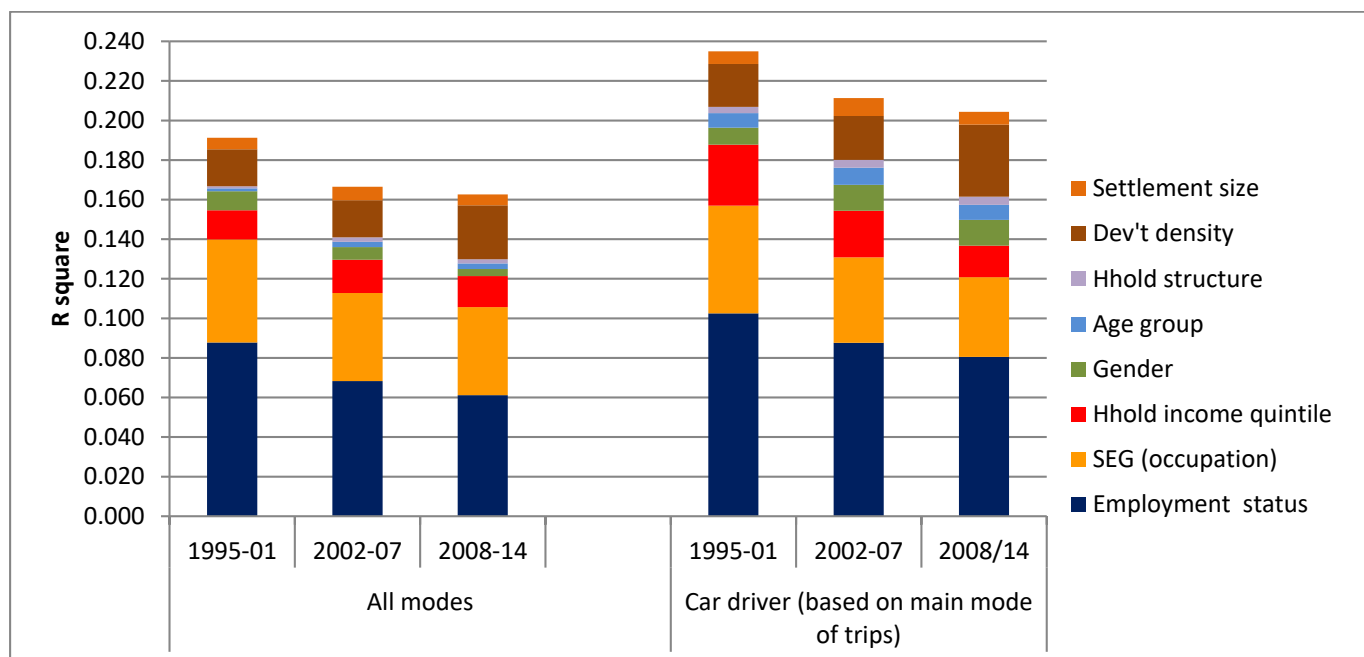


6.7 Socio-economic and spatial influences in combination

- 6.7.1 Thus far each of the main socio-economic and spatial influences on travel has been considered separately. In practice they act in combination. A series of regression analyses have therefore been undertaken to identify the relative importance of the variables considered and how this has changed over time. Details of the methodology and full results are given in Appendix A.
- 6.7.2 The strength of association of socio-economic and spatial attributes with variations in per capita travel distance is indicated by their contribution to the overall R^2 statistic. The absolute value of this statistic is relatively low in this context (around 0.2) reflecting the fact that a large part of the difference in travel behaviour between individuals otherwise similar in these attributes is due to personal preference in relation to mix of activities, home/work relationship, use of transport modes, etc.
- 6.7.3 To maximise the robustness of the exercise the NTS data has been grouped into just three time periods: 1995-2001, 2002-07 and 2008-14. Note that car ownership and licence holding, although obviously influential, are excluded from this form of analysis since they are in the nature of 'intermediate' variables, and are therefore not genuinely independent.
- 6.7.4 Analysing the population as a whole shows age group and household income quintile to be the most important influences of the variables examined as far as travel by all modes is concerned. However these variables are in effect acting as proxies for differences in economic activity and occupation which were not included initially since they are inapplicable to the 0-15 and 75+ age groups (but see below).
- 6.7.5 Gender was the most important factor influencing mileage as car driver amongst people over the age of 16 in the years 1995-2001 but its influence halved during the period to 2008-14. However some of this will be due to changes in employment-related factors as between men and women over the period and not merely to changes in their propensity to drive.
- 6.7.6 Spatial factors (i.e. the characteristics of home location as presented by development density and settlement size) have a bigger influence on car driving distance than on travel distance generally. In both cases their importance has increased by almost a half between 1995-2001 and 2008-14⁸.
- 6.7.7 Further analysis confined to people of working age enabled variables of economic activity and socio-economic group by occupation to be included. This shows gender to be of limited importance by itself, with most of the difference between men and women being accounted for by difference in these economic variables rather than by innate propensities to travel or drive (Figure 6.12).

⁸ Note that because of the correlation between development density and settlement size it is not possible to determine exactly how much variation in travel is attributable to each. In this exercise priority has been assigned to development density so that only the remaining (ie additional) effect of settlement size is registered. However this ordering could have been reversed. The effect of the two factors is therefore better viewed in combination.

Figure 6.12 Influence of socio-economic and spatial variables on distance travelled per person aged 16-74 1995-2001, 2002-07 and 2008-14 (SEG = socio-economic group)



6.7.8 For the same reason age by itself is of even less importance as far as overall travel is concerned. However it has rather more significance in respect of car driver mileage suggesting that there are innate differences between the age groups in their propensity to drive.

6.8 Conclusion on the effect of changes in population composition and distribution

6.8.1 The analyses reported in this chapter have demonstrated that the nature and scale of changes in the composition and distribution of the population have made only a minor contribution to the changes in per capita travel noted previously. The effects have been concentrated almost exclusively on car driver travel. The most important single influence was that of the change in occupational make-up of the workforce in the years prior to 2004-06 but the overall significance of this is lessened by it only applying to part of the population.

6.8.2 It follows that the source of most of the change in per capita travel has to be found in genuine changes in individual travel behaviour. The possible reasons for these changes are considered in the next chapter.

7. Possible Causes of Change in Travel Behaviour

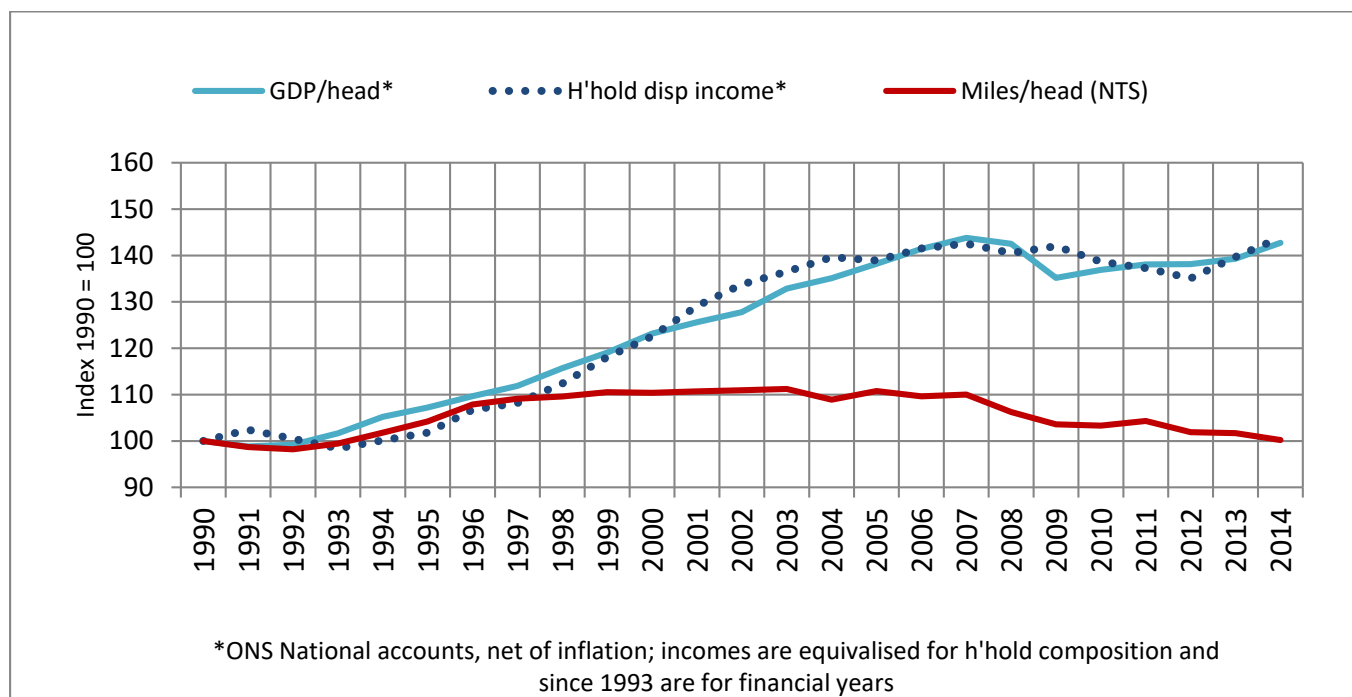
7.1 Introduction

- 7.1.1 This chapter explores a range of factors which might have contributed to the observed changes in travel behaviour additional to the effects of specific changes in the socio-economic and spatial composition of the population identified earlier in this report.
- 7.1.2 It begins by examining trends in disposable income amongst the population as a whole and then in terms of inter-generational distribution. It notes changes in transport costs amongst the main modes and in conditions of transport supply, principally as affecting travel speeds. It then briefly reviews evidence on transport substitution via ICT. The perspective is then broadened to consider the ‘urban renaissance’ and a number of associated cultural and attitudinal attributes which can be said to be a feature of contemporary lifestyles.

7.2 Incomes

- 7.2.1 The growth in travel has traditionally been associated with the increase in incomes but as is evident in Figure 7.1 this link has been broken since 1997. Household disposable incomes rose by almost a third during the subsequent decade and therefore a change in the long-term income trend cannot account for the transition to ‘flat-lining’ which was a feature of per capita travel in the years prior to the recession⁹.

Figure 7.1 GDP per head (UK), mean household disposable income (GB) and miles per head (England) indexed 1990-2014



⁹ As noted previously there were important differences between the main modes within this overall flat-lining during the decade prior to the recession – see Figure 2.5.

- 7.2.2 Note that the trajectory of household disposable incomes is different from that of the economy generally. (Disposable incomes are more directly relevant to most personal travel and can be affected, amongst other things, by the practices of companies in terms of employment and wages in any given economic circumstances and by public policies in respect of tax and benefits). The difference is particularly marked in that there have in effect been two ‘recessions’ – the economic recession of 2008-09 and the income recession of 2010-12¹⁰.
- 7.2.3 Between 2002 and 2008 the growth in incomes was slower than GDP but after the financial crash of 2007 average incomes held up in the face of falling GDP. This is due to a combination of factors including younger and less-skilled workers being more economically vulnerable and occupying a smaller proportion of the workforce, the time lag in wage increases adjusting to falls in inflation, and the effect of economic stimulus measures introduced by the government. (The precise representation of incomes depends on the definitions employed – see box below).
- 7.2.4 In the three years after 2009-10 however the situation changed markedly. Whilst GDP began to recover the household incomes of non-retired persons fell by 6.5 % due primarily to cuts in real wages and the government’s introduction of austerity measures in order to reduce its annual borrowing requirement.
- 7.2.5 During 2012-13 and 2013-14 the real incomes of all households increased by just under 6% and collectively brought them back to their pre-recession levels. As noted previously however per capita travel continued to decline and in 2014 was almost 10% less (miles per person) than prior to 2008.

Measurement of Household Income

The disposable incomes reported in the main text are the Real Household Disposable Incomes (RHDI) per capita published annually by ONS as part of the National Accounts. The incomes are net of tax and benefits paid or received by all household members and are adjusted according to household composition (using an OECD convention) to represent the equivalent living standard of a childless couple.

The Institute of Fiscal Studies in its analysis of living standards shows the relationship of RHDI with GDP on the one hand (the value of all goods and services traded within the UK economy) and several alternative measures of household incomes on the other. These alternatives make use of official data from the Family Resources Survey (referred to as HBAI – Households Below Average Incomes) and are quoted both before and after housing costs – BHC and AHC. (The RHDI measure excludes housing costs; in the case of mortgage payments the IFS AHC measure includes the interest element only). The IFS also quotes measures based on median household incomes (which are typically lower) as well as the mean incomes used in RHDI.

The table below, reproduced from the IFS report¹¹, illustrates the differences between the various measures over four key periods. Broadly these show successive stages of diminishing income growth

¹⁰ Complication arises over time periods because GDP (and the determination of recessions) is measured in terms of year quarters as distinct from the measurement of incomes in financial years. The recession involved quarter on quarter contractions in GDP in each of 2008 Q2 to 2009 Q2 plus no change in 2009 Q3. Hence the adoption of either calendar years (2008-2009) or financial years (2008-09 to 2009-10) involves years which in practice experienced periods of both expansion and contraction.

¹¹ Adapted from Table 2.2 of ‘Living Standards, Poverty and Inequality in the UK: 2014’ Institute for Fiscal Studies, London July 2014

culminating in the three years of decline following the 2008-9 recession. More recent provisional figures for the years 2012-13 to 2014-15 indicating economic recovery have been published by ONS¹² and are utilised in the main text.

Table 7.1 Annualised changes in living standards according to National Accounts and HBAI measures

	GDP per capita (UK)	RHDI per capita (UK)	HBAI BHC mean (GB)	HBAI BHC median (GB)	HBAI AHC mean (GB)	HBAI AHC median (GB)
'Fast growth': 1996-97 to 2001-02	3.0%	4.5%	3.4%	2.9%	4.1%	3.5%
'Slow growth': 2001-02 to 2007-08	2.6%	1.4%	0.9%	0.7%	1.5%	1.3%
Recession: 2007-08 to 2009-10	-3.9%	0.6%	1.2%	0.7%	0.2%	-0.4%
Recession: 2009-10 to 2012-13	0.0%	-0.7%	-2.9%	-1.9%	-3.5%	-2.7%

Note: The annualised growth in each period is calculated by comparing the first year in the given period with the last year of the period

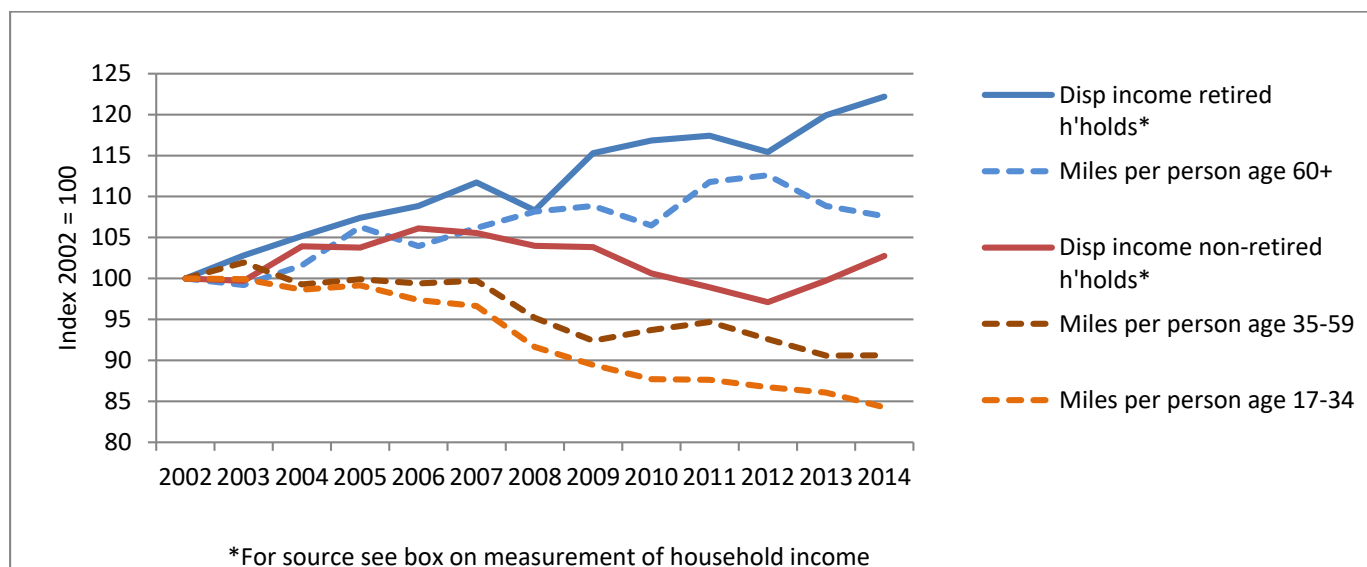
The selection of income measure is particularly relevant to the issue of inter-generational differentials considered in the main text (7.2). The IFS notes that using the median AHC measure the income of pensioner households overtook that of working age households in 2009-10 for the first time since records began in 1961, having been 20% lower as recently as 1992.

¹² 'Nowcasting household incomes in the UK: Financial year ending 2015' ONS Statistical Bulletin October 2015

7.3 Inter-generational income distribution

- 7.3.1 The detachment of personal travel from income growth generally is a feature of over-riding importance in the period studied in this report. However the *distributional* shift in incomes, which has occurred between younger and older adults over the last decade appears a contributory factor to their very different travel trends reported in Chapter 4 and summarised in Figure 7.2.

Figure 7.2 Household mean disposable incomes and travel distance per person by age group indexed 2002-2014



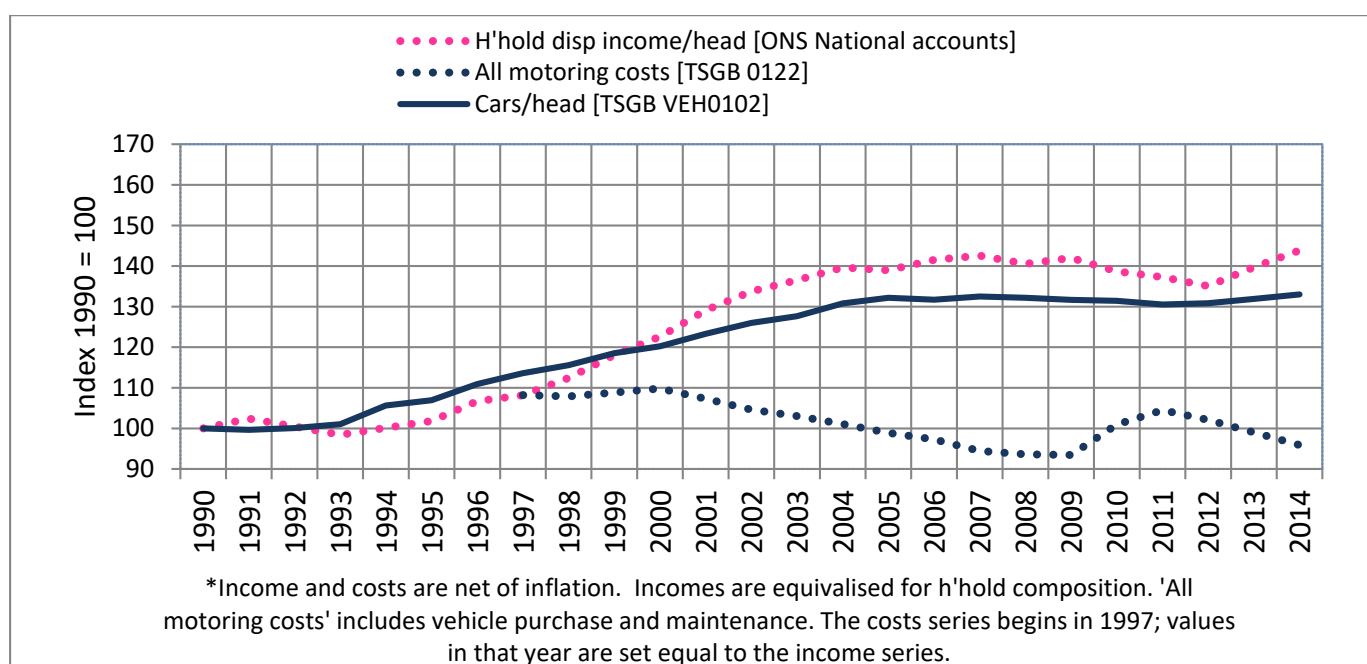
- 7.3.2 Historically the average income of retired households has been less than that of households of working age. However their relative position began to change around 2002-03 due to lower real growth in wages amongst workers on the one hand and improved private and state pensions on the other. This changing differential became more conspicuous with the onset of the recession and subsequently due in part to the government's policy of protecting pensioners' living standards through the so-called 'triple lock'. Between 2008-09 and 2014-15 the real disposable income of retired households increased by 13% whereas amongst households of working age it remained just below the 2008-09 level.
- 7.3.3 This distributional shift is particularly marked in the case of young adults who are affected disproportionately by lower employment rates and lower pay during and following periods of economic recession. Analysis by the Institute of Fiscal Studies identifies that median household incomes of people aged 22-30 between 2007-08 and 2012-13 fell by 13% and 20% before and after housing costs – almost twice the rates of those aged 31-59. The personal incomes of these young adults would be shown to have fallen further still but for the fact that just over a quarter live with their parents and on average benefit from higher household incomes. (The changing household composition of young adults and its travel implications are considered in Annex D)
- 7.3.4 The exceptional combination of factors affecting 'Millenials' – today's younger adults born between 1985 and 2000 – is recognised as affecting their circumstances and prospects in a way which differentiates them from previous generations. In addition to the lower levels of licence holding and car ownership reported previously distinctive features include the shortage of secure and rewarding employment, student debt, unaffordability of house

purchase, reliance on shared living accommodation and the postponement of marriage and parenthood. As a result of this 'deferred adulthood' the traditional life-cycle move to a more suburban, car orientated existence is becoming less common and occurring later in life.

