

# **Consumption Trends in the UK, 1975–99**

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## **Preface**

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## Contents

Executive Summary	vii
1 Introduction	1
2 Data and the Treatment of Housing Costs	2
3 Broad Trends in Expenditure	5
3.1 Total expenditure	5
3.2 Expenditure inequality	6
3.3 Expenditure on different types of goods and services	8
3.4 How accurately is expenditure recorded?	10
4 More Detailed Expenditure Trends	13
4.1 The impact of prices	15
5 Expenditure across Demographic Groups	17
5.1 Household type	17
5.2 Detailed expenditure for different household types	20
5.2.1 Food and catering	20
5.2.2 Alcohol and tobacco	22
5.2.3 Domestic fuel	23
5.2.4 Communications	24
5.2.5 Domestic services	25
5.2.6 Clothing	26
5.2.7 Private health care	27
5.2.8 Private and public transport	27
5.2.9 Leisure	29
5.2.10 Education	30
5.3 Other demographic effects	31
6 The Effect of Total Budget on Expenditure Patterns	34
6.1 Engel curves	34
6.2 Results	35
6.2.1 Catering	35
6.2.2 Communications	36
6.2.3 Domestic services	37
6.2.4 Private transport	38
7 Counterfactual Analysis	39
7.1 Theory and methodology	39
7.2 Results	42
7.2.1 Food and catering	42
7.2.2 Alcohol	44
7.2.3 Tobacco	45
7.2.4 Domestic fuel	46
7.2.5 Household durables	47
7.2.6 Communications	47
7.2.7 Domestic services	48
7.2.8 Clothing	49
7.2.9 Private health care	50
7.2.10 Private and public transport	50
7.2.11 Leisure goods	52
7.2.12 Entertainment	53
7.2.13 Holidays	54
7.3 Summary	54
8 Conclusion	57
Appendix A: Data Description	58
Appendix B: Expenditure Shares and Relative Prices, 1975–99	61
References	66



## Executive Summary

Historical analysis of expenditure data provides insight into how and why British consumers' spending on different goods and services changes over time. Using data on more than 176,000 households from the annual Family Expenditure Survey between 1975 and 1999, this report shows a considerable shift in the typical household expenditure pattern and examines various possible reasons behind it. These include relative price changes, rising household budgets and demographic shifts. Average real weekly total expenditure by households – excluding spending on housing and adjusted to account for household composition – increased by slightly more than 50 per cent between 1975 and 1999, from £96.39 to £145.28. However, this average masks considerable differences across the expenditure distribution: real spending by the household at the 10th percentile grew by only 15 per cent, median expenditure by 43.5 per cent and spending by the household at the 90th percentile by 63 per cent. In other words, high-spending households have increased their spending much more than low-spending households.

Spending on 'basic' goods such as food, fuel and clothing has declined from more than 40 per cent of total non-housing expenditure to less than 27 per cent, with food exhibiting the largest overall fall. By contrast, households are spending more than ever on services, which by 1999 accounted for more than 42 per cent of total spending. This has occurred despite a rise in the relative price of services of more than 40 per cent since 1975. In comparison, whilst spending on durable goods has increased in absolute terms, a sharp decline in the relative price of durables has meant that the durables expenditure share has remained roughly the same over the past quarter-century.

Looking in more detail at how households spend their money, we find that more is now being spent on leisure than ever before – holidays, entertainment and leisure goods all saw their expenditure shares rise between 1975 and 1999. Households also appear to be shifting away from spending money on home-prepared food towards takeaways and restaurant meals (which we term 'catering'). In 1975, spending on home-prepared food was around 6 times greater than that on catering; by 1999, it was less than 2.5 times greater. Similarly, there has been a further movement away from public transport in favour of private motoring. Spending on motor vehicles and private transport was around 5.5 times greater than spending on public transport in 1975; in 1999, it was 11.5 times greater.

It may be that price changes can explain some of what we observe – for example, the price of private transport relative to public transport has fallen by around 40 per cent since 1975. Equally, there have been significant demographic changes which could account for our observations: the percentage of households made up of just one person below pension age rose from 6.5 per cent in 1975 to 15 per cent in 1999, whilst those consisting of couples with children fell from more than 40 per cent to less than 28 per cent. Different types of households will have different patterns of spending – pensioner households will typically spend less on catering than non-pensioner

households, and men more on catering than women. As another example, tobacco expenditure shares have fallen for all household types other than those headed by single women (whether above or below pension age) and single-parent households, which are of course predominantly female-headed.