7.4 Travel costs

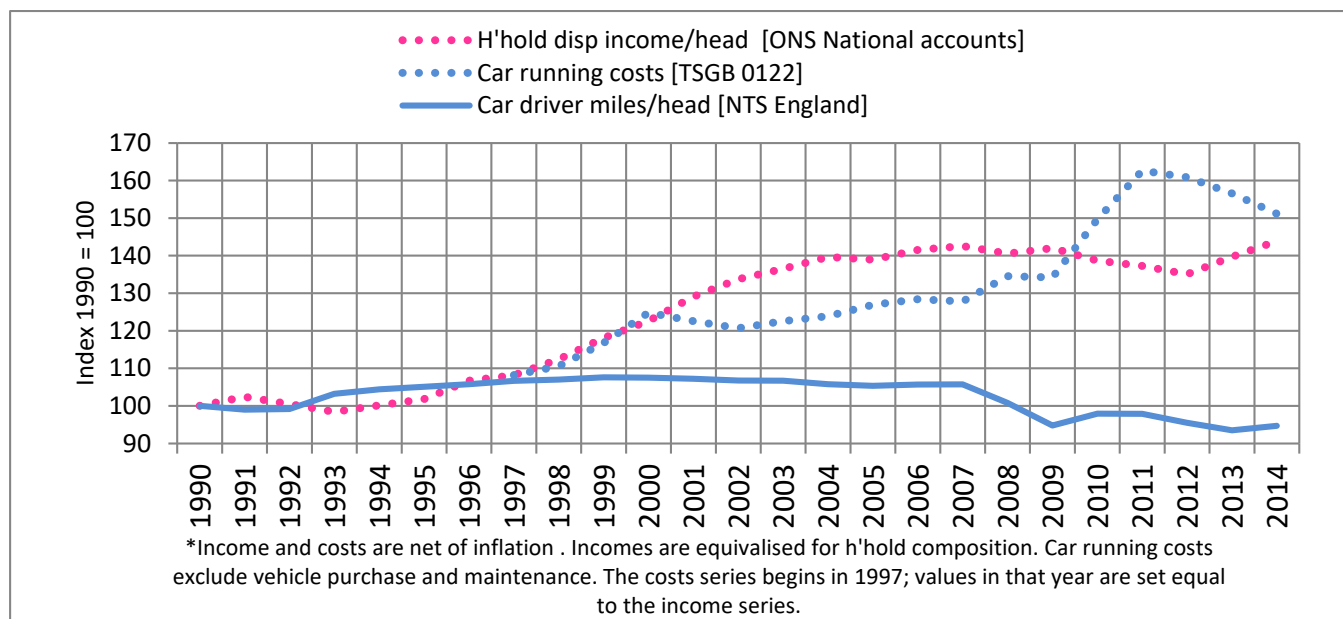
7.4.1 In addition to the general propensity to travel as influenced by disposable incomes both car ownership and use are in principle likely to be affected by trends in the costs of motoring. Car ownership broadly followed the increase in household disposable incomes until 2006 (although at a slightly slower rate) but the trend before and since shows no apparent relationship with overall motoring costs (Figure 7.3).

Figure 7.3 Mean household disposable income, all motoring costs and cars per head (GB) indexed 1990-2014*



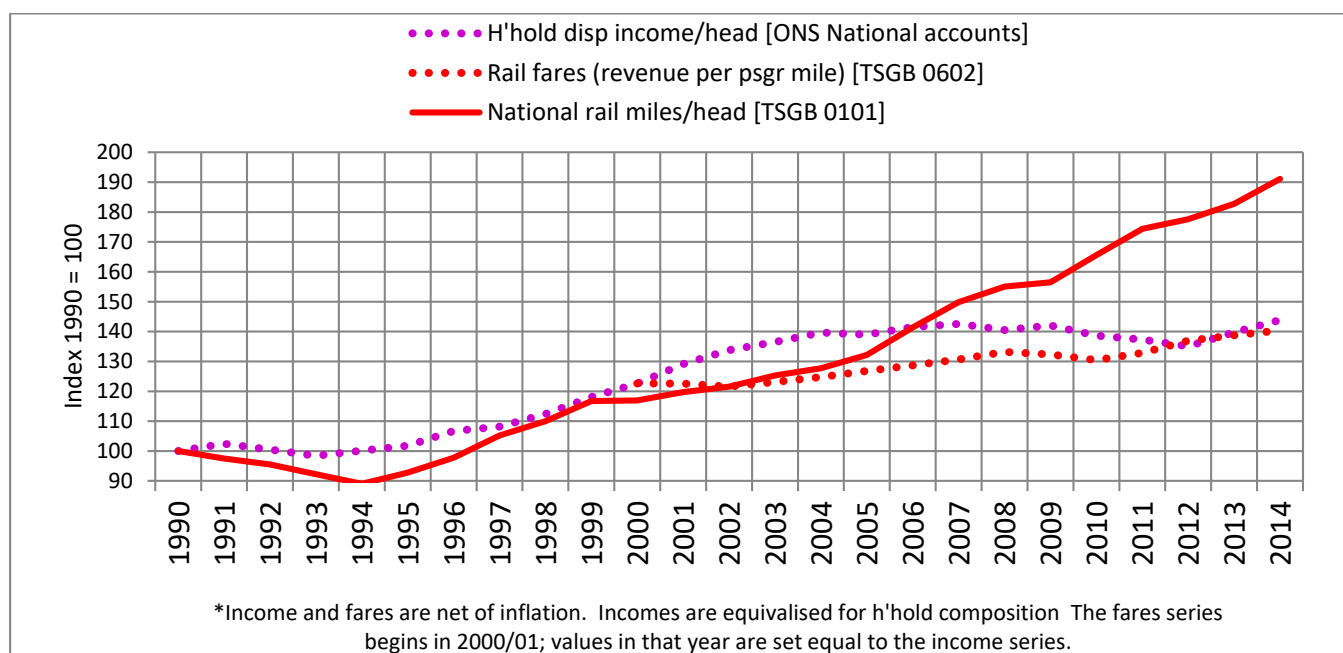
7.4.2 Car running costs were increasing at a rather slower rate than household incomes during most of the decade after 1998 during which time car driver travel per head was flat-lining. Whilst the effect of the recession is evident in the drop in car driver miles during 2008-9 an impact from the sharp rise in fuel prices in 2010-12 is not (Figure 7.4).

Figure 7.4 Mean household disposable income, car running costs and car driver miles per head indexed 1990-2014*



7.4.3 Public transport use is potentially more susceptible to cost influences since most journeys are made on a 'pay as you go' basis without the large element of fixed costs which underpin motoring. After the turnaround in rail travel in 1995 patronage broadly followed the increase in incomes over the subsequent decade (Figure 7.5). Since then it has increased well ahead of the increase in fares despite the flattening of incomes.

Figure 7.5 Mean household disposable income, rail fares and rail miles per head (GB) indexed 1990-2014*

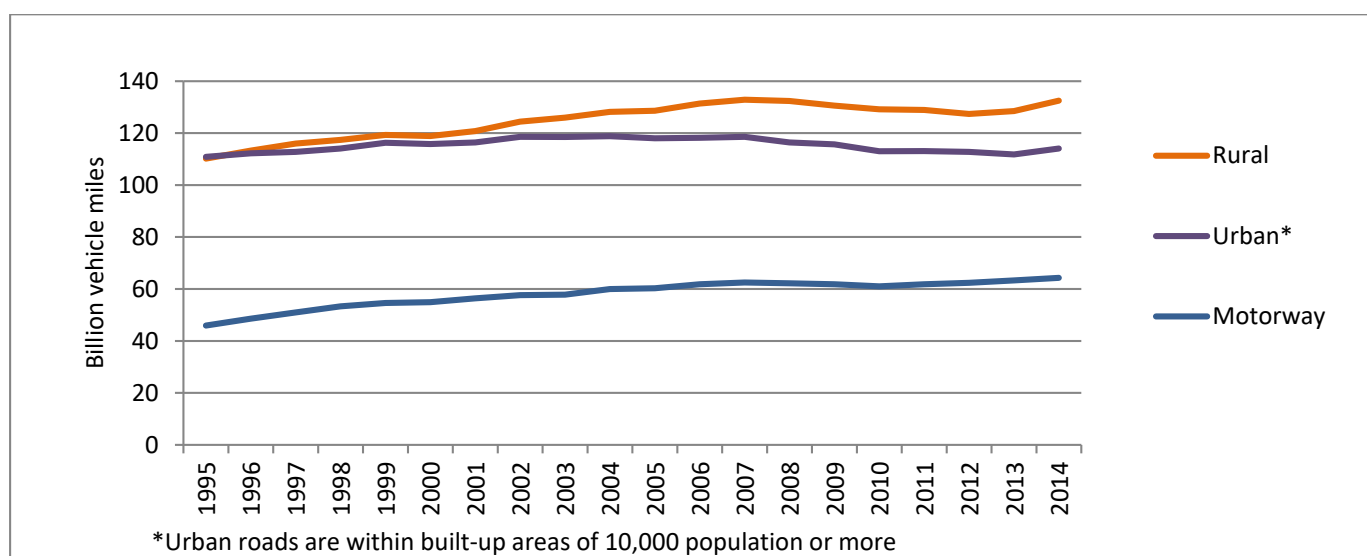


7.5 Transport supply

7.5.1 As well as monetary cost the number and length of trips will be influenced by the speed, reliability and (in the case of public transport particularly) the comfort of journeys. These in turn are a function of the scale and quality of the infrastructure and its management in the context of prevailing levels of demand.

- 7.5.2 It has been a feature of the last 15-20 years that in terms of travel generally speeds have fallen. As indicated previously in Figure 1.2 average trip distance has increased by roundly 10% over the period, but trip time by 15%. (Hence average speeds have fallen by 5%). This represents a reversal of the historical pattern whereby additional travel was fostered by improvements in mobility, technology and infrastructure such that the same or greater distances could be traversed in *less* time. It is unsurprising therefore that in this unfavourable situation the aggregate response should have been to reduce trip-making where practicable (e.g. by trip substitution, considered below) and thereby secure savings in overall travel time.
- 7.5.3 However if we examine the metrics for trips made by car driver and other modes separately there is a difference which may go some way to explaining another of the trends noted in this report, namely why the driver mode share has not risen overall and indeed declined relative to levels of car ownership. Comparing Figure 2.7 and 2.8 previously it can be seen that the average time of car driver trips has risen by 7% without any increase in trip distance whereas for other modes collectively both time and distance have increased by 23%. Hence speeds for trips made as car driver have fallen whilst others have not. In practice the statistics for 'others' incorporate a mix of features for the various modes. By itself greater use of rail would imply an increase in average trip speeds so the implication is that for some other modes, e.g. car passenger and local bus, average speeds have fallen.
- 7.5.4 More detailed analysis of trip speeds by car driver mode reveals that between 1996-98 and 2012-14 they fell by an average of 4.7%. Most of this reduction occurred within the first eight years during which time the total volume of traffic increased by about 10% (Figure 7.6). Reduced car driver speeds are a feature of all types of area and all trip lengths. In absolute terms however average speeds increase with distance (from 10 mph in 2012-14 for trips under 2 miles to 41 mph for trips more than 25 miles) and inversely with settlement size (residents' location) – from 12.3mph in Inner London (all distances) to 22.6mph in smaller towns and rural areas.

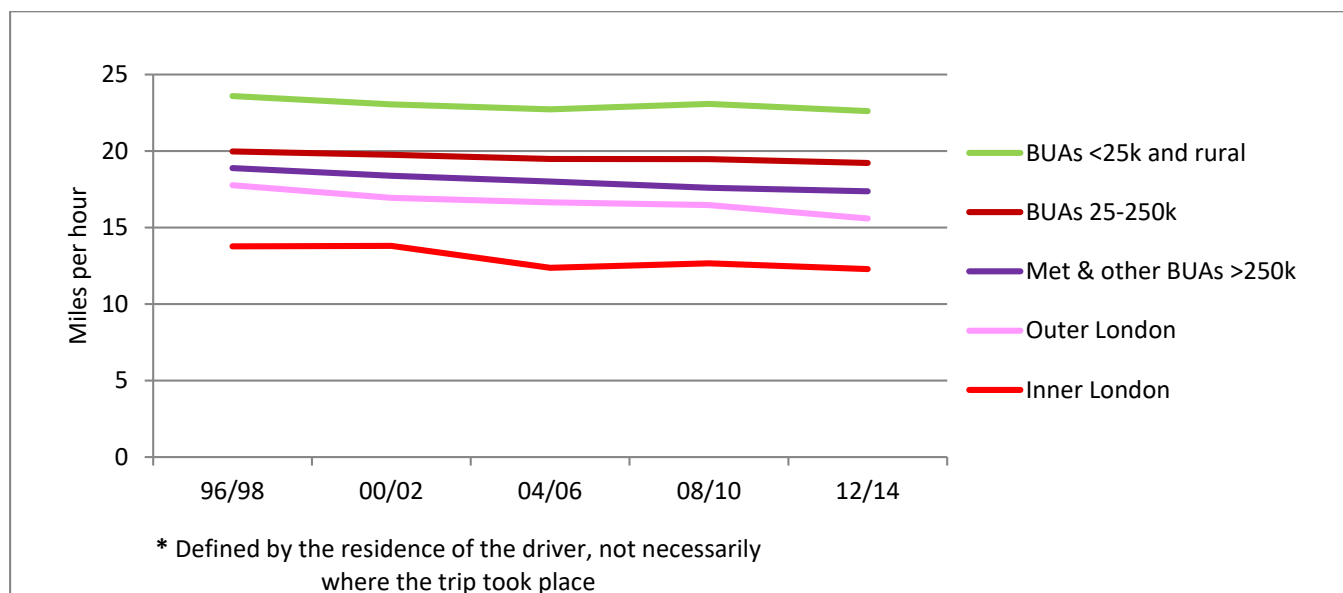
Figure 7.6 Traffic by road class GB 1995-2014



Source DfT Road Traffic Statistics Table TRA0102

7.5.5 Unsurprisingly perhaps a greater proportional reduction in speed has occurred in the more urbanised areas (Figure 7.7) – the logical inference being that more of their networks were operating previously for more of the time close to or above their ‘free-flow’ capacity and were thus vulnerable to speed reduction in the event of traffic growth. However traffic volume is not the only factor since car driver speeds have continued to decline in more recent years (albeit more slowly) even though total traffic has remained broadly stable and a greater proportion has taken place outside urban areas.

Figure 7.7 Average trip speed by car driver (main mode) by size of built-up area (BUA)* 1996-98 to 2012-14



7.5.6 In addition to the innate ‘supply’ limitations of urban highway networks it is therefore relevant to highlight the effects of transport demand management policies which local authorities have been encouraged to pursue since the mid-1990s. These have typically involved restrictions of private non-residential parking, the extension of on-street controlled parking and the reallocation of road space to improve conditions for other modes with the intention of deterring car driver trips for commuting in particular and promoting ‘modal shift’. These plus traffic calming and other measures to improve safety and environmental conditions tend to extend in time and/or distance the car driver trips that continue to be made. (‘Public realm’ improvements of this kind are often a central feature of urban regeneration schemes – see 7.7 below).

7.5.7 Spatial variation in these limitations on motorists’ mobility and in the availability and levels of service offered by alternative modes (including trip substitution) underlies the divergent trends in car ownership and use between more and less urbanised areas noted in Chapter 5.5.

7.5.8 As far as rail is concerned key factors in the continuing patronage growth have been the ability of the industry to accommodate passengers physically on trains and to maintain standards of operating reliability and punctuality. Since 2000-01 the volume of train miles has increased by 25% alongside an increase in passenger miles of 63%. The official measure of overcrowding (calculated in respect of weekday peak period services to and

from London) has remained broadly stable during this time although the most recent figures (for 2014) are the highest recorded¹³.

- 7.5.9 Following recovery from the period of much reduced performance after the Hatfield crash in 2000 and associated reorganisation of the industry the Public Performance Measure of national rail services has not varied by more than 1% since 2007-08¹⁴.
- 7.5.10 The increase in train miles is significant not only in providing greater capacity but also in implied greater frequency. In situations where passengers are able to determine the start time of their trips the benefits of frequency improvements will not be reflected in the measure of trip times or speeds. A virtuous spiral arises whereby additional patronage brings forward improved levels of service, which in turn encourage further patronage. To a lesser extent this also applies to local bus services in London where bus miles have increased by 31% between 2000-01 and 2014-15 alongside an increase in passenger journeys of 76%.
- 7.5.11 In principle the spiral operates equally in the reverse direction. However outside London it is notable that bus miles have been reduced during this same period by 11% without any overall loss of passengers, which suggests that operators have been successful commercially in redeploying their resources.

¹³ The measure is based on the number of passengers travelling in excess of the defined capacity of the relevant train type at the busiest point in its journey, expressed as a percentage of all passengers. In 2014 the figures were 5.4% for the period 0700-1000 and 2.5% for the period 1600-1900.

¹⁴ The Public Performance Measure (PPM) measures the arrival time of trains at their final destination to within five minutes of their timetabled time (or 10 minutes in the case of operators of long-distance services). In 2014/15 the PPM for all operators was 89.7%

7.6 Transport substitution (ICT)

- 7.6.1 The potential for telecommunication to substitute for physical trip-making (though also to foster it) has existed since the invention of the telegraph and telephone. However the digital age – essentially a feature of the last 20 years – has been transformative in its scale and reach across a vast range of activities so as to reconfigure lifestyles in a way that renders the notion of ‘substitution’ itself outmoded (see Box 7.1). Significantly, in relation to the differential trends in travel and car use between age groups noted in Chapter 4, surveys of internet activity find that the highest proportion of users for a wide range of activities are amongst either the 16-24 or 25-34 age groups¹⁵.
- 7.6.2 In this context such evidence as exists of substitution can be considered as illustrative ‘windows’ on this transformation and its consequences for travel.
- 7.6.3 The NTS does not provide information directly on the substitution of trips by forms of telecommunication but since 2002 it has obtained information on whether respondents receive home deliveries of various kinds of goods, the overall frequency of such deliveries and the method used to order the most recent delivery. (Strictly this change in behaviour is not ‘transport substitution’ but rather a switch from personal travel to goods delivery). The NTS findings are that the proportion of households ordering goods for delivery has increased from 64% to 80% between 2002 and 2014. The proportion ordering food and drink, excluding takeaways has increased from 22% to 36%.

‘Transport’s Digital Age Transition’ [Glenn Lyons 2015*; adapted]

In 1997, Google registered as a search engine. In the same year Steven Levy (senior writer for emerging technologies magazine *Wired*) stated that, “*the world is poised on the cusp of an economic and cultural shift as dramatic as that of the Industrial Revolution*”. A compilation of developments since provides a stark reminder of how many elements of the digital revolution have penetrated and will penetrate the lives of many people across the world, and yet there are elements that we have absorbed and perhaps taken for granted or become dependent upon. How easy is it now to contemplate a pre-1997 world where Google, Skype, eBay, Facebook and Tweet were not known verbs? We have moved into a world where we can search for and engage with almost anything online, whether information, other people, goods or services; and we can do so (if equipped) from (almost) anywhere and anytime – whether at our desks, on the move or in our living rooms. Many people live now in an ‘always on’ world.