We also show how the effect of total budget on spending patterns has changed over time. In economics jargon, goods that have a higher expenditure share the greater the level of total spending are known as ‘luxuries’ whilst goods that have lower shares as total spending rises are ‘necessities’. The report demonstrates how some goods, such as communications, have changed from being luxuries to being necessities over time, which may tell us something about how consumers’ preferences have changed over the past 25 years.

The report considers in depth how prices, demographics and the total budget may have affected patterns of expenditure on a range of goods and services. It also attempts to quantify the relative importance of these effects by looking at two counterfactual worlds in which they had remained unchanged. We assume in the first that prices and consumer preferences are unchanged, and in the second that demographics and the total budget are constant. Whilst some caution should be exercised in the interpretation of these results, our findings do suggest that had these factors stayed the same since 1975, household expenditure patterns could have looked very different in 1999 – for example, we find the large decline in the food share to be equally attributable to changes in prices and preferences and changes in demographics and the total budget. On the whole, we find that changes in prices and preferences have been more important in accounting for expenditure patterns than changes in demographics and budgets.



## **CHAPTER 1**

### **Introduction**

Since Ernst Engel first observed in 1857 that the share of household income spent on food declined as income rose, economists have taken an increasing interest in household expenditure behaviour. There are many reasons why we might want to understand the determinants of household expenditure. It is interesting in and of itself: changes in spending habits can tell us something about social and cultural changes, and how tastes, preferences and perceptions about what is necessary to make up a decent standard of living have altered over time. Further, in the analysis of household welfare, it is often argued that expenditure is the best proxy we have for well-being (since consumption perhaps provides a better measure of life-cycle income than contemporaneous monetary income<sup>1</sup> and expenditure is the best measure of consumption we have). We may also be able to obtain some insight into the economic reasons for the changing patterns we observe – for example, by comparing different types of household, we may be able to find out if changing demographics have had a particular impact on expenditure behaviour. This Report will present some counterfactual analysis along these lines.

The aim of this Report is to provide a comprehensive description of changing expenditure patterns in the UK over the last 25 years and to examine some of the reasons behind the changes. We begin, in Chapter 2, by discussing the nature and source of the data we are looking at, and briefly discuss particular problems arising in the analysis of housing expenditures. We address some of the broad trends in spending in Chapter 3 – how the allocation of our budgets has changed between goods and services or luxuries and necessities, for example – looking at more disaggregated groups of commodities in Chapter 4. We look at how spending patterns are affected by demographics in Chapter 5 and at how expenditure varies between the rich and the poor in Chapter 6. Finally, in Chapter 7, we present some counterfactual analysis to examine how spending might look today if these key variables had remained unchanged since the start of our analysis. Chapter 8 concludes.

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<sup>1</sup>For example, pensioners on low incomes may be consuming beyond their means by running down savings accumulated over their working life.

## CHAPTER 2

### Data and the Treatment of Housing Costs

The data we are using come from the UK Family Expenditure Survey (FES) between 1975 and 1999. The FES is a representative annual survey of around 7,000 households. Individuals in each household maintain a diary of expenditure for two weeks and are interviewed about their spending behaviour and incomes. Data are provided for expenditure on a broad range of goods and services, as well as on the incomes and demographic characteristics of the household. We take the data provided at the most detailed expenditure level and aggregate it into broader expenditure groups. Details of these groups can be found in Appendix A. By looking at data at the most disaggregated level available, we are able to obtain data series that are as consistent as possible, given the changing nature of the FES over the past 25 years. Expenditure and income data are expressed in December 1999 prices throughout this Report.