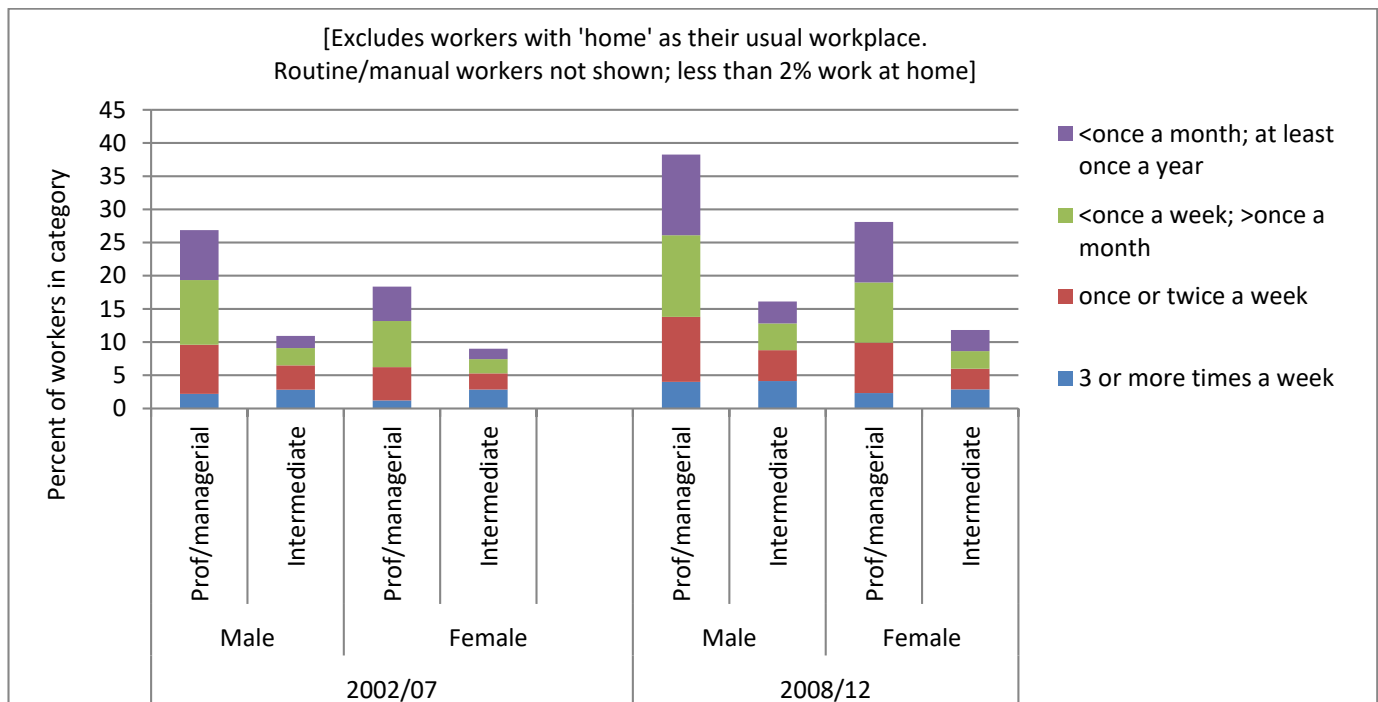
Attempting to examine the (localised) effects of specific niche ICT developments on the automobility regime neglects to acknowledge the more potent *indirect* and *cumulative* influence of people’s growing use of, and dependency upon, ICTs in their everyday lives such that it begins to influence more fundamentally the competencies, expectations and norms of how we communicate, make decisions, co-create knowledge and transact in society.

*Lyons, G. (2015) Transport's digital age transition. *Journal of Transport and Land Use*, 8 (2). pp. 1-19. ISSN 1938-7849 Available from: <http://eprints.uwe.ac.uk/24214>

¹⁵ ONS 2013. *Internet Access - Households and Individuals – 2013*. Statistical Bulletin. Office for National Statistics. http://www.ons.gov.uk/ons/dcp171778_322713.pdf

- 7.6.4 The frequency of ordering at least once a week (any type of goods) has increased from 7% to 23% and at least once a month from 43% to 69%. Ordering by internet (as opposed to phone or post) for the most recent delivery has increased from 27% to 84%.
- 7.6.5 Since 2002 the NTS has also obtained information on the proportion of workers who work at home, either wholly or partly (instead of travelling to a fixed workplace). Although these practices are not dependent on ICT they are obviously greatly facilitated by it.
- 7.6.6 Between 2002-07 and 2008-12 the proportion of workers working at home at least once a week (amongst those for whom it is not their normal workplace) increased from 4.5% to 6.3%. In terms of the travel, and particularly the car mileage forgone as a result, it is significant that the practice is more common amongst professional/managerial workers and amongst men (Figure 7.8).

Figure 7.8 Frequency of working at home by sex and occupation: 2002-07 and 2008-12

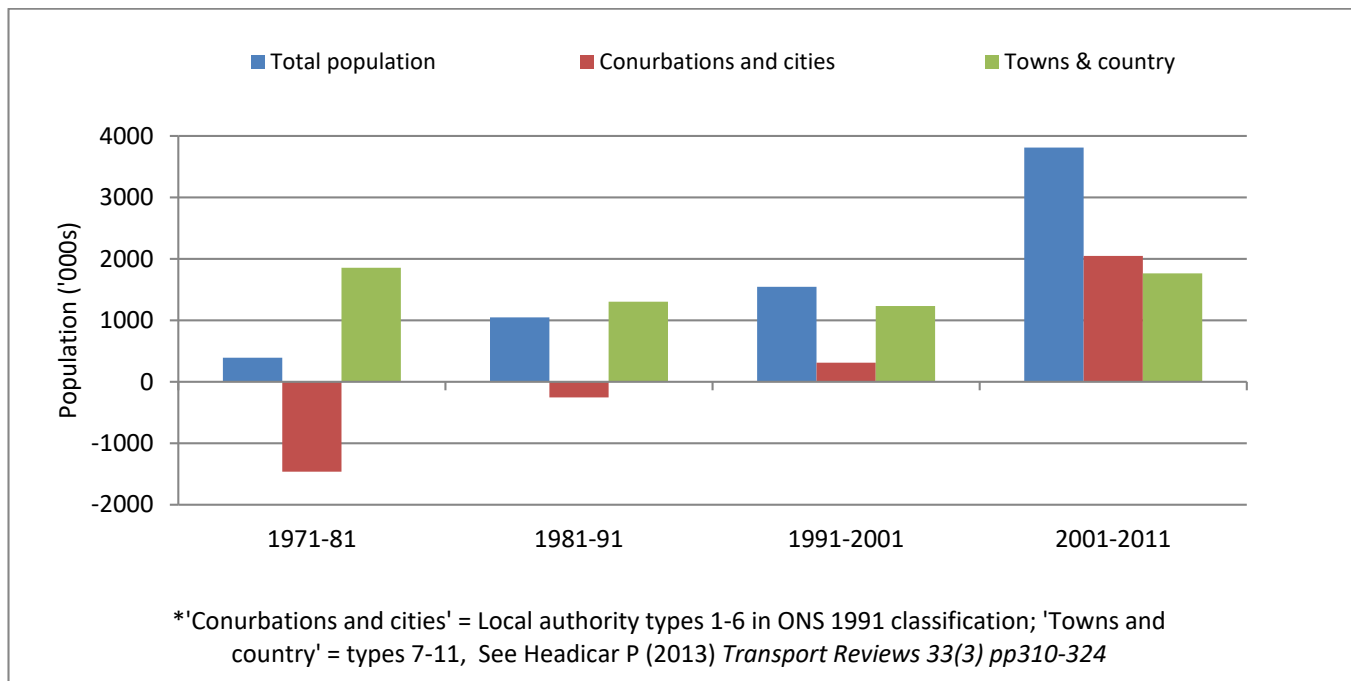


7.7 'Urban Renaissance'

- 7.7.1 Chapter 6 reported the spatial shift of population towards more urbanised areas that occurred during the decade after 2001 and its impact on travel. However this is but one manifestation of a more profound change that has occurred over several decades in the character and functioning of cities, which, if maintained, has important implications for future development and transport through 'densification'. The factors that have come together to bring about this change are reviewed here.
- 7.7.2 For much of the second half of the 20th Century conurbations and larger cities lost population due to a decline in traditional industries and to the ability of more affluent groups (with increasing car ownership) to move to various kinds of lower density areas – outer suburbs, smaller towns and peri-urban rural areas (Figure 7.9). Public policy responses to economic recession in the 1980s included the relaxation of planning controls and the promotion of enterprise zones whose effect included the redistribution of office and

retail activity from traditional centres to 'out of town' locations where their functioning was predicated on car use.

Figure 7.9 Change in England's population and its spatial distribution* 1971-2011



Source: Census of Population

- 7.7.3 The stemming and subsequent reversal of this 'counter-urbanisation' process began in London whose financial services benefited from deregulation in the 1980s. Return to growth in the capital was also fostered by the globalisation of business, the expansion of tourism and the attractiveness of the city to international migrants, particularly following enlargement of the EU in 1994. It became apparent however that this was but one, albeit prominent, example of an international phenomenon whereby cities were in competition for members of the 'creative class'. Significantly it was found that such people were attracted not merely by economic prospects but by cities' social, cultural and environmental qualities. More generally there was academic interest in the spatial clustering of innovative activities found in the more successful cities as a factor in their economic growth.
- 7.7.4 In England the wellbeing of cities as central to the nation's economic prospects was officially recognised in 2000 by publication of the Urban White Paper 'Delivering an Urban Renaissance'. This included the establishment of a 'State of the Cities' research programme analysing their social and economic performance. The continuing importance attached to this subject is reflected in the later appointment of a Minister for Cities, in the 'City Deals' programme and most recently in the promotion of combined authorities to administer devolved governance at city region level.
- 7.7.5 London and other cities have been prime beneficiaries of the investment which has facilitated business and commuting travel by rail whilst the proposed HS2 project has been welcomed by the Core Cities cabinet as 'a game changer' for local and national economic growth.
- 7.7.6 The design opportunities and challenges posed by an urban renaissance were the subject of ground-breaking study by an Urban Task Force led by Lord Richard Rogers in 1998.

Many of its recommendations now characterise central developments in particular, notably the attention given to the quality of the public realm. In exemplar cases such as Birmingham the transformation of the city centre has involved extensive pedestrianisation, major retail and other developments including the rebuilding of New Street station and the physical demolition of urban freeways built in the 1960s.

- 7.7.7 Much of the revival in urban populations has been attributable to the increase in international immigration which is heavily concentrated in London and other cities. This tends to obscure the fact that large domestic counter-urban movements continue to be embedded in the overall figures of population distribution. In addition there is wide variation in population growth and other socio-economic indicators, which describe the performance of individual cities. For example, by virtue of the location of higher education institutions, cities in general have benefited from the large increase in student numbers over the last two decades and potentially from the subsequent retention of their graduates as workers. However cities currently vary between roughly 20% and 60% in the proportion of their working age population with qualifications at NVQ4 level or above¹⁶. More strikingly still the top ten cities contain almost 30% of the UK's population with these qualifications (including of course London, by far the largest city) whereas the bottom ten contain just 2.4%.
- 7.7.8 At the present time Government policy in respect of town planning is closely geared to promoting economic growth in general and urban regeneration in particular. However many aspects of contemporary policy, especially the relationship between development and transport, derive from changes introduced in the mid 1990s designed to promote more sustainable travel. These changes have helped foster and accommodate the demands arising from additional urban population and economic activity without local increases in traffic volumes and additional CO2 emissions. They include the prevention of further large-scale 'out of town' developments and the concentration of new commercial investment in established centres instead where a choice of access modes is available and where car parking is subject to comprehensive control.
- 7.7.9 Development generally has been prioritised on so-called 'brownfield' (previously used) land that is found predominantly within older cities. This has the twin benefits of adding to urban densities whilst lessening the need for development on peripheral greenfield sites which are typically much poorer in terms of accessibility by modes other than the car. The proportion of new dwellings on previously developed land increased from 57% in 1995 to a peak of 81% in 2008.
- 7.7.10 As part of the changed policy regime a new field of 'travel planning' has evolved whereby management and other measures are exploited to lessen the travel and car use arising from developments and, in the process, to reduce the physical and financial costs otherwise implied in meeting unrestrained demand. Government policy currently requires a transport assessment and travel plan to be prepared for all new developments generating significant volumes of movement.

¹⁶ 'Cities Outlook 2016' Centre for Cities, London

7.8 Cultural and attitudinal factors

- 7.8.1 Following publication of the first 'On the Move' report, the ITC and ORR commissioned a study to explore underlying attitudes to travel and car use amongst particular social groups whose behaviour had been identified as contributing to the unexpected travel trends. The study involved a mix of electronic surveys, face-to-face interviews and focus groups conducted in 2014-15¹⁷. Its findings are reviewed briefly here.

Young people

- 7.8.2 Two-thirds of under-30 year olds cite cost factors as the principal reason for not driving. This includes both specific reference to insurance being too expensive and more generally that it is too expensive to run a car. Just under a fifth say that it is too expensive to learn to drive. Even if money is available to buy driving lessons (e.g. by a gift from parents) young people may not see the point of doing so if they can't then afford to run a car and may prefer to spend the money on other things instead. Young working class men were identified particularly as being put off by the prospect of failure in the theory part of the driving test. (The overall failure rate is 37%).
- 7.8.3 In any case car ownership itself does not exert an over-riding influence on the aspirations of young people. Only 59% of the 20-30 year olds surveyed said that they would like to own a car at the moment and 36% said that they were 'very keen' to have a car some day in the future. Part of the explanation for these low figures may reflect conditioning to current financial circumstances – not to 'want what you can't have'. However a variety of reasons other than cost were offered as to why car ownership and use is not particularly attractive. These include the difficulty or impracticality of using or parking them in inner urban locations or institutional settings or on social trips involving drinking. Walking or cycling (by young men) is often preferred for short distance trips and regarded as a pleasurable activity. Public transport for city or inter-city trips is rated quite highly and experience in using the system and knowing how to take advantage of cheap fare deals is an important factor which differentiates them from previous, more car orientated generations. Use of public transport and ride-sharing – whether informally or via schemes such as BlaBlaCar – is also liked because of its sociability and the ability to use mobile electronic devices.
- 7.8.4 A key issue is the extent to which these attitudes of today's under 30 year olds will be perpetuated in later years. Significantly a third of young people presently aged over 30 who are not already car owners said that they would either 'probably' or 'definitely' not like to have a car some day in the future. However such views are subject to uncertainty about their future circumstances – marriage or parenthood may mean that continuing with their present home location and lifestyle is no longer practicable. (See Annex C for evidence to date of licence-holding with age amongst successive birth-year cohorts).

Older people

- 7.8.5 The older people included in the social research were defined as 'over 55'. The reason for choosing this relatively young age was to understand aspirations and lifestyle decisions in advance of major changes such as retirement.

¹⁷ 'On the Move: Exploring attitudes to road and rail travel in Britain' Social Research Associates, 2015

- 7.8.6 Given the NTS evidence reported earlier of a significant decline in trip-making an interesting finding of the research was that more people of all ages considered that they had travelled more rather than less in the previous two years (although most were unchanged) and would do so in future. Although the proportion of over-55's expecting to change was less than other adults those responding 'more' still outnumbered 'less' by 23% to 16%.
- 7.8.7 Even if in practice trip-making amongst the over-55s does not increase the greater level of licence holding amongst women (compared with previous cohorts) implies increased car use. However, although this is how it appears in numerical projections it is important to register that this 'change' merely requires the women concerned to continue their established patterns of behaviour.
- 7.8.8 There are nevertheless several factors identified in the research which caution against exaggerating the significance of this change. A move to a less urbanised home location is often a feature of retirement – amongst other things it can facilitate 'down-sizing' and free up financial resources. Of itself this would tend to increase car driver distance and mode share. However in the case of former two-car households this may be countered by sale of the 'second car' and by more joint trip-making. In addition a significant change is evident in the attitudes of older people towards choice of mode with decreasing expectation that future travel will be predominantly by car and a move instead towards ensuring maximum access to a range of possibilities. This implies location in country or seaside towns. This is partly in order to take advantage of concessionary bus travel (which is popular even amongst people who are not dependent on it) and partly to utilise opportunities for off-peak and other travel deals by air, rail and coach. It is also to guard against the possibility of losing the ability to drive (either oneself or a partner's) and consequently being marooned in an inaccessible location.

Business travellers

- 7.8.9 Most workers surveyed disliked commuting whichever mode of transport was used and described the compromises they had made in juggling house prices, schools, time and travel costs to arrive at their current situation. There was interest and support for working from home, but mainly for one or two days a week. More than this was felt to be isolating on the part of the employee, whilst employers wanted to maintain frequent face-to-face contact. However attitudes are changing with more flexible arrangements operating in many occupations although still involving the concept of a 'base' location.
- 7.8.10 People working from home on a regular basis didn't necessarily travel less. Work involving extensive use of phone and electronic communication could prompt more travel due to wider networks.

Migrants

- 7.8.11 For the purposes of the attitudinal research migrants were defined as people who had lived in the UK for less than 10 years. Within the surveyed sample 43% of migrants were in the lower socio-economic groups C2/D/E compared with 31% amongst people born in the UK or living in it for ten years or more. In addition migrants tended to be concentrated within urban areas. These two factors contribute to their lower levels of household car ownership (31% non-car owning against 23% for the remainder of the surveyed

population). However amongst recent migrants particularly left hand driving and different licensing and insurance regimes were also viewed as barriers to car ownership. In addition money was often saved to send to relatives in their home country or to pay for airfares to visit them.

- 7.8.12 There is a tendency for migrants to cluster in residential areas near to work, specialist shops and other community facilities which can result in a more localised lifestyle with a higher proportion of walking trips. In relation to public transport use, the extent to which comparisons with their country of origin were favourable or unfavourable was a strong influence. People from other European countries tended to see UK public transport as expensive whilst others from more rural communities welcomed the comprehensiveness of UK urban services.
- 7.8.13 Whilst car ownership amongst migrants tends to rise with length of stay it was noted that the habit of walking and proximity to destination was likely to continue such that car use would not increase to the extent that growth of population amongst this group might otherwise imply.
- 7.8.14 Further details of travel behaviour in relation to people's country of birth (derived from data within NTS) is given in Annex E.

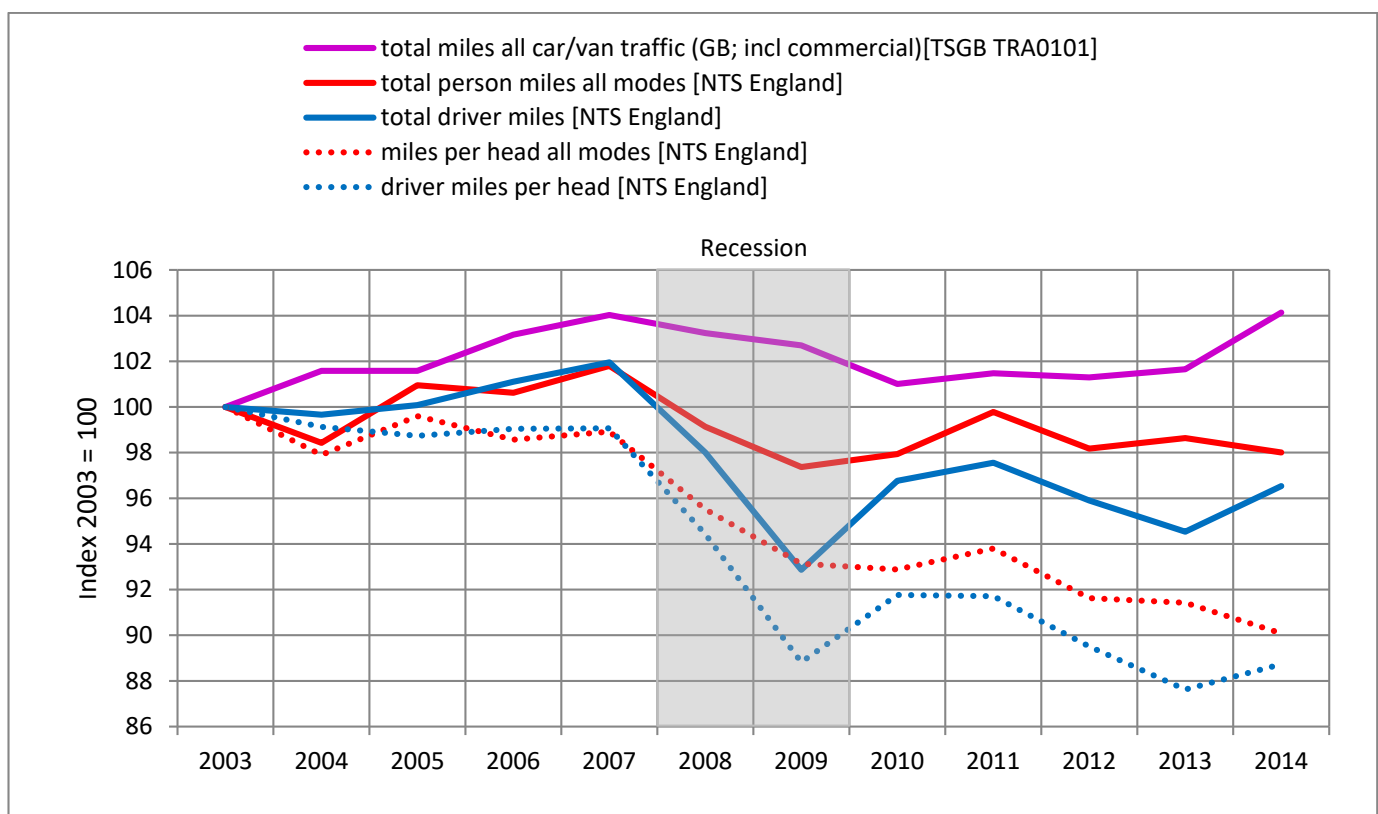
Ethnicity

- 7.8.15 There are large differences between ethnic groups in terms of residential location and socio-economic status which influence travel behaviour and attitudes. There is a major difference between the white UK population and all other ethnic groups with the latter on average twice as likely to live in urban areas. Indian, African and white European groups have a socio-economic profile similar the white UK population with approximately two-thirds in SEG A/B/C1), but amongst Caribbean and Pakistani/Bangladeshi groups the proportions are substantially lower (48% and 39%).
- 7.8.16 The Indian community was singled out in the research as having higher levels of car ownership than the white UK population and with evidence that this was viewed as symbolising economic achievement. However all non-white groups reported a stronger desire to travel more and in many cases this was linked to aspirations for car ownership. Conversely there is less inclination to use other modes, especially buses and cycling. Even train is considered less often since once a car is acquired this tends to be the default method both for reasons of status and the economics of travelling with larger family groups.

8. Conclusions

- 8.1.1 The evidence presented in this report is of a multitude of travel trends in progress amongst different types of people pursuing different types of activity in different types of places. Many of these trends are occurring at different rates and even in different directions. It is therefore practically impossible to register an overall observation which is universally true. Generalisations about travel trends as a whole therefore need to be understood in this context.
- 8.1.2 In respect of two key features however the overall evidence is clear. The first is that on average, as individuals, we are travelling less – 10% less distance in 2014 than in the peak year of 2003 (see the dotted red line in Figure 8.1). This is primarily due to less trip-making (11% less over the period) offset by slightly longer average trip distances. In volume terms the principal reductions have occurred in visiting friends and relatives at home, in shopping, commuting and in travel to domestic holidays. Although the NTS cannot supply evidence of the reasons for this change it would seem to be due primarily to trip substitution by various forms of information and communication technology and associated changes in life-style.

Figure 8.1 Travel and traffic 2003-2014



- 8.1.3 The second key feature is that of this reduced travel a slightly lower proportion is being made by car (50.4% as drivers – down 0.8 points on 2003, although the peak year for this was in the mid-1990s). It follows that car driver mileage per capita (the dotted blue line in Figure 8.1) has fallen by a little more than travel generally. This is in spite of the fact that

car ownership (expressed as cars per adult) *increased* by 0.7 points over the period. There are several reasons for this, as identified in the original OTM report:

- i) a higher proportion of the people who currently drive and use cars are middle aged and older women who travel less distance than their male peers;
- ii) there has been a continuing fall in licence holding and car use amongst younger men – a trend which has also started to become apparent more recently amongst younger women;
- iii) the proportion of people (drivers as well as non-drivers) using rail for some of their journeys continues to increase. (Rail nationally has increased its distance mode share by two-fifths since 2003 to 9.5% of the total);
- iv) an increasing proportion of the population, especially people of working age, are living in cities – particularly London – where there is less need for a car. In these places car ownership is actually falling and use of public transport is rising.

- 8.1.4 However, the declining ownership and use of company cars highlighted in the original OTM report (linked to changes in the tax regime) is no longer a dominant factor. In 2014 the proportion of men aged 35-59 with company cars (the main users) had returned to the level of 2004 (7.7%) having dropped below 6% during the years 2009-12. However the driver mileage of individual company car users continues to fall.
- 8.1.5 A key element in the changing spatial distribution of the population is the concentration of international migrants within London and to a lesser extent in other cities. Whilst this contributes to lower per capita travel and car mileage it is the principal source of growth in population and therefore adds to travel and traffic in aggregate. As a result the reduction in total travel distance since 2003 (the solid red line in Figure 8.1) has only been 2% compared with the reduction of 9.9% per person whilst for car driver travel (the solid blue line) it has been 3.5% compared with 11.3%. However total car and van *traffic* (the solid purple line) has remained above its 2003 level and in 2014 was 4.1% higher. As well as incorporating elements of car driver travel not captured in NTS this reflects the fact that the commercial component of vehicular traffic has increased considerably. (Light van traffic for example was 26% greater in 2014 than in 2003).
- 8.1.6 Against this background of change since 2003 it is possible to put into perspective the impact of the 2008-09 recession. It is important to distinguish between the period of economic recession itself (technically defined as the six continuous quarters of falling GDP) and the movement in household incomes more relevant to personal travel over the longer period before and since.
- 8.1.7 Between 2003 and 2007 real GDP per head increased by 12% although the growth in real household disposable incomes was barely half this. However the relatively low-income growth does not account for the marginal decline which set during these years in both travel and car driver miles per person.
- 8.1.8 In 2008 and 2009 real GDP per head fell by 6.8% but the trend in disposable incomes remained positive. There was a sudden drop of 10.3% in per capita car driver mileage but only 1.1% in all other modes (5.9% overall). The difference is due to the reduction taking place almost entirely in commuting and business trips where the driver mode share is

much higher than for other purposes (68% compared with 44% in 2008). Ownership of company cars also fell by a quarter during these two years. However car ownership as a whole barely altered. The driver mode share of travel distance fell by 2.4 points to 48.9%.

- 8.1.9 From 2009-10 to 2012-13 disposable incomes amongst non-retired households experienced a sharp decline. (Retired households benefited from protected public pensions). By 2014 per capita travel had fallen by a further 3%. However, included within this is a recovery of 6% in commuting and business travel. Hence this post-recession period marks the onset of a more significant reduction in trip-making for other purposes.
- 8.1.10 Since 2012, company car ownership has returned to pre-recession levels and car ownership generally has increased slightly. Driver miles per head in 2014 were close to their 2009 level so that, given the reduction in travel generally, the driver mode share has risen (to 50.4%). However this remains below the pre-recession level of 2006.
- 8.1.11 Aside from the particular impact of the recession this study has highlighted the extent to which, over a much longer time-period, travel, car ownership and car use in aggregate have become 'detached' from disposable incomes. (There are still major differences between income groups *within* the population although remarkably it is amongst the highest income households that the greatest reductions are taking place).
- 8.1.12 This finding is of fundamental importance since the historic link between income growth and increased travel and traffic remains a central feature of Government forecasts. In practice per capita travel and car mileage flat-lined for a decade after 1997 despite continuing increases in disposable incomes. Car ownership (cars per adult) continued to rise but levelled off during the pre-recession years 2005-2007.
- 8.1.13 In the near future it is unlikely that the overall trends evident since the recession will alter materially. Whilst per capita travel will almost certainly continue to fall there is in principle the possibility of car ownership and driver mode share increasing. However this would be dependent on sustained economic growth and, more fundamentally, on structural change which would improve the circumstances and prospects of younger adults.
- 8.1.14 In practice the various conflicting factors (including many disparate elements of public policy) are very finely balanced as far as overall outcomes are concerned. It is possible that further reductions in per capita travel will continue to offset the effects of population growth such that, at a national level, aggregate travel volumes do not increase. Certainly whilst trajectories of travel volume and mode share will vary in different parts of the country a sensible position to adopt as far as national policy debate is concerned would seem to be to constrain forecasts to the expected growth in population.
- 8.1.15 This of course scarcely diminishes the challenges faced in transport planning and management. The densification of London and other cities arising from prospective population growth (implying both greater transport capacity and further reductions in driver mode share) takes land use/transport planning into a new era. In the medium term, new forms of mobility provision that are not predicated on personal ownership of private cars could be transformative. Meanwhile bringing 'sustainable travel' to bear in the outer parts of conurbations and city regions where there remains potential for increased car use is also a novel and challenging prospect. This report provides a springboard for further research and debate on these critical issues to national economy and wellbeing.

Annex A: The Effects of the 2008-2009 Recession

Travel behaviour has been generally noted to be resilient to recession in recent decades. Since the 1970s recessions have taken place in 1973-74, 1975, 1980-81, 1990-91 and most recently 2008-09. The only one of these before the 2008-09 recession to have been accompanied by a fall in car traffic was 1973, and that coincided with the 'oil crisis' which had led to a quadrupling of oil prices and preparations for petrol rationing. Recessions have less impact on travel behaviour than simple economics would suggest because most travel is made to carry out other activities, most of which continue throughout a recession. And, until recently, growth continued following each recession such that, in the long term, the effects were minimal.

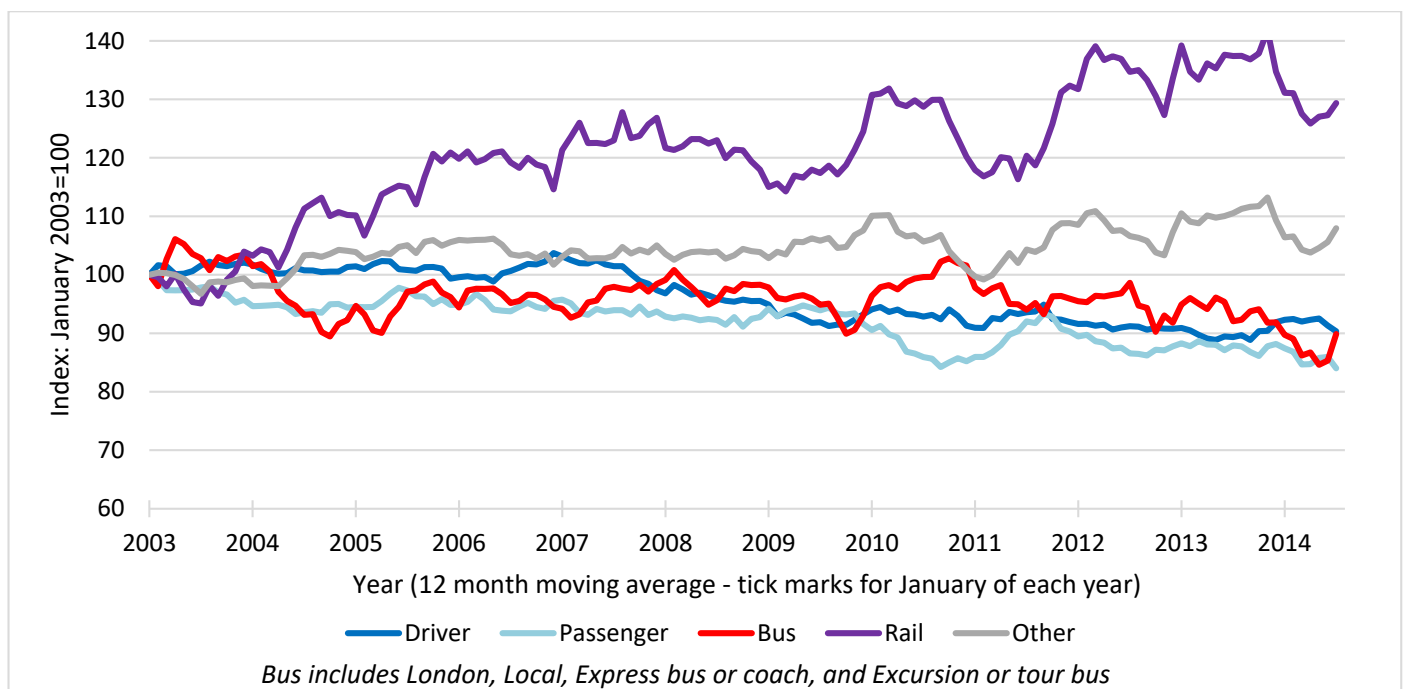
Like the 2008-09 recession, the 1980-81 and 1990-91 recessions both saw 5 quarters of falling GDP. 1980-81 showed no visible change in traffic growth trends while 1990-91 saw a distinct slowing, but this followed on from the most rapid period of traffic growth seen in the late 1980s which may now be viewed as some form of 'bubble' (the boom before the bust).

The effects of the 2008-09 recession have to be viewed in the light of the slowing of car use in the years since around 1995 to 2000. National Traffic data in the main report shows that total GB car traffic had a sustained fall from 2007 and has risen again, but this has been at a time of very rapid population growth.

Distance travelled by different modes

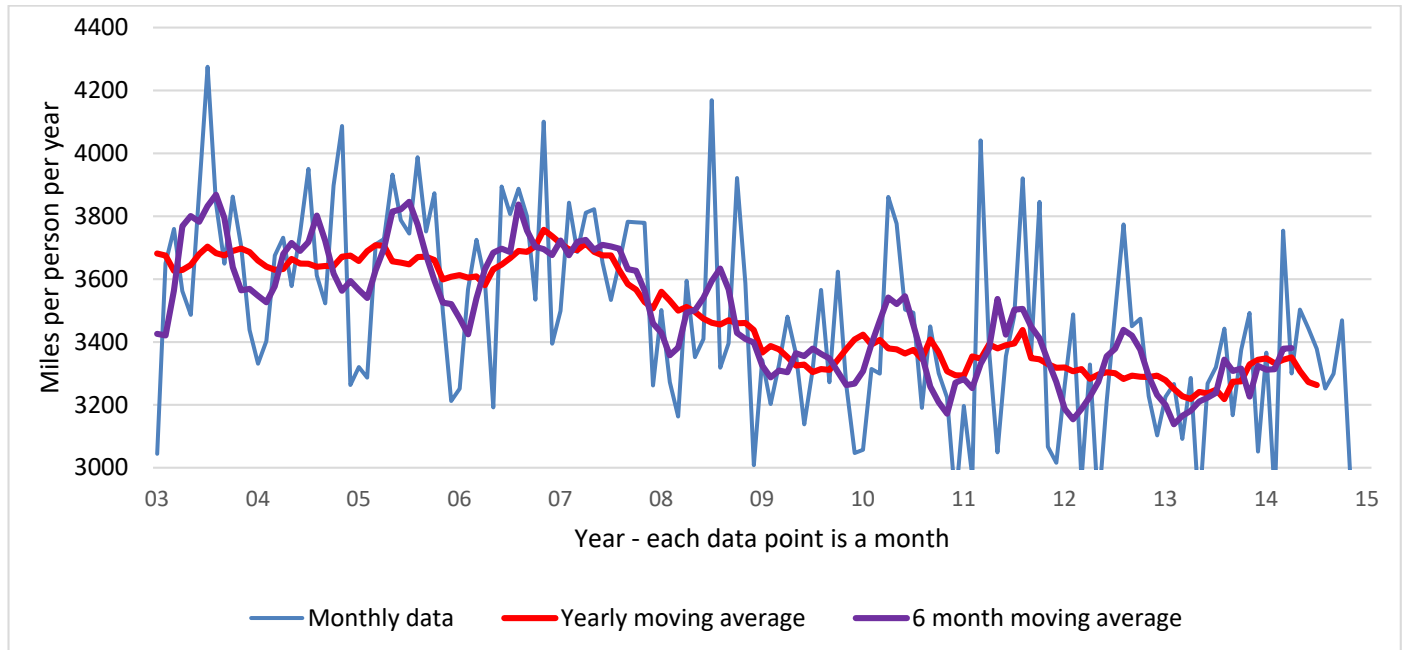
Travel varies according to the season, with more in the summer months than the winter (though travel for purposes such as commuting reduces in the school summer holidays). Figure A1 – the distance travelled per person by mode between 2003 and 2014 – shows very little that can be ascribed as 'recession effect', except for car driver. Rail's rise was intermittent, while bus shows a similar pattern. Car passenger showed a dip in 2010 to 2011.

Figure A 1 Total distance travelled per person by month* and mode, indexed 2003-2014



The data in Figure A1 is smoothed by using moving 12-monthly moving averages. Figure A2 shows *driver* miles per person for each actual month, plus yearly and six monthly moving averages. This graph exaggerates the change since the scale starts at 3000 miles per person per year rather than zero. (Also note that NTS data is not designed to be statistically reliable at more than an annual level so monthly and six-monthly figures must be viewed with caution).

Figure A 2 Driver distance per person by month with six month and yearly moving averages 2003-2014



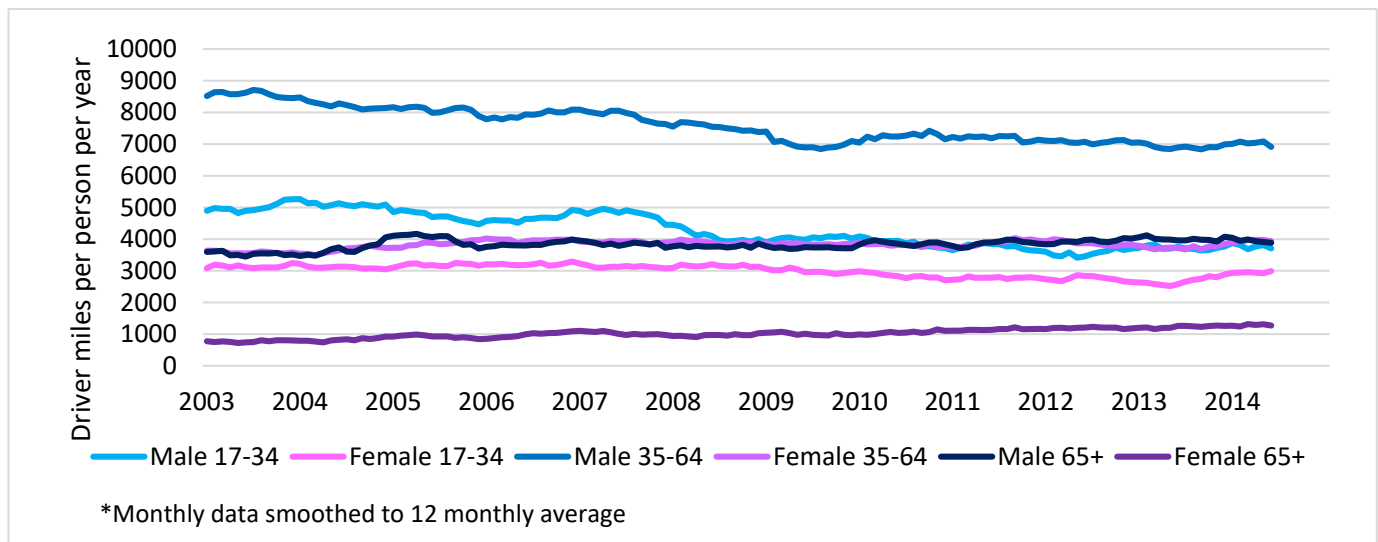
Between 2007 and 2009 there was a noticeable fall in miles driven per person, following a period of relative stability. After around mid 2009 the fall continued but flattened from about 2013. During this later period petrol prices rose and it is likely that this contributed to the lack of any 'rebound' but it seems likely that had prices remained static the 'rebound' would not have been great.

From the seasonal data in Figure A2 the monthly and six monthly lines show that there was much less of a winter 'dip' in 2006-07 than previous years, while 2009 did not show much of a summer 'peak'. Both of these help give the impression of a sustained fall over two years from 2007 to 2009 which could be partially the result of unusual seasonal patterns before and after.

Driver miles by different groups and gender

When looking at changes in driver miles around the recession (Figure A3) there are few special age effects, but for men aged 35-64 there was a distinct fall in 2009 followed by a rise. Long terms trends of decline were not affected to a great extent. A dip for men aged 17-34 occurred earlier (around 2008) but followed a distinct rise in 2007. There were also fluctuations for other age groups at various times which may be put down to sample sizes allowing random variation to show, but the three groups showing a 2009 fall would seem to reflect a recession effect. For women any effect seems negligible.