One commodity group our analysis excludes, however, is housing costs. How best to deal with housing costs is one of the most contentious issues in the analysis of expenditure data.<sup>2</sup> Expenditure on housing costs is significant, at around 20 per cent of total spending in 1999 ('housing costs' here includes not only rent or mortgage payments but also spending on repairs, DIY, housing insurance, water and so on). In 1983, the housing benefit system was extensively reformed. After the reforms, people in local authority housing no longer received housing benefit as a cash benefit but instead had their housing costs paid directly for them. By adding an imputed cash value of housing benefit to both housing expenditure and total expenditure after 1983, we can create a consistent series of spending on housing as a percentage of total expenditure. Figure 2.1 presents this series since 1975.<sup>3</sup>

Housing expenditure peaked in the late 1980s at the height of the Lawson Boom and when interest rates reached their peak in the early 1990s. The growth of gross housing expenditure over the course of the 1980s was fairly dramatic, rising by just under 6 percentage points as a share of total expenditure between 1983 and 1990, from 17.1 per cent to 22.8 per cent. The share of housing has been kept in check in more recent years (despite the resurgence of the housing market due to much lower interest – and therefore mortgage – rates: over the course of 1989, the base rate averaged 13.68 per cent; in 1999, the average was just 5.35 per cent<sup>4</sup>). We can clearly

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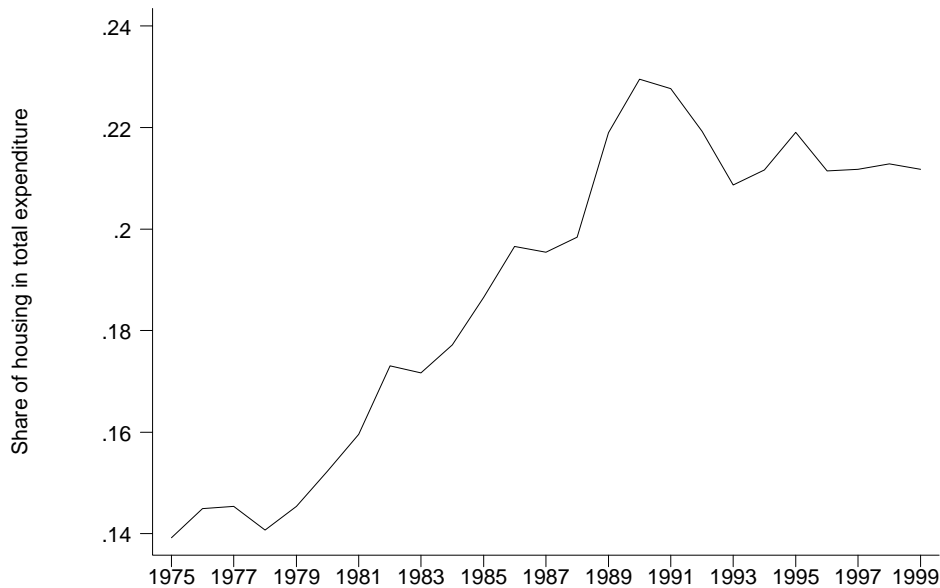
<sup>2</sup>See, for example, Johnson and Webb (1992).

<sup>3</sup>Note that this is the share of aggregate housing expenditure in total aggregate expenditure for the FES sample (analogous to what one would find in, for example, National Accounts figures) as distinct from the average of the individual households' housing expenditure shares. The first measure can, though, easily be calculated from the individual shares – it is simply a weighted average of these shares, the weights being the share of each household's total expenditure in aggregate total expenditure. In and after 1983, the share of gross housing expenditure is that out of total gross income including the imputed housing benefit received. Again, this is weighted by each household's share in total gross income.

<sup>4</sup>Source: Bank of England ([www.bankofengland.co.uk/mfsd/rates/baserate.pdf](http://www.bankofengland.co.uk/mfsd/rates/baserate.pdf)), monthly average.

FIGURE 2.1

## Share of housing in total expenditure including benefits after 1983



Source: Family Expenditure Survey.

see the effect of the 1983 benefit reform by comparing the gross and raw housing shares; the step down observed in the raw data in 1983 disappears, to allow near relentless growth in the share of spending devoted to housing until 1990.

Housing expenditure is affected significantly by changes to the mortgage rate. This demonstrates a key difficulty in the analysis of expenditure on housing compared with the analysis of expenditure on other goods and services – it is very hard to determine the ‘price’ of housing for some groups. People pay for housing in many different ways – some rent, some have mortgages, some own outright. For those who rent, we can observe a monthly or weekly rental charge. But for those with mortgages, should we consider expenditure to be the monthly mortgage payment, or just that part that goes towards the interest costs, or some other measure?<sup>5</sup> Mortgage payments measure the cash outgoings of owner-occupiers but may have little to do with the value of the housing services they are consuming. House prices may have changed a great deal since the mortgage was taken out. In addition, different people borrow different proportions of the value of their house, and, at the extreme, some own outright, so their recorded housing expenditure is zero. What about those who have their housing costs paid for them? We should remember that we are looking at spending as a means to learn something about consumer *welfare*. People who own their homes outright are clearly still enjoying the consumption benefits of living in their home, but we record their housing expenditure as zero, tending to make them seem worse off than they really are.