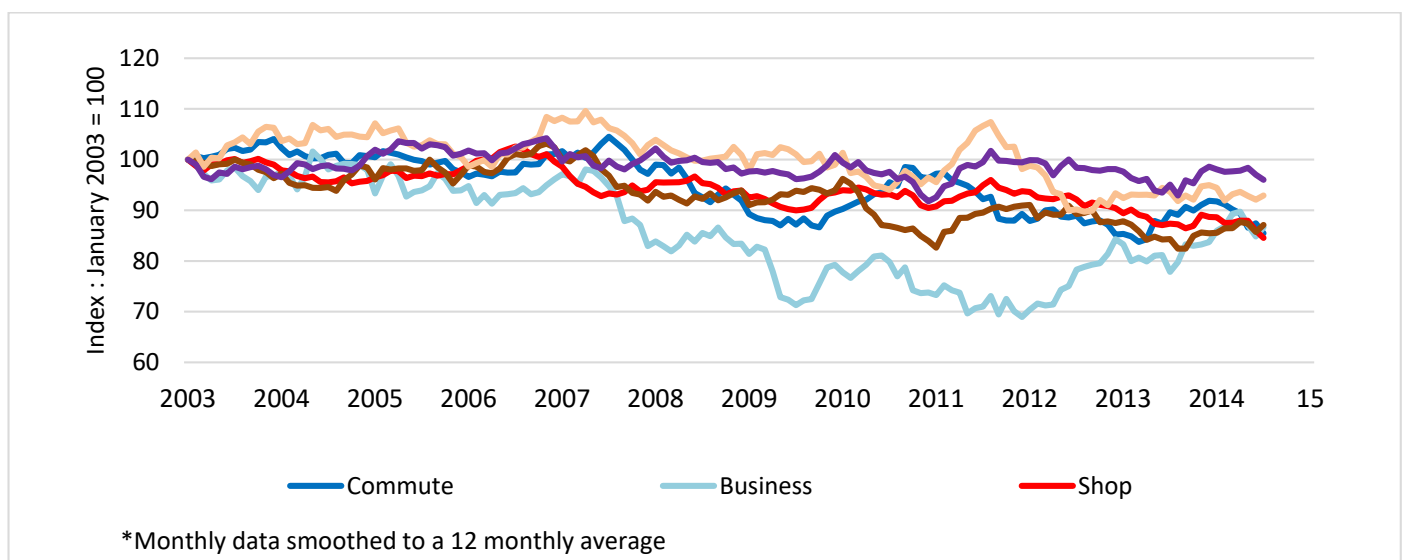
Figure A 3 Driver distance per person by age and gender by month* 2003-2014



Driver miles for different purposes

Figure A4 shows smoothed monthly driver mileage for different journey purposes. The quantity of data for many purposes is limited, and travel for different purposes fluctuates in many cases, so the chart may imply changes in behaviour that are not attributable to any one cause.

Figure A 4 Driver distance per person by month* by journey purpose, indexed 2003-2014

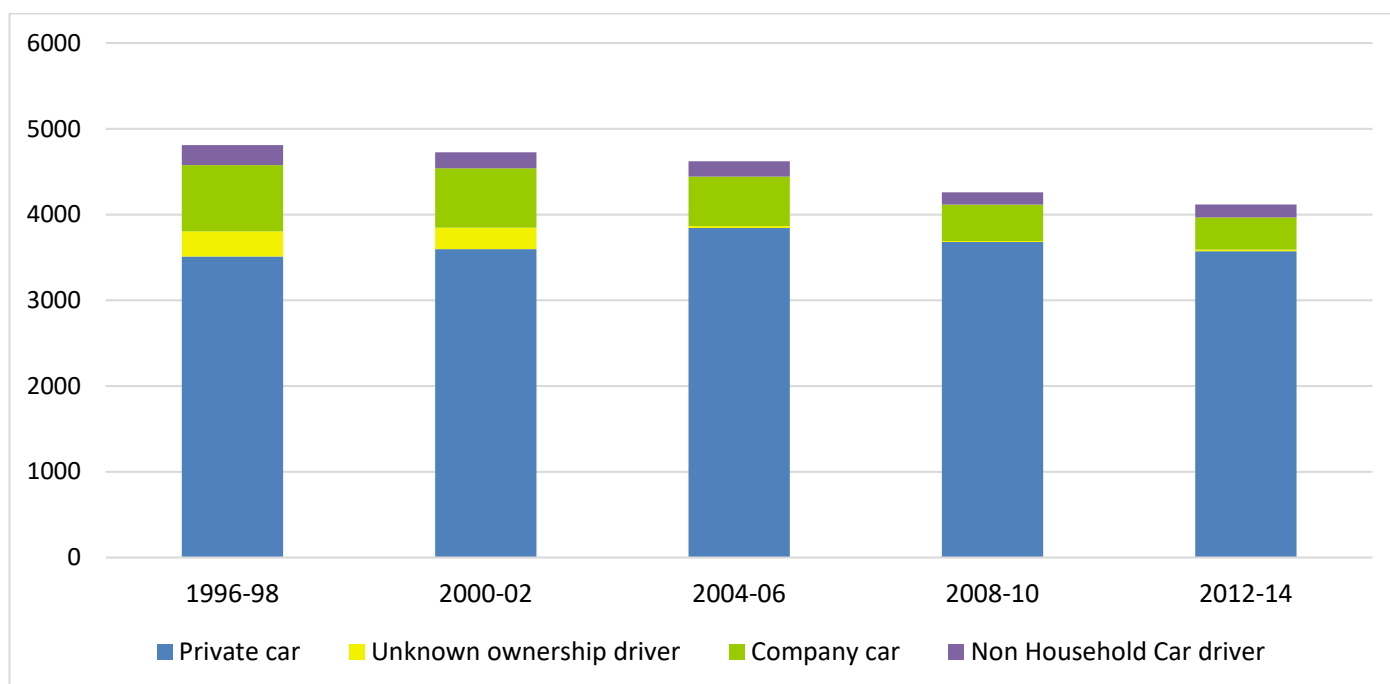


It is clear from Figure A4 that business driver miles fell from mid 2007, and remained low until a partial return from around 2013. Changes for other journey purposes are difficult to interpret since most have shown a fall since 2003 but little distinct change around the recession.

Annex B: The Decline in Company Car Use

The first “On The Move” reported highlighted (for the first time) the importance of a reduction in company car use in accounting for a reduction in per person driver mileage of the 1995-97 to 2005-07 decade. Since that period, while access to a company car has levelled off and even grown slightly, Figure B1 shows that company car mileage continued to fall through the recession and has continued to fall at a slower rate.

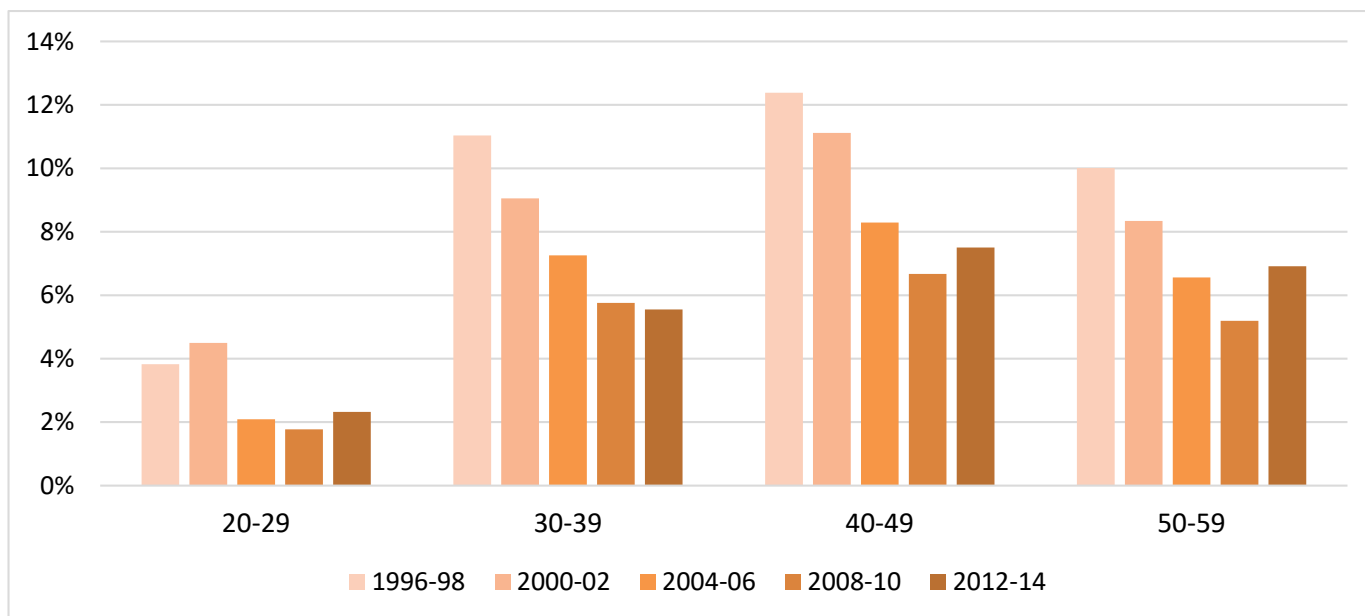
Figure B 1 Driver miles per adult per year by type of car ownership 1996-98 to 2012-14



Private car mileage per person appears to have risen up to 2004-06. (However, note that the grey part of the graph shows cars that were not classified up to 2003 so it may be that it was stable, depending on what ‘not known’ in the data represents). The position is further complicated in that the types of car for which ownership was asked varied, with vans and 4 wheel drive vehicles being asked about in some periods but not others. In addition, the definition of access to a company car is complicated by different definitions in the vehicle and individual data records. In this study, the individual level variable was used.

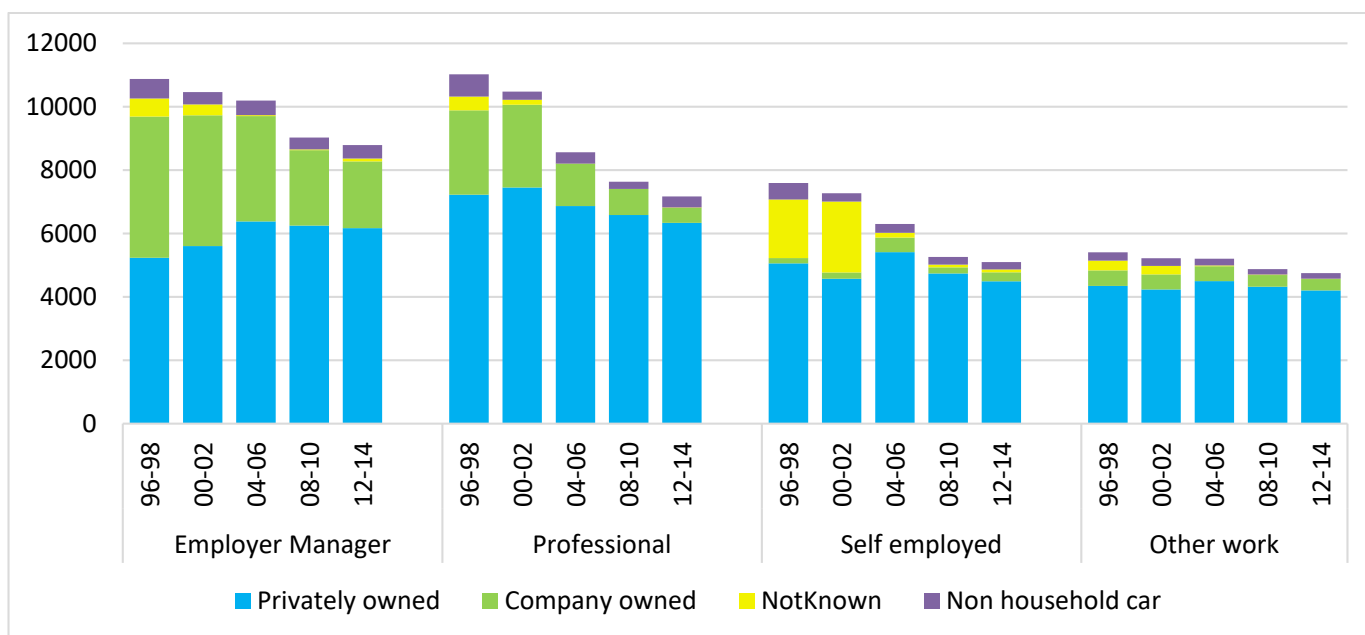
The reduction followed by relative stability is clearly shown in Figure B2 below, which shows access to a company car for men of different ages. Company car use has been and remains a male dominated activity. At no time have more than 2% of women of working age had access to a company car.

Figure B 2 Percentage of men by age with company car access, 1996-98 to 2012-14



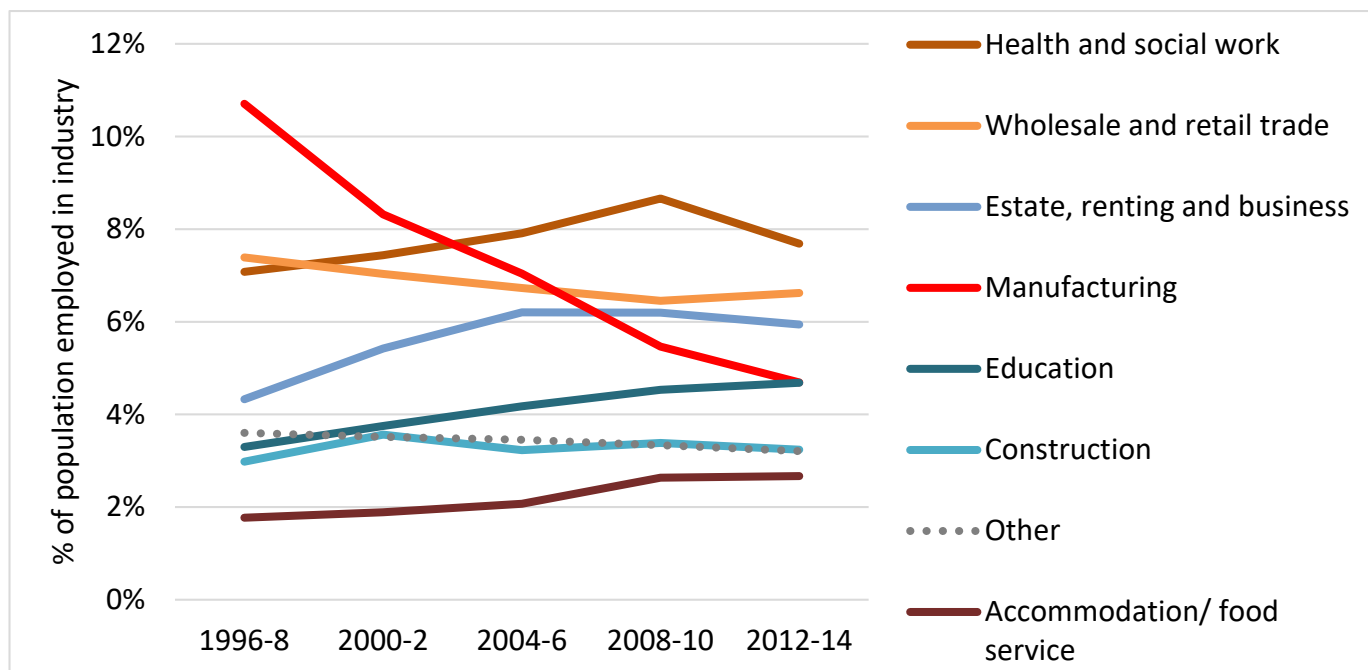
Company cars were predominantly used by higher paid workers (employers and managers, and professional workers). Figure B3 shows that employers and managers have tended to substitute company car mileage by private mileage whilst professionals have reduced all forms of mileage. Most of the unclassified miles are accounted for by self-employed people.

Figure B 3 Driver miles per person per year by occupation and type of car ownership 1996-98 to 2012-14



Besides the changes to tax benefits and pressure on business ‘perks’, the changing structure of industry has probably had a large effect. Company cars were most predominant amongst employers and managers and professionals in manufacturing, and the wholesale and retail trade, and these sectors have witnessed a large fall in employment (Figure B4). In the NTS sample the proportion of the working population employed in manufacturing has more than halved since 1995, whilst the wholesale and retail trade has fallen by about 15%.

Figure B 4 Employment in selected industrial sectors 1996-98 to 2012-14

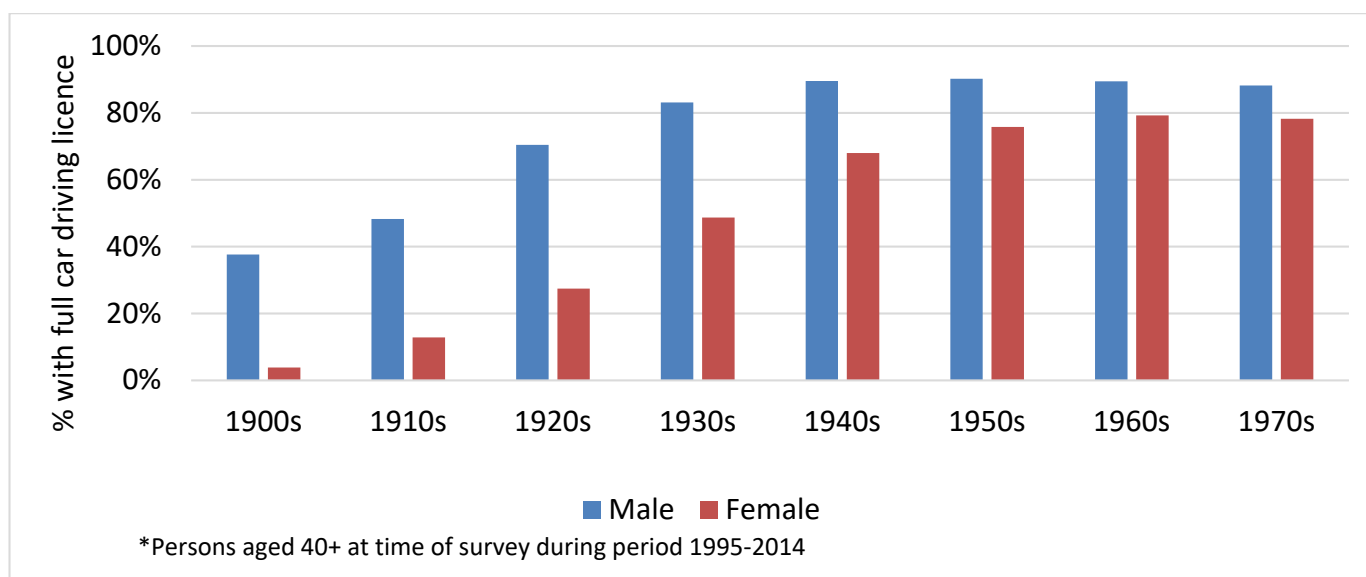


Annex C: Age Cohorts and their Effects on Travel Behaviour

Many aspects of travel relate to a person's age and gender, but over and above these, a generation (or age cohort) effect can be observed.

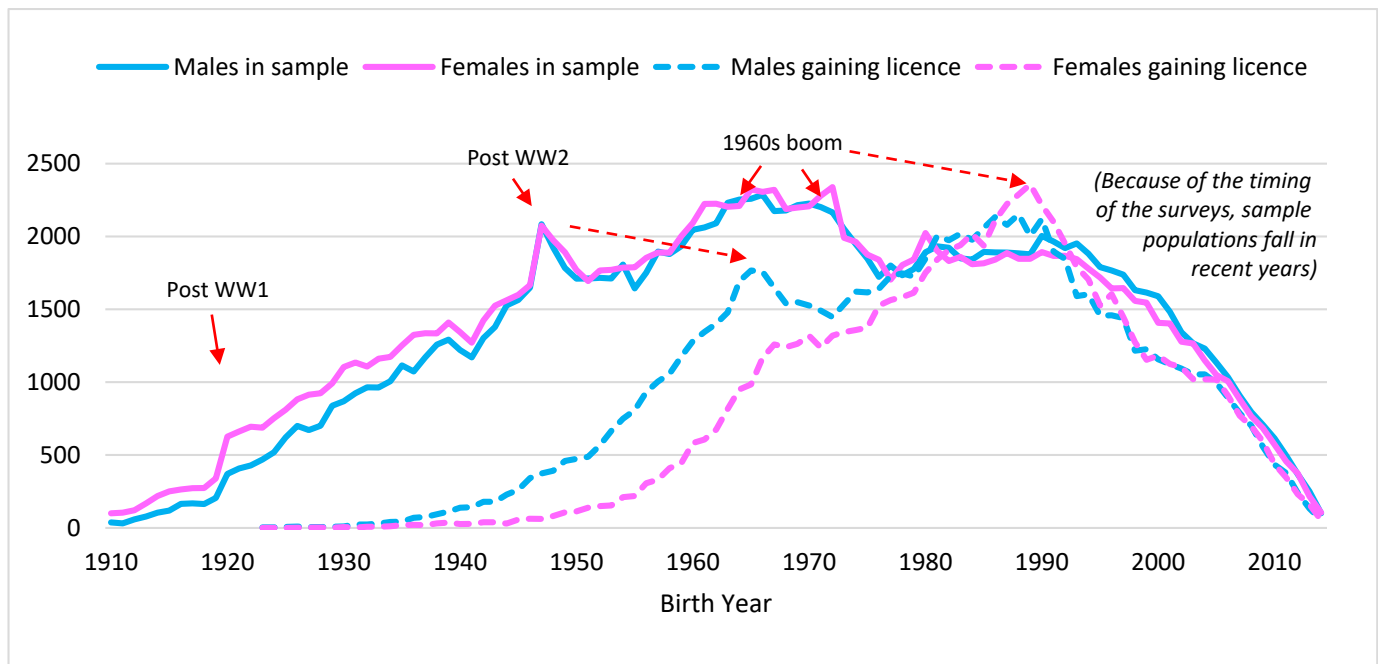
The rise of women driving may now not be regarded as a recent phenomenon, but its effects are still working their way through older generations. Figure C1 shows that up to those born in the 1970s there are noticeably fewer women than men with full driving licences. For those born in the 1920s over three times as many men drove as compared with women. While this generation now contributes a small amount to total driving, the slow equalisation does affect differences in the amount of car driving by men and women today. Note that Figure C1 only includes people aged 40 and over at the time of survey, since with the survey period covering 1995 to 2014 the make-up of younger people would be different for different years' surveys.