<sup>5</sup>Calculating the user cost of housing is an approach that could be taken, but Crawford (1994) finds that in periods when house price inflation is high, the user cost can become negative, so we do not use this approach here.

There are other problems in the analysis of housing expenditure besides difficulties in capturing exactly what constitutes spending. Economic theory of consumer behaviour suggests that people change their spending behaviour to reflect relative price changes and income movements, but most traditional theory assumes that consumers are able to adjust to these fluctuations relatively rapidly. This may not be the case with housing; clearly, there are severe short-run constraints on housing expenditure that may prevent utility maximisation over some time horizon. There are search and other costs involved with moving house, which again vary with the type of tenancy – we might think that people who rent their homes can move more easily than those with mortgages or who own outright.<sup>6</sup> Also, with the substantial regional differences in house prices that exist in the UK, it is unlikely that differences in housing expenditures between families are simply reflections of differences in quality or size. Further, even if we correct for the benefit changes in 1983 discussed above and allocate housing benefit to housing expenditures, it is clear that households having their housing costs paid directly for them could not decide how to allocate this expenditure themselves, whereas private tenants receiving cash benefits for their housing costs could.

Because of these complications, our analysis focuses on non-housing expenditure only. We now look at some of the broad trends in expenditure we observe since 1975.

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<sup>6</sup>In 1975, 30 per cent of households had mortgages, 21 per cent owned outright and 47 per cent were renters. By 1999, these figures had become 41 per cent, 26 per cent and 26 per cent respectively. This suggests that short-run constraints on housing expenditure may have become worse over the last 25 years. Source: FES.

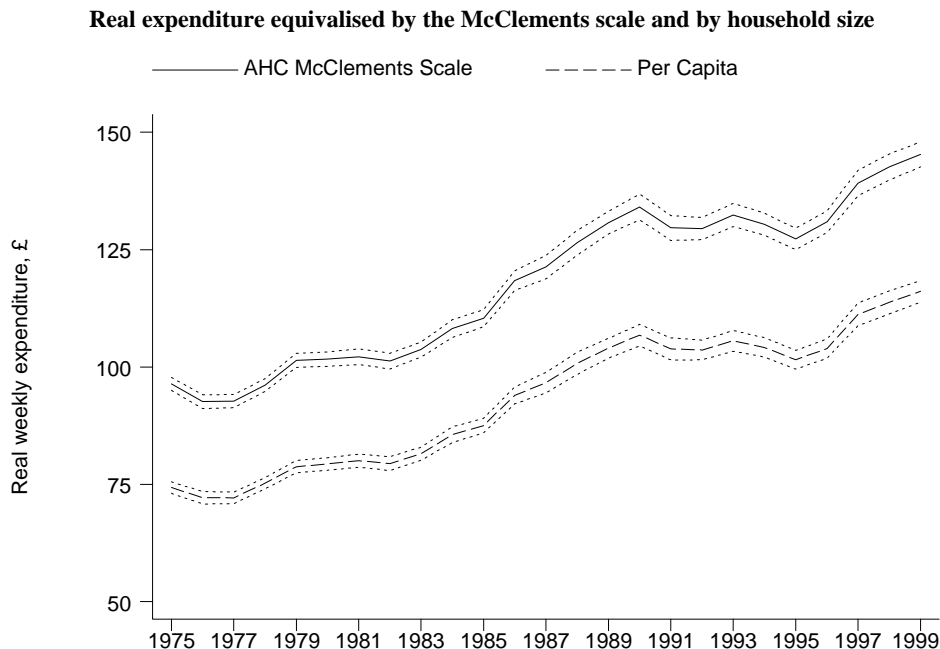
## CHAPTER 3 Broad Trends in Expenditure

### 3.1 Total Expenditure

We begin by looking at trends in total spending per household. Figure 3.1 presents real average weekly expenditure in December 1999 prices. When we look at household spending, we want to take into account the fact that a couple with two children spending £20,000, say, is not as well off as a single adult spending the same amount. We show the figures in two ways. First, we look at expenditure that is adjusted (equivalised) according to the after-housing-costs McClements (1977) scale. This scale allows for differing consumption needs of different household members (for example, children versus adults) and also for some economies of scale in household consumption (i.e. the idea that two adults do not need twice as much as one adult to be as well off). Secondly, we simply weight each household member equally and show per capita expenditure figures. In each case, we present 95 per cent confidence intervals around the mean values.

The solid line on Figure 3.1 shows the equivalised expenditure figures. There is obviously an upward trend in real expenditure, from some £96.39 in 1975 to £145.28 in 1999 – real growth over the whole period of around 50.7 per cent (or around 1.7 per

FIGURE 3.1



Notes: Figures shown are weighted by household size to give average total equivalised expenditure level per person. Dotted lines show 95 per cent confidence intervals. AHC = after-housing-costs.

Source: Family Expenditure Survey.

cent per year). The per capita figures are shown by the dashed line; here, the real growth is from £74.31 to £116.12, or 56.3 per cent (around 1.9 per cent per year). The per capita figures are lower in level because each child, for example, is treated as the equivalent of one adult, whereas in the McClements figures a child is treated as the equivalent of considerably less than one adult. However, the per capita figures show higher growth than the McClements figures. This is because the trend towards smaller households and fewer households with children will reduce the impact of economies of scale and of the lower needs of children that the McClements scale takes into account, whereas this will have no effect when using the simple per capita measure. In each series, we can see the impact of recession in both the early 1980s and more especially the early 1990s, with almost no change in real spending recorded between 1989 and 1996. ‘Boom’ periods of the late 1980s and mid-to-late 1990s are also clearly visible.

The graph makes plain that the trends in expenditure are broadly the same, irrespective of the method of equivalisation we use: periods of high and low real growth match almost exactly, and the correlation coefficient between the two measures amongst all households is 0.9807. Thus our choice over which measure to use will not affect our view of changes over time, merely the level of expenditure. We will continue our analysis using the after-housing-costs McClements scale method of accounting for family size when looking at variations in expenditure levels.

### **3.2 Expenditure Inequality**

Analysing the variance of our spending data over time can give us some basic insight into changes in the inequality of expenditure. Figure 3.2 presents the 90/10 ratio (the spending of the 90th-percentile household as a multiple of the spending of the 10th-percentile household<sup>7</sup>).

We can see a similar pattern of expenditure inequality since 1975 to those reported in other studies:<sup>8</sup> rapid increases over the course of the 1980s, which then slowed, or even reversed slightly, in the early 1990s and then once more began to accelerate towards the late 1990s. The 90/10 ratio increases from a low of around 3.22 in 1976 to 4.64 by 1990, falling back to around 4.36 by 1995 then rising once more, to 4.75 in 1999. Thus we can say, in broad sum, that between 1975 and 1999, real expenditure increased but became more variable.

We can also compare how the spending levels of the highest and the lowest spenders have developed over time. Figure 3.3 plots the real equivalised expenditure pattern over time for the households at the 10th, 50th and 90th percentiles.