Figure C 1 Proportion of men and women with full driving licences by decade of birth*



The picture is complicated by baby 'booms' of differing intensity, and also by changes in behaviour of male 'baby boomers' (born in the late 1940s) in particular (Figure C2).

Figure C 2 Sample population of NTS by birth year, and number of licenses gained in year

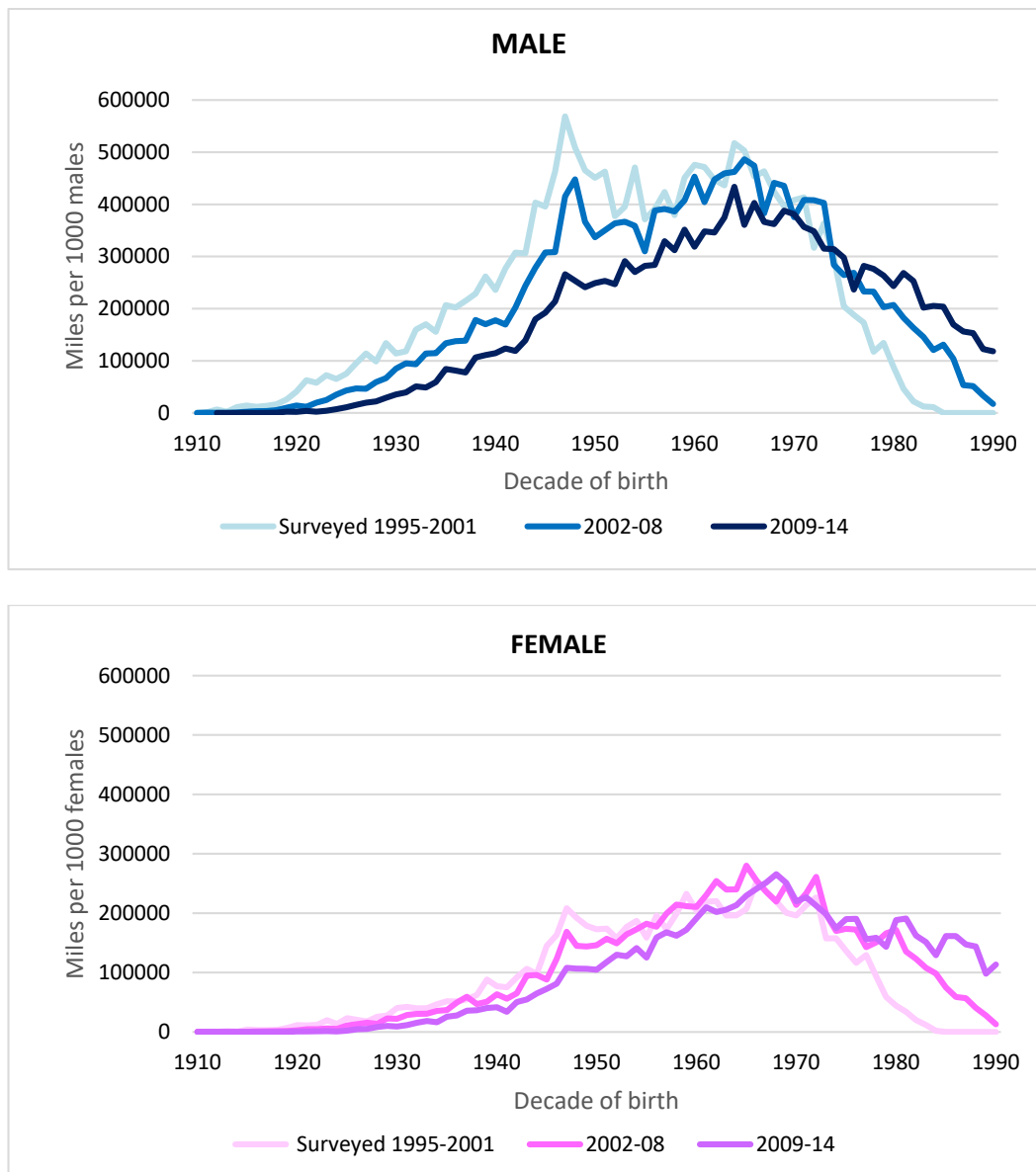


Birth booms occurred after the First and Second World Wars. These were both very pronounced but short lived. Another much longer ‘rumble’ occurred during the bulk of the 1960s, which was followed by a more prolonged period of relative stability. A later increase in the 2000s has not seen its way through into driving behaviour yet.

Following each boom since the late 1940s there has been a pronounced peak of learning to drive, 17 or 18 years later (also shown in Figure C2). The mid 1960s saw a boom in becoming drivers (amongst those born after WW2) although this was less pronounced amongst women. The 1960s birth boom saw a corresponding peak during the 1980s. In this case it was relatively equal for men and women, though the graph for women actually displays the highest peak.

Age cohorts are especially noticeable when looking at the sum of driving mileage attributable to men and women of different ages, and then comparing with a graph for those born at different times. The graphs for those of different ages show a sort of ‘wave’ moving forward, but the graphs using year of birth show that the peaks relate to those of a particular birth period (Figure C3).

Figure C 3 Sum of driver miles by year of birth



So the reason for an apparent ageing of the driving peak is not because of 'more older people driving' in the sense of becoming drivers, but because certain age cohorts are getting older, but continuing to drive.

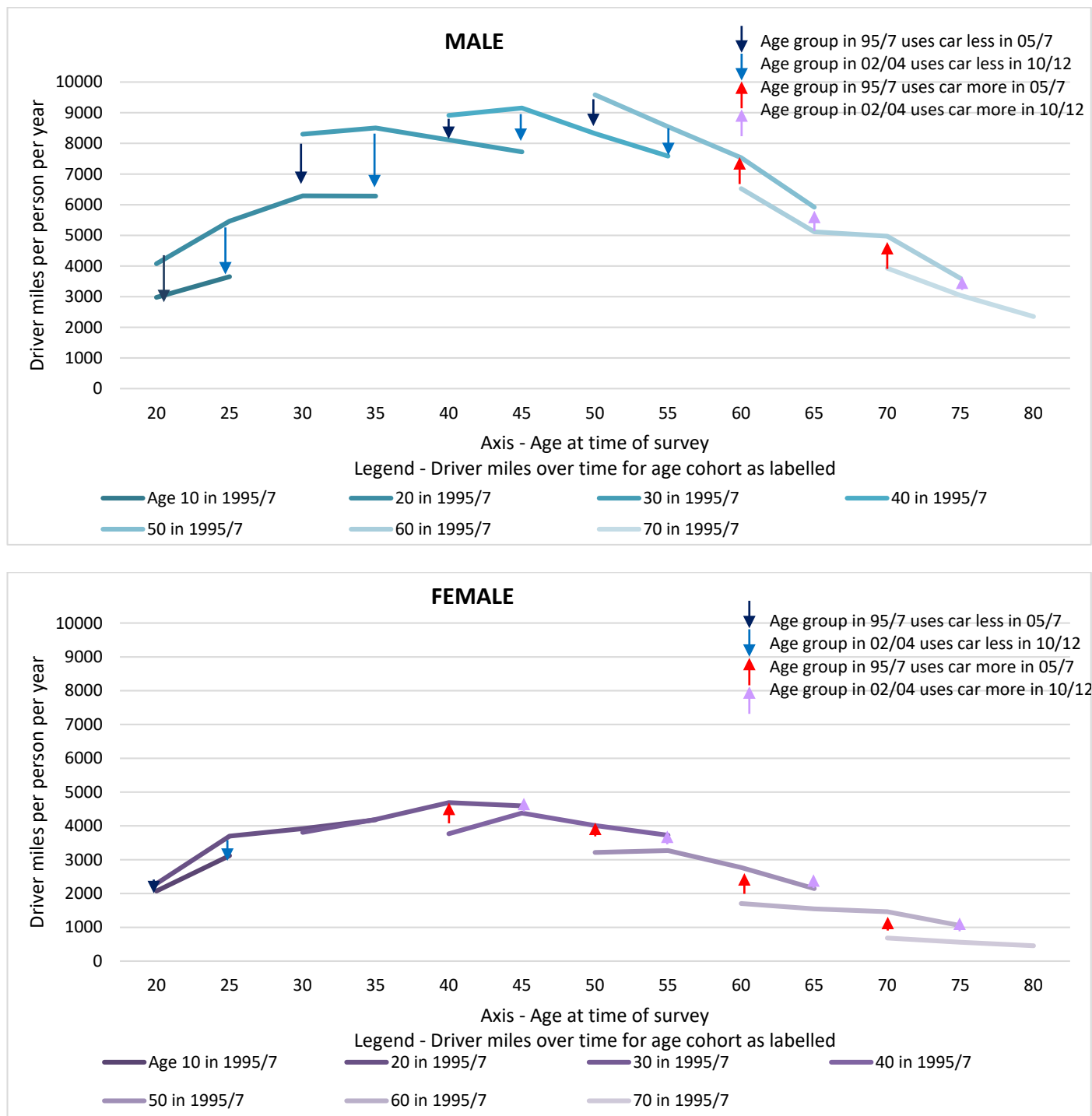
The situation is complicated by economic and social trends that have affected the behaviour of some age cohorts more than others. Examples include:

- Working is strongly related to high driver mileage, and retirement related to a fall in mileage. Hence, in Figure C3 retirement is probably a major factor in the falling car mileage for those born before 1950.
- Baby boomer males were much more likely to have company cars than those of other ages. They formed a larger than usual proportion of the population and were likely to drive further because of easier and cheaper access to a car. Hence subsequent restrictions on company cars produced a large fall in mileage from a very high peak. Company cars were probably a major factor for the fall between 1995-01 to 2002-08 (between when they were aged around 45-50 to 54-60) but since then retirement has probably contributed more to the fall for this cohort.

- The very rapid rise in car mileage in the late 1980s is generally attributed to a growing economy, but was also partly fuelled by the 1960s baby boom coming of driving age. The very high peak of women gaining driving licences around 1990 will be partly due to this boom and (likely but not proven) due to greater female participation in the labour force.

On The Move (2012) used the following way to show age cohort effects. These charts (3.6 to 3.8 in the original report) are redrawn in Figures C4 and C5, brought up to date by a further 5 years to include 2010-12.

Figure C 4 Driver miles per person per year for age cohorts over time

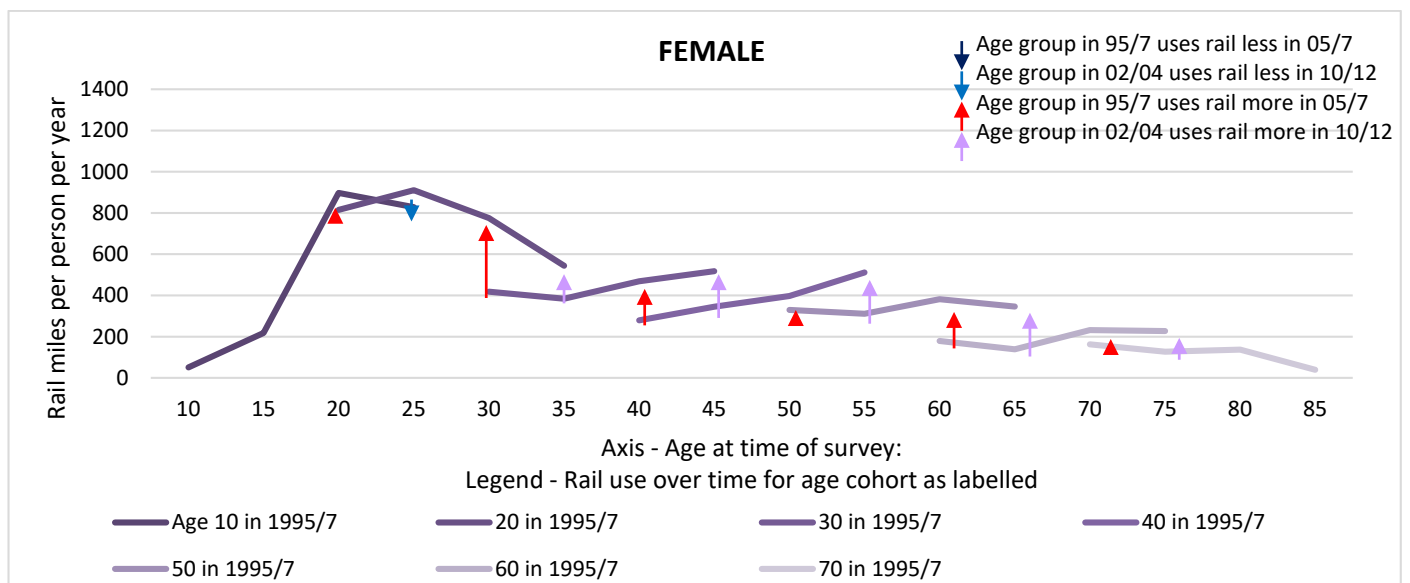
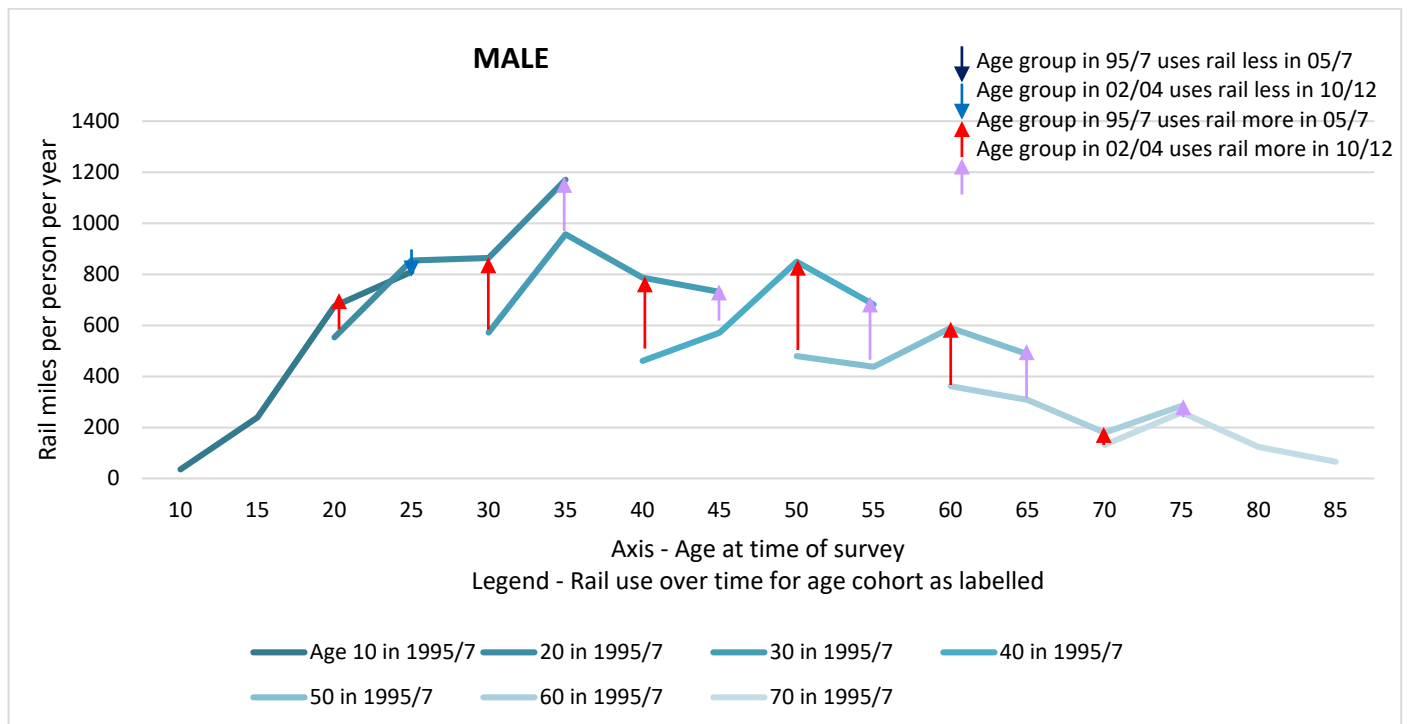


It can be seen that for driving (Figure C4) the pattern has continued of reducing mileage for men up to age 55 and increasing mileage for older men and for women of most age groups. However a reduction for younger women (up to age 25) is now discernible.

For rail (Figure C5) nearly all age cohorts show an increase in use throughout the 15 years, but for most age groups males tend to show a fall in the 2005-07 to 2010-12 period. Those aged about 20 in 1995-97 and younger are the exception, probably as they are more likely to becoming rail commuters. However amongst men the pattern of increases for common age periods continues. For nearly all ages looked at statically [shown by arrows], there have been increases in use.

For females aged 20 and over in 1995-97 there has been more stability of use, but the pattern for younger age groups shows increased use then a fall that is probably related to changing lifestyles and roles for younger age groups.

Figure C 5 Rail miles per person per year for age cohorts over time



Annex D: The Effects of Changing Household Composition

Over the 20 years from 1995 under study in this report the make-up of households has changed, especially for younger age groups. Amongst the factors of importance could be:

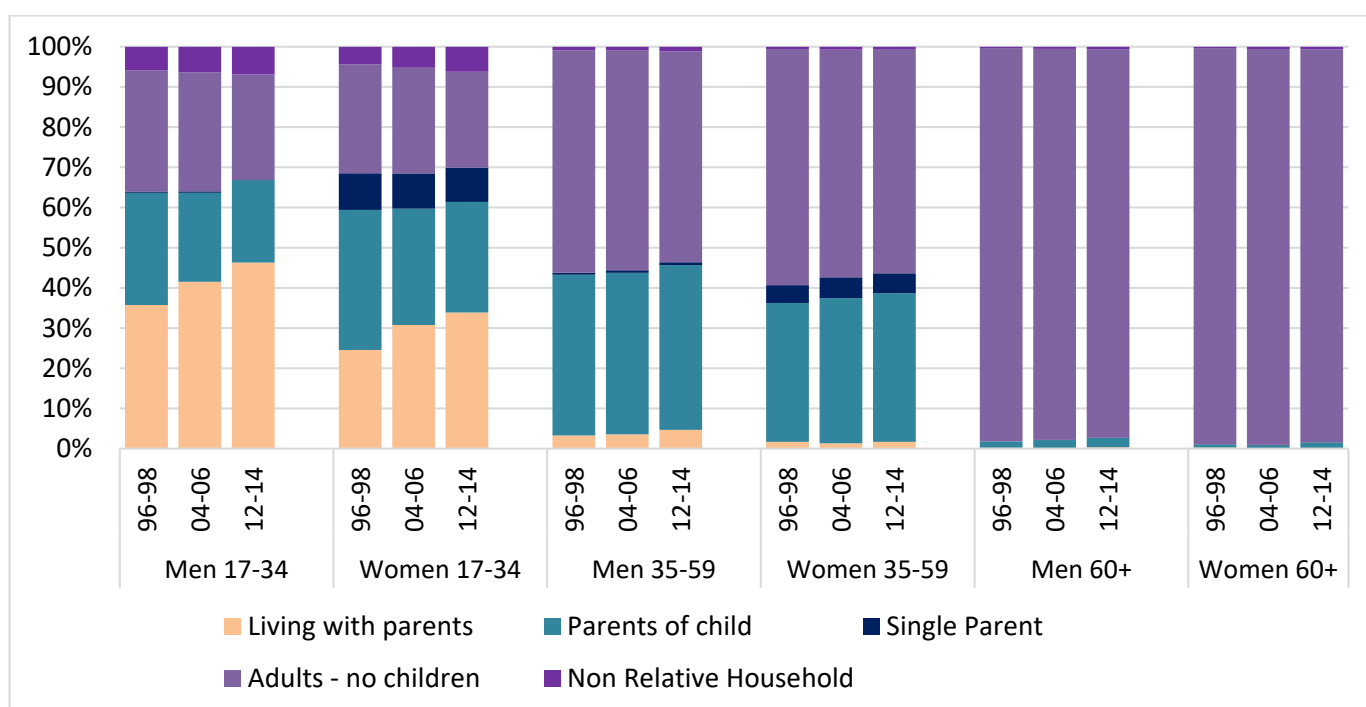
- Greater numbers of younger people going to college or university
- Having children later in life
- Housing costs encouraging joint living

This annex uses National Travel Survey data to look at household composition (rather than census or other data), in order to help explain variation within the NTS sample. As such it can only show the results of these various factors rather than explain what the main causes are. The variables related to household structure and relationship to the head of household/household representative person have been used. These do not provide as much information as would be preferred, but broad living situations can be defined, viz:

- Living with parents (or guardians)
- Parents of child at home
- Single parent (without other adults)
- Adults, no children
- Household made up of non-relatives

Figure D1 shows that the changes mentioned above have had a considerable effect on both genders aged 17-34. There has been much less effect on older age groups, though there has been an increase of those aged 35 to 59 with children at home which may reflect later childbirth.