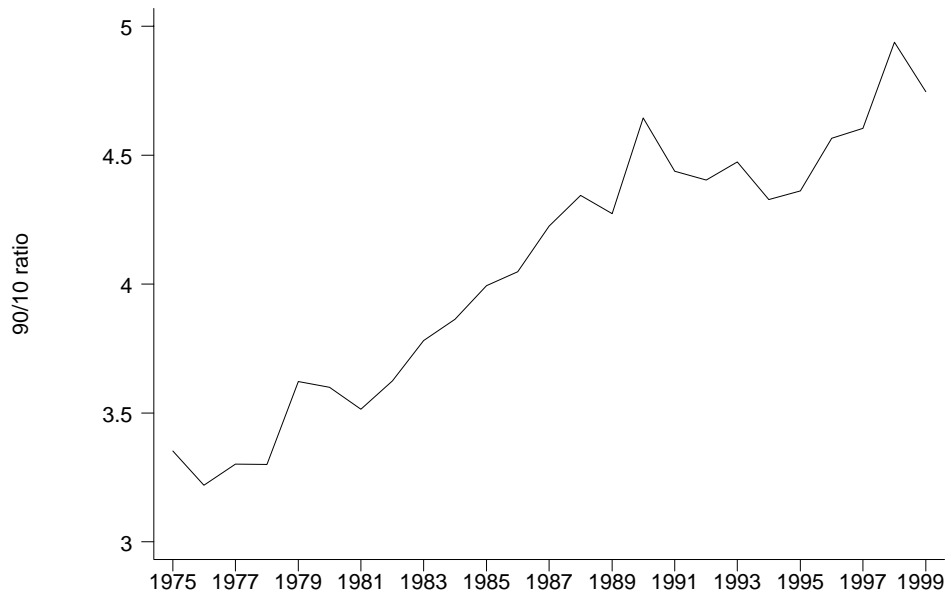
What we observe is stark: the 90th percentile now spends almost five times as much per week as the 10th percentile, whereas in 1975 the 90th percentile spent about three times as much. Over the whole 25 years, the real increase in weekly spending at

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<sup>7</sup>The percentile points are obtained by lining our sample up each year according to each household’s total equivalised expenditure. As an example of what this means: suppose we have a retired couple with total real household expenditure of £50 per week and an equivalence scale of 1.8. Real equivalised household spending is therefore  $50 \div 1.8 = £27.78$ . We then effectively assign this spending level to everyone in the household and take the percentile points from the sample of people.

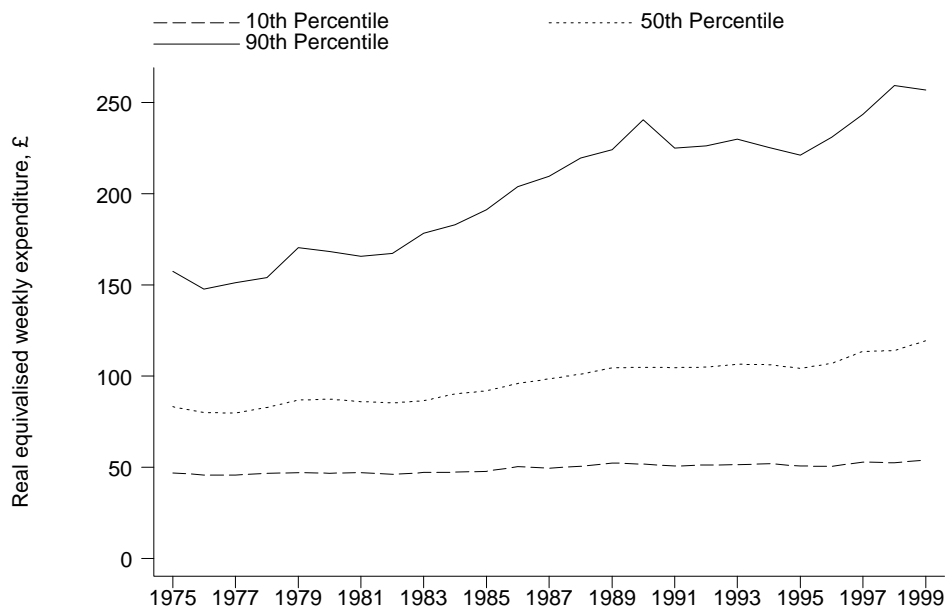
<sup>8</sup>See, for example, Clark and Taylor (1999), who present a similar picture for income inequality in the UK.

FIGURE 3.2  
Expenditure inequality: the 90/10 ratio



Source: Family Expenditure Survey.

FIGURE 3.3  
Real equivalised weekly expenditure for the 10th, 50th and 90th expenditure percentiles



Source: Family Expenditure Survey.

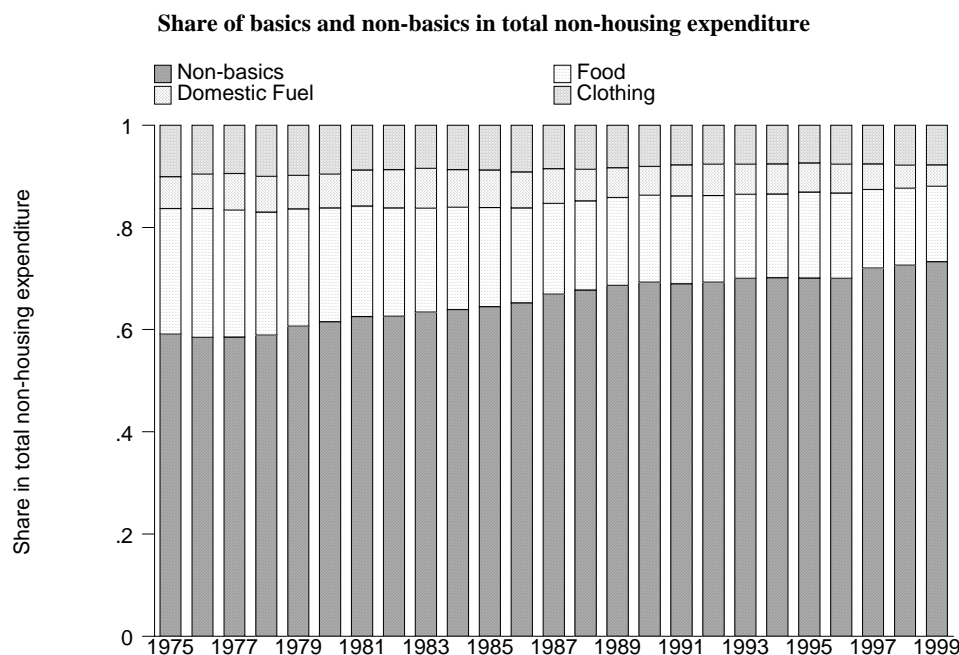
the 10th percentile has been around 15.2 per cent (from £46.98 to £54.12); for the median household, the increase has been around 43.5 per cent (from £83.27 to £119.52); and for the 90th percentile, it has been 63.1 per cent (from £157.50 to £256.93). Thus whilst all expenditure deciles have seen some real growth in average spending levels since 1975, this growth has been skewed towards the top end of the expenditure distribution. We can also see the point in the early 1990s when real expenditure growth at the top of the distribution stalled, generating the decline in inequality at that time that we observed earlier.

### 3.3 Expenditure on Different Types of Goods and Services

We can also look at how consumers have been changing the way they split their expenditure between various types of goods and services over time. Figure 3.4, for example, shows how consumption has been split between what we call ‘basics’ and ‘non-basics’ over time. Basics are defined as food, clothing and domestic fuel; all other goods are considered to be non-basics (remember that we are not considering housing expenditure in this analysis).

As Figure 3.4 shows, non-basics have always taken the lion’s share of total expenditure. However, this has become even more the case over the last 25 years, with a slow but almost uninterrupted decline in the share of spending devoted to the basics, from around 40.9 per cent in 1975 to around 26.7 per cent in 1999. The bulk of this 14-percentage-point fall has come from spending on food, which has dropped by almost 10 percentage points from 24.6 per cent to 14.8 per cent. There are smaller relative declines for clothing (some 2.5 percentage points) and domestic fuel (around 2 percentage points) to 7.7 and 4.2 per cent of total spending respectively.