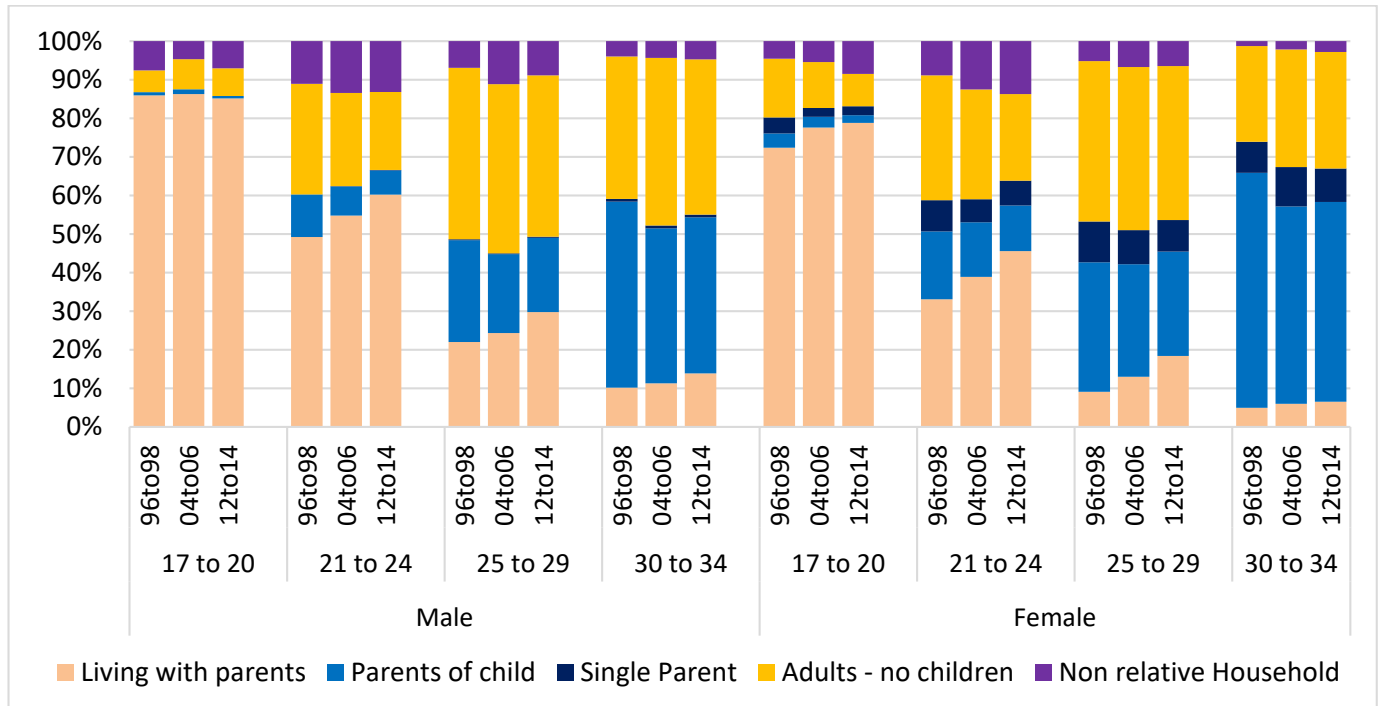
Figure D 1 Living situation of adults by age and gender: 1996-98, 2004-06 and 2012-14



For those aged 17-34 there have been large increases in the proportion living as grown-up children with their parents with a corresponding fall in those living as parents of children. A fairly large reduction for those living as adult households without children has also occurred.

In order to study these effects in greater detail the 17-34 age group is broken down further in Figure D2.

Figure D 2 Living situation of adults 17-34 by gender, subdivided by age: 1996-98, 2004-06 and 2012-14



Age 17 to 34 is a period of major life transitions, so the patterns observed in any one period are very different for each age group. There are broad similarities across genders, though males have a greater tendency to continue to live with parents than females. Changes that have occurred include:

- Females aged 17-20 have shown an increased tendency to live with parents with a corresponding reduction in having children.
- The changes for those aged 21-24 are most marked with a large increase in likelihood of living with parents for both sexes and corresponding lower likelihood of having formed an 'adult' household and/ or had children. (It should be noted that some of those living with parents may also have children of their own, living in three generational households, though this is probably a small minority).
- There has been an increase in households made up of non-relatives with around 12% aged 21-24 living in such households in 2012-14.
- At all sub age groups there has been a reduction in those who have children. Living as a single parent has become less common, though Figure D.1 showed a slight increase for women aged 35-59 in this situation.

Figure D3 shows the employment status¹⁸ for those aged 17-34 by gender.

Figure D 3 Employment status by age group and gender: 1996-98, 2004-06, 2012-14



- As males age they are more likely to become workers, full or part time, and females are most likely to be full time workers up to the 25-29 age group, but then more likely to be 'looking after home' or working part time.
- Over time being a student has become more common for those in all of these age groups, but as would be expected this is most relevant up to the 21-24 age group. For both sexes the proportion as students for those aged 21-24 has increased from about 11% in 1995-97 to 21% in 2012-14. For those aged 17-20 the increases have been from around 45% to a little under 60% with student status more common for females.
- The largest falls have been for full time work in the younger age groups, but with an increase in part time working, especially between 2004-06 and 2012-14.
- By age 30-34 the changes over time are much less noticeable, though men have shown an increasing likelihood of being a part time worker or student since 2004-06.

Figures D4 and D5 show total and driver mileage per person per year for sub-groups within the 17-34 age band by their living situation.

¹⁸ A different categorisation of employment status was used than the normal NTS classification. People can be full time students as well as working full or part time. In standard NTS analyses working overrides being a full time student. Since this analysis is concerned with younger people it was felt that being a full time student should take precedence over working.

Figure D 4 Miles per person per year (all modes) by age 17-34 sub-groups by living situation 1996-98, 2004-06 and 2012-14

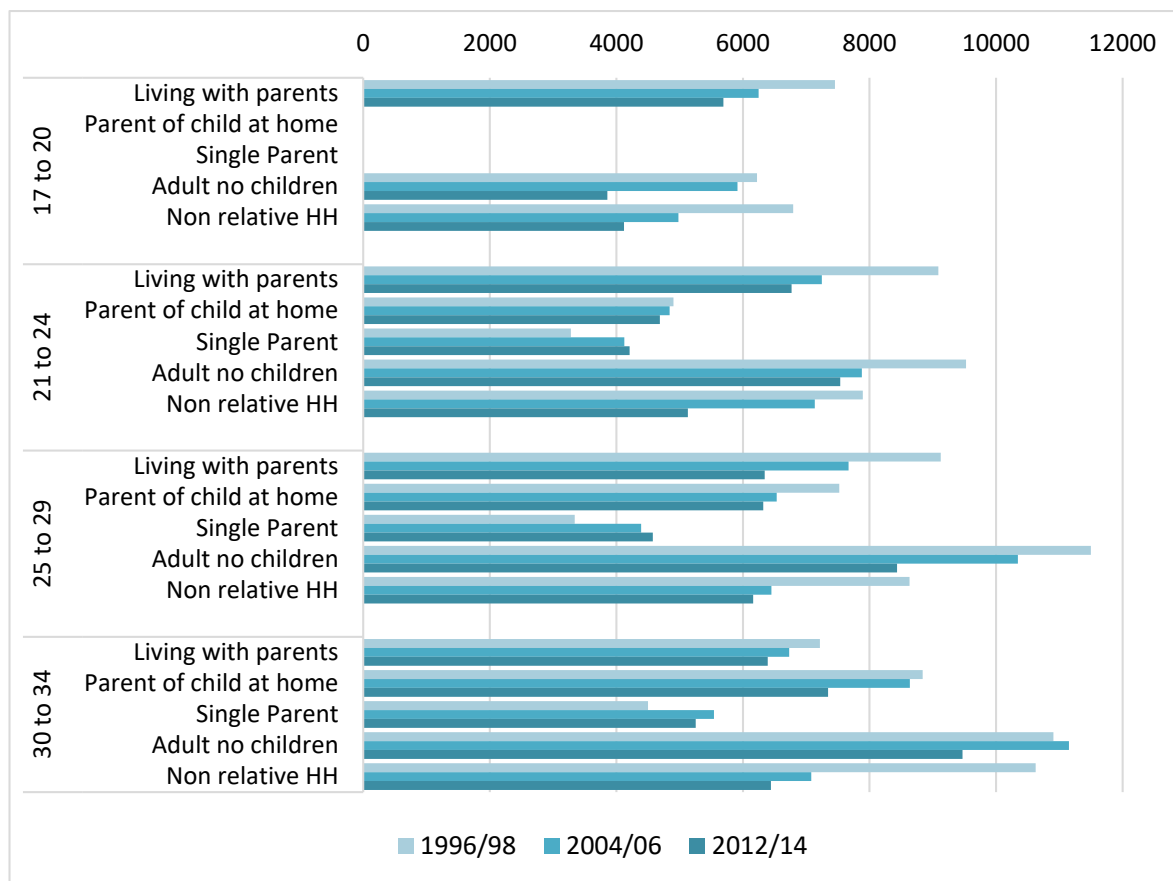
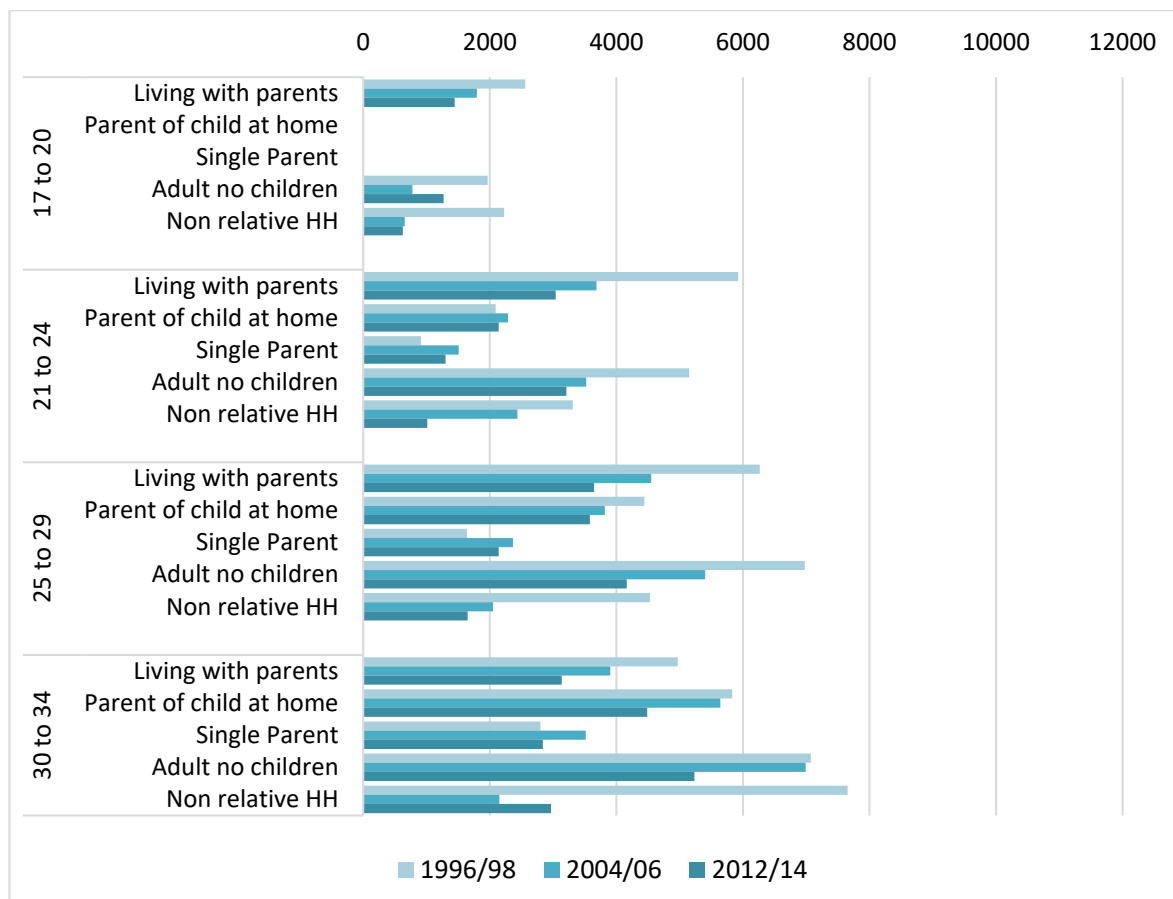


Figure D 5 Driver miles per person per year by age 17-34 sub-groups by living situation 1996-98, 2004-06 and 2012-14



All groups show reductions in total annual mileage (Figure D4) except for single parents (of all ages) who show an increase. Those without children tend to show larger reductions.

Driver mileage (Figure D5) shows a similar pattern, but the proportional reductions tend to be larger, in line with findings from the body of the report on falls in driving.

Figures D6 and D7 show total and driver mileage per person per year for sub-groups within the 17-34 age band by their employment status.

Most employment status groups show a reduction in total mileage (Figure D6) though the fall for students has generally been greater. Falls for 17 to 24 year olds are greater than for older people in the 17-34 age band.

Driver mileage (Figure D7) tends to show less change, and with some increases (e.g. younger part time workers). However falls for students and full time workers aged 21-24 have been especially large.

Figure D 6 Miles per person per year (all modes) by age 17-34 sub-groups by employment status 1996-98, 2004-06 and 2012-14

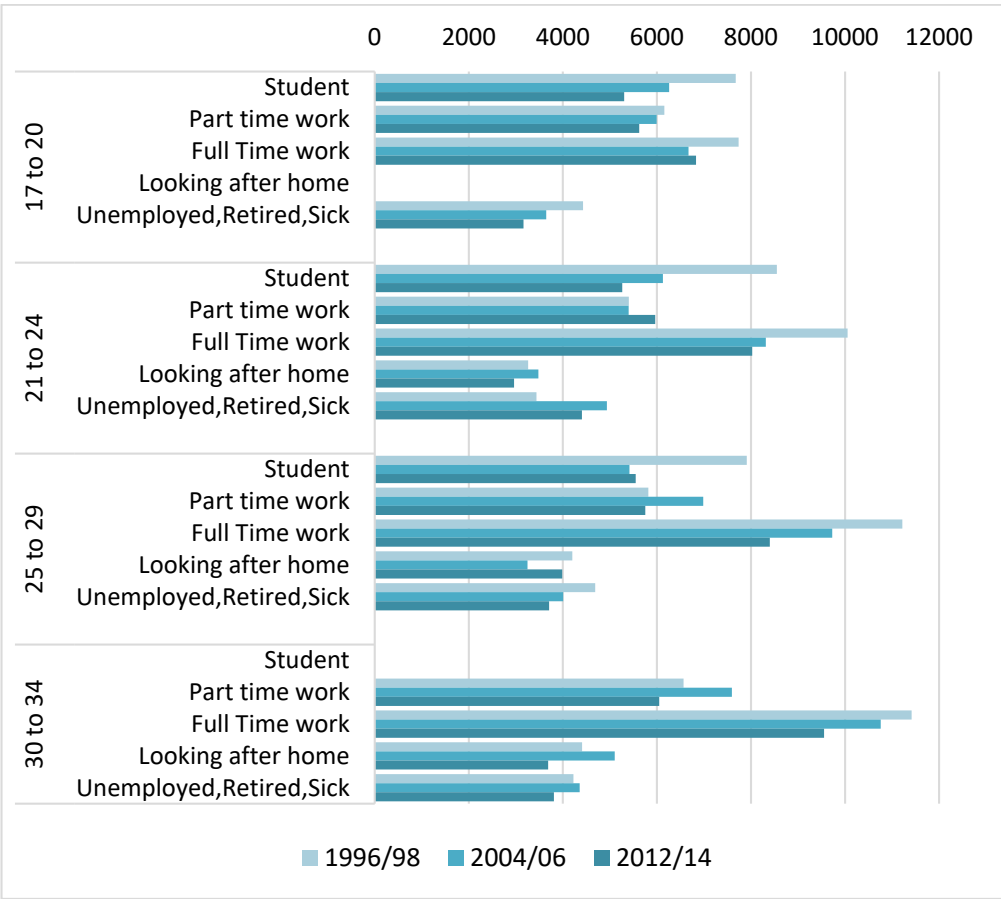
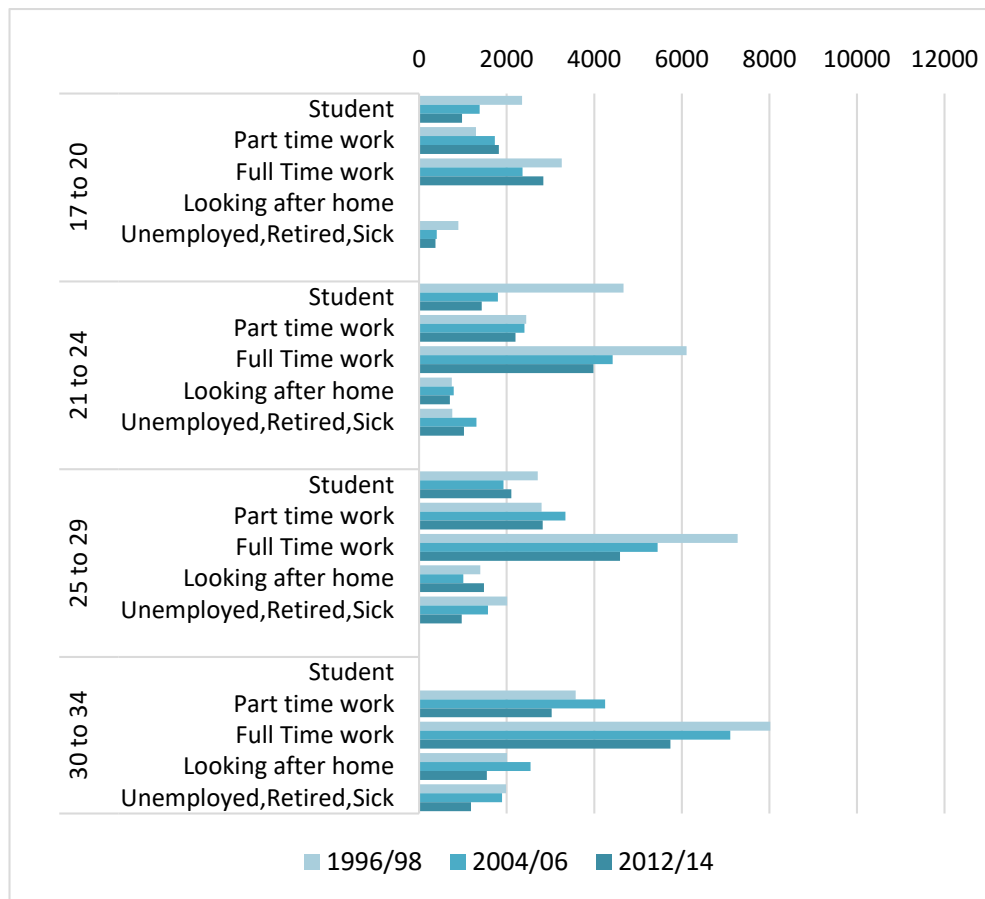


Figure D 7 Driver miles per person per year by age17-34 sub-groups by employment status 1996-98, 2004-06 and 2012-14

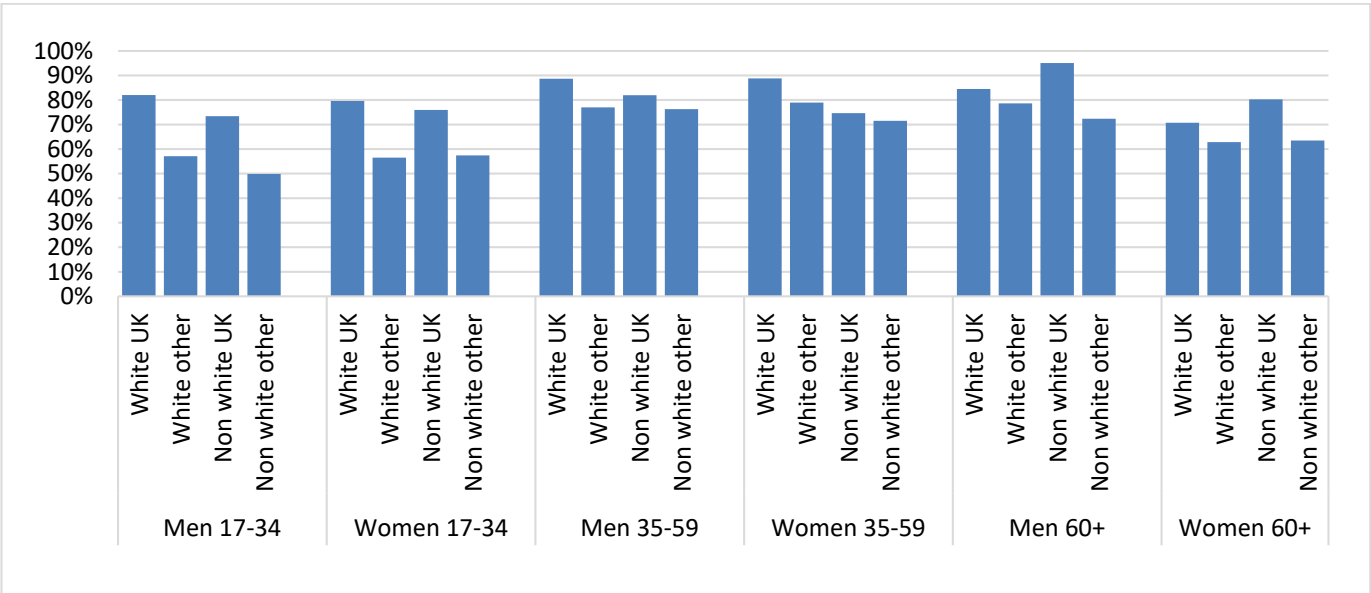


Annex E: The Travel Behaviour of International Migrants and Ethnic Minorities

The National Travel Survey includes some information on country of birth and ethnic group, but even with its relatively large sample size detailed analysis is not possible due to the relatively small sample sizes of ethnic groups and those born outside the UK. Here we look at whether people are white or non-white, and whether born in the UK or not. Additionally birth country has only been asked since 2010, so a time series analysis is not possible and all analysis in this annex is therefore based on a 2010-14 data set.

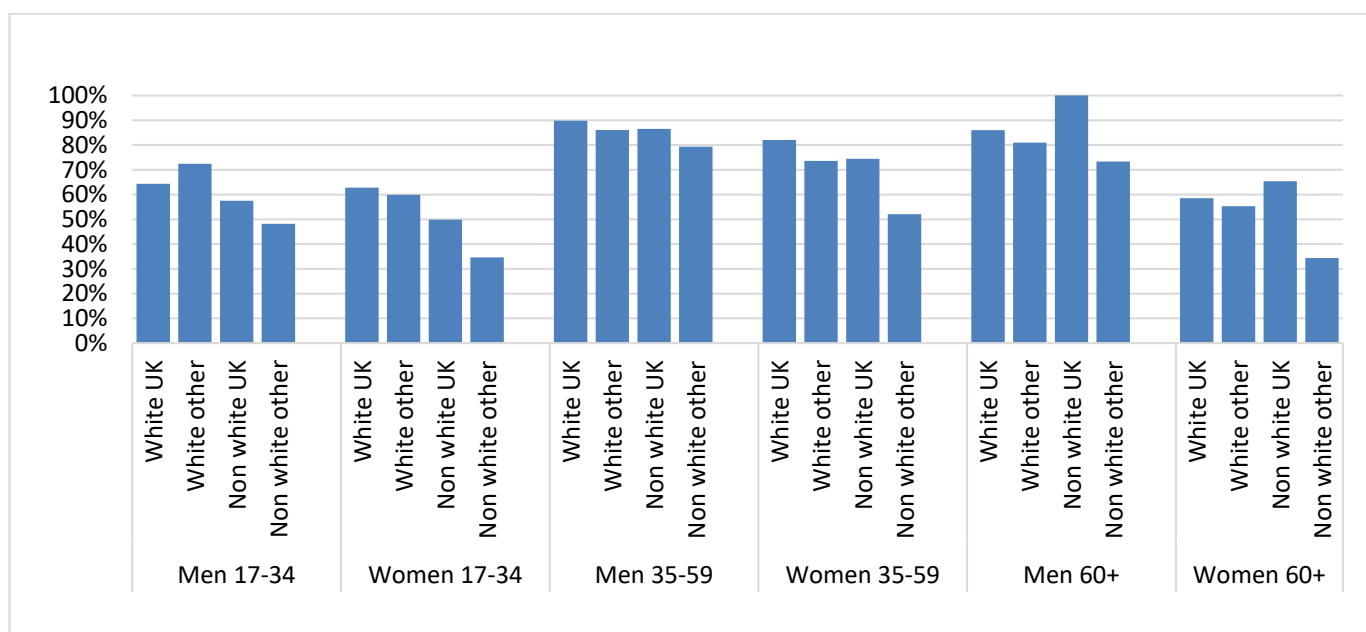
Figures E1 to E3 show different aspects of car availability by ethnic group and country of birth, by gender and by broad age group for those aged 17 and over.

Figure E 1 Percentage of adults living in a household with a car by ethnicity and country of birth, by gender and age group 2010-14



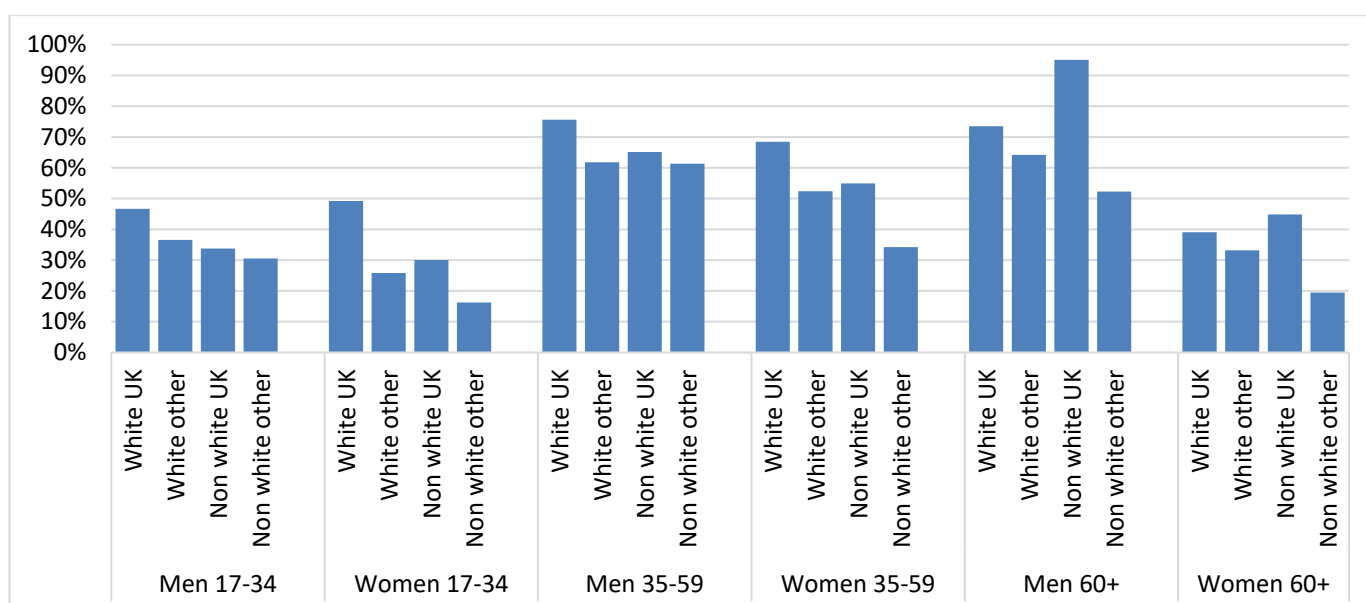
In younger age groups living in a household with a car is appreciably lower for those born outside the UK (Figure E1), but in older age groups this makes less difference. Gender has little effect.

Figure E 2 Percentage of adults with a full driving licence by ethnicity and country of birth, by gender and age group 2010-14



Licence holding by non-white women born outside the UK is appreciably lower than for other groups (Figure E2) and also lower for younger non-white men born outside the UK.

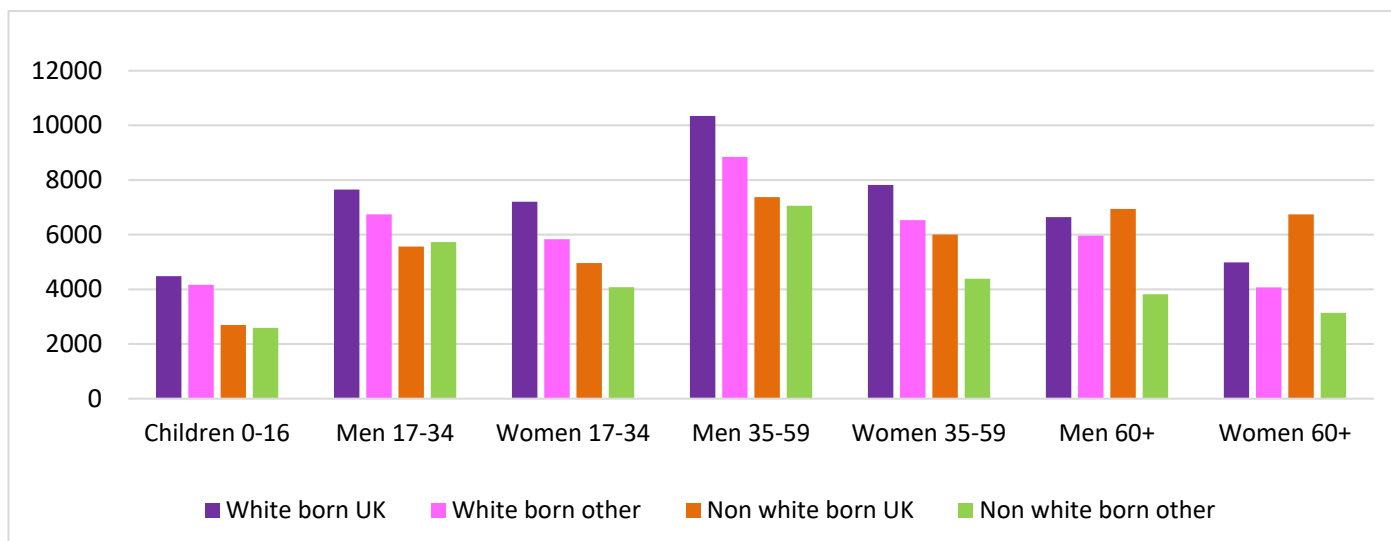
Figure E 3 Percentage of adults who are main drivers of a household car by ethnicity and country of birth, by gender and age group 2010-14



The pattern for being the main driver of a household car (Figure E3) is similar to that for having a driving licence, but obviously the percentages are lower. However while younger white men born outside the UK were more likely than those born in the UK to have a licence they are less likely to be a main driver.

Figures E4 and E5 show miles travelled per person per year for all modes and for car driver by the same population breakdown.

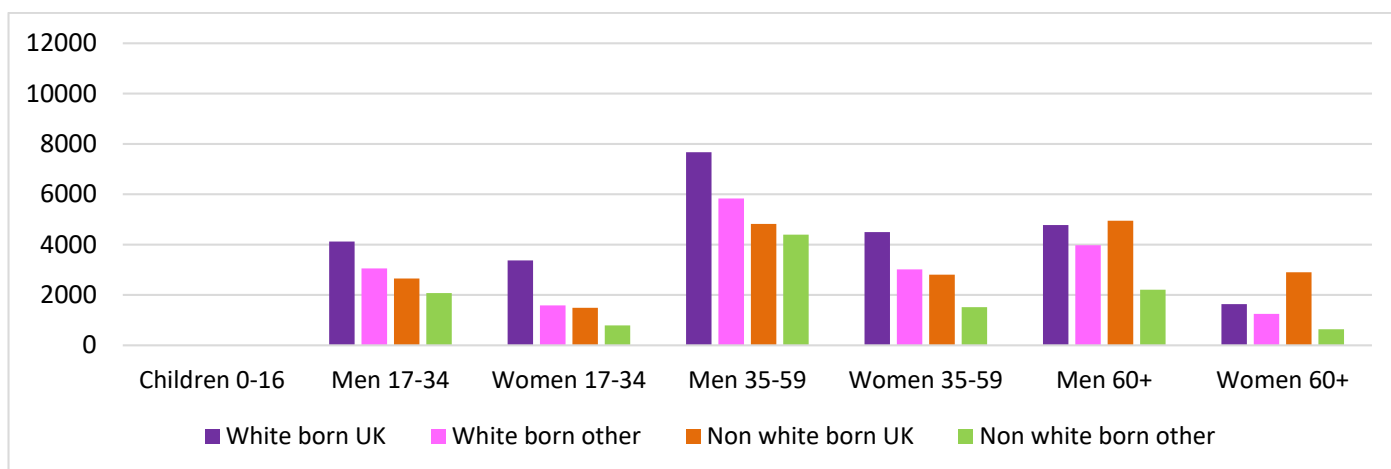
Figure E 4 Miles per person per year (all modes) by gender, age, ethnicity and country of birth 2010-14



For travel in total (Figure E4) mileage by non-whites born outside the UK is generally lower than other groups, but for men of working age is similar to non-whites born in the UK. For virtually all age and gender groups white people born in the UK have the highest travel mileage.

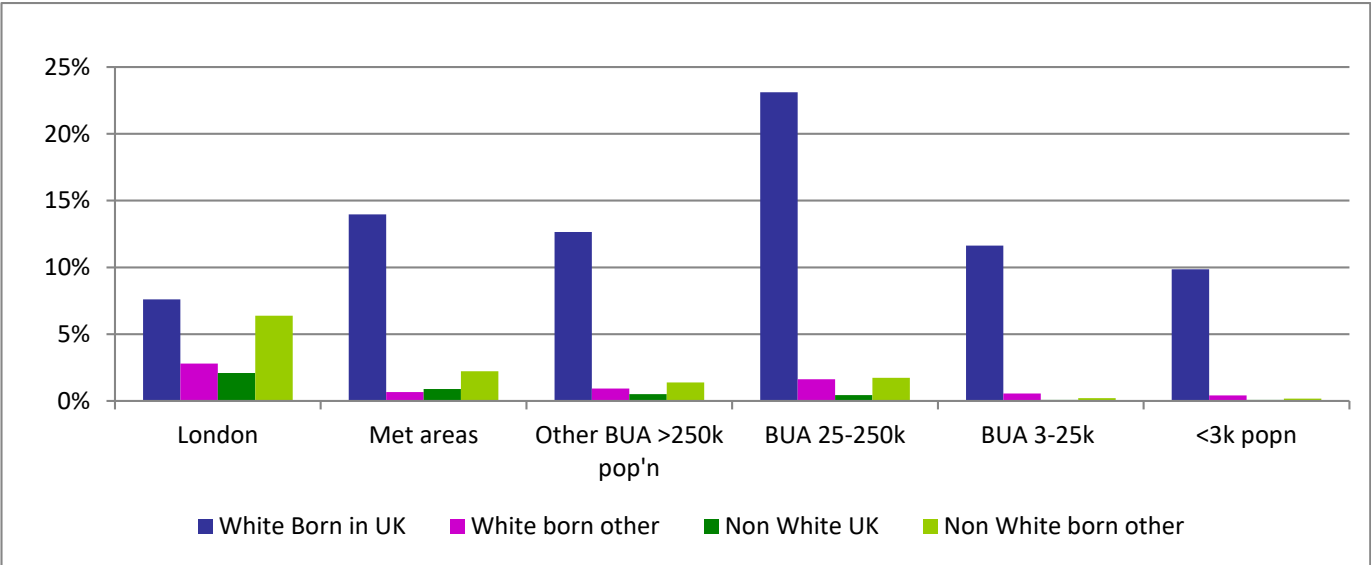
For driving mileage (Figure E5) the differences are greater, with driving mileage by non-white women born outside the UK being especially low.

Figure E 5 Driver miles per person per year by gender, age, ethnicity and country of birth 2010-14



Some of these differences are attributable to the concentration of migrants and non-white UK born people living in large cities where the need for a car is less (Figure E6) (A half of all non-white people live in London and a third of all white people born outside the UK).

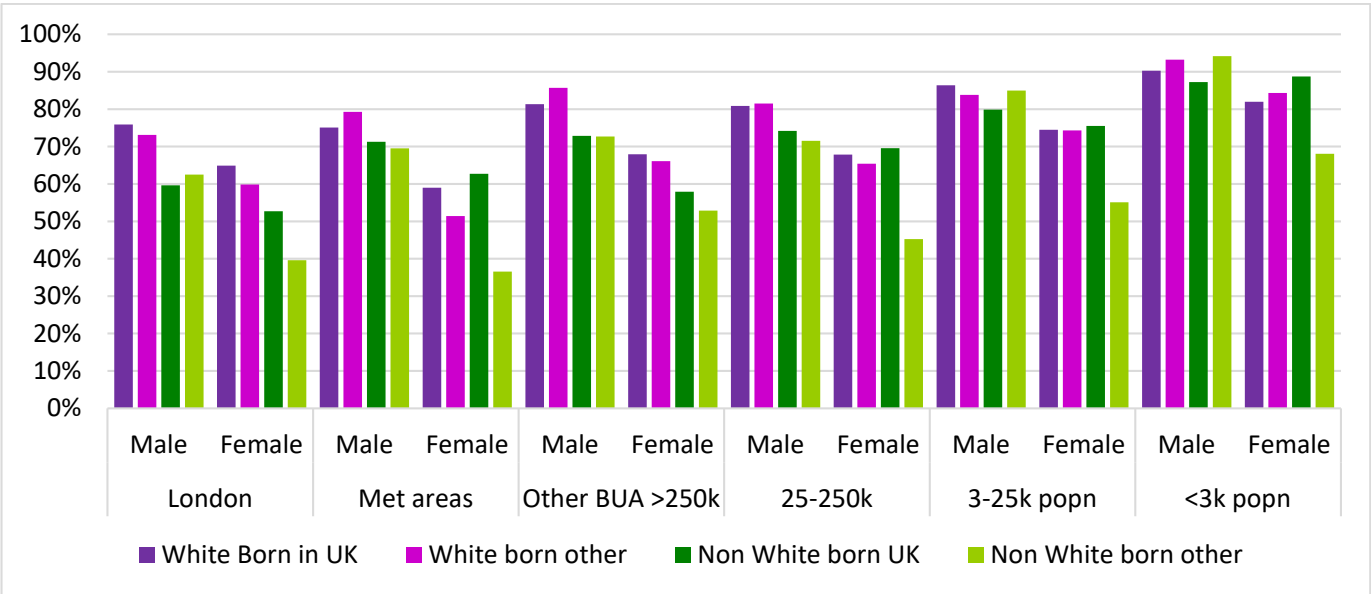
Figure E 6 Proportion of the adult population by ethnicity and country of birth by area-type/size of built-up area 2010-14



There are nevertheless differences in licence holding by ethnicity and country of origin *within* the individual area-types (Figure E7)

For women the lower likelihood of a licence for non-whites born outside the UK is apparent in all areas, but for men in smaller settlements having a licence is as likely for any group.

Figure E 7 Proportion of adults with a full driving licence by ethnicity and country of birth, gender and area type/size of built-up area, 2010-14



Author Profiles

Peter Headicar is an Associate at the School of Built Environment, Oxford Brookes University where he was Reader in Transport and leader of the MSc Transport programme until retirement in 2011. He continues to research spatial demographic trends in England and their implications for travel and on the inter-relationships in policy and practice between land use and transport planning. He is the author of 'Transport Policy and Practice in Great Britain' published by Routledge in 2009. He received the PTRC Lifetime Achievement Award in 2012 and was appointed a member of the Independent Transport Commission in 2013. His reflection on the 50th anniversary of the Buchanan Report – 'Traffic and Towns: the next fifty years' – was published as an ITC Occasional Paper in 2015.

Gordon Stokes is a Visiting Research Associate at Transport Studies Unit in the University of Oxford. During his career he has researched a variety of travel behaviour and transport policy issues for the Transport and Road Research Laboratory, transport consultancies, and the Countryside Agency, and worked in Transport Studies Unit in the 1980s and 90s. He was one of the authors of 'Transport – The New Realism' published in 1991. Much of his recent research has been on changing travel behaviour and factors that influence it. He has also written extensively on rural transport issues.

Published by the Independent Transport Commission
December 2016



For further information and electronic copies please visit:

www.theitc.org.uk

or write to:

Independent Transport Commission
70 Cowcross Street
London
EC1M 6EJ