FIGURE 3.4

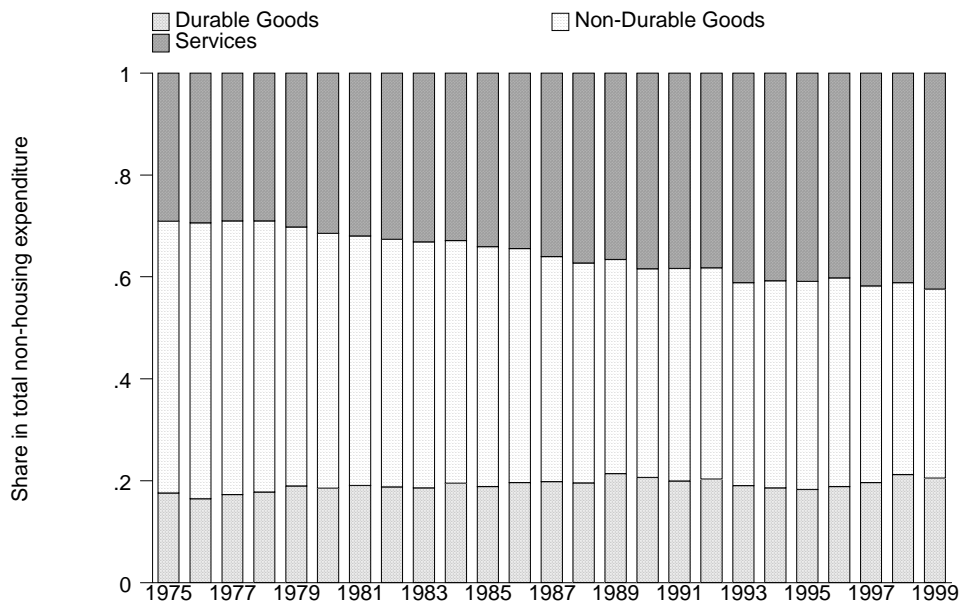


Source: Family Expenditure Survey.



FIGURE 3.5

## Share of durable goods, non-durable goods and services in total non-housing expenditure



Source: Family Expenditure Survey.

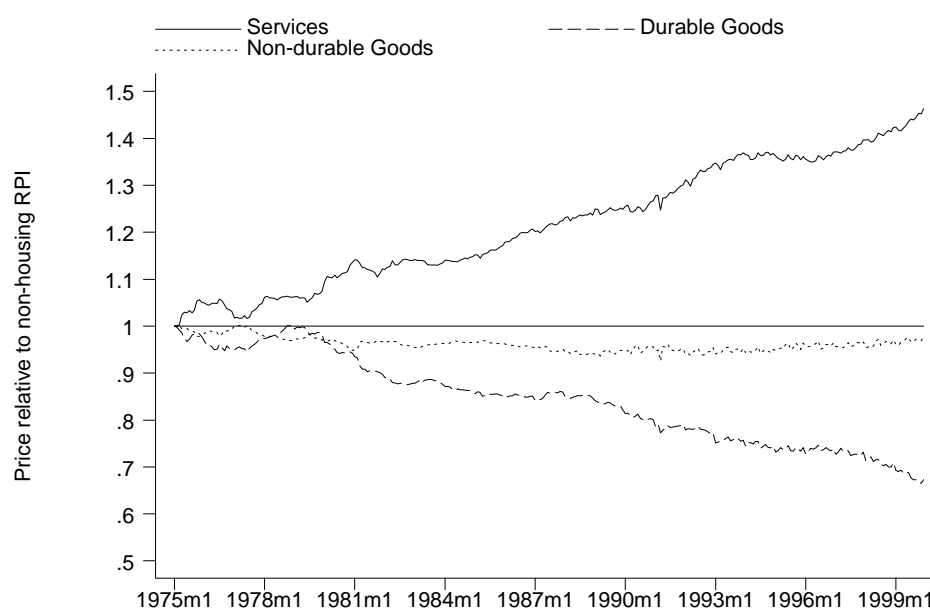
We can also break expenditure down between durable goods, non-durable goods and services. We have matched our expenditure categories as closely as possible to the retail price index (RPI) definition of these three broad expenditure groups. Figure 3.5 shows the evolution of the expenditure shares for these three groups.

There has been a significant redistribution of expenditure away from non-durable goods towards services, with the share devoted to durables remaining broadly unchanged. In 1975, the shares devoted to non-durable goods, services and durable goods were 53.3 per cent, 29.1 per cent and 17.6 per cent respectively. By 1999, the figures were 37.1 per cent, 42.4 per cent and 20.5 per cent. This fits in with the comparison of basics and non-basics: the three basics – food, fuel and clothing – are all non-durable goods. What this breakdown implies is that most of the redistribution away from necessities has gone into a greater share of services. This finding could be suggestive in terms of household production theories. In order to meet our needs, we can invest both time and money in variable proportions – we can buy ready-prepared yet expensive food, for example, or prepare food from fresh ingredients more cheaply but in a more time-consuming way. These results could suggest that there has been a shift away from time inputs towards money inputs as real incomes have risen.

Using the published RPI, we can construct price indices for durables, non-durables and services and use these indices relative to a non-housing all-items price index to get some idea of whether the shift towards services at the expense of non-durables was influenced by, say, services becoming cheaper relative to non-durable goods. Figure 3.6 plots the prices of the three broad categories above relative to a non-housing all-items index, starting in January 1975 at 1.

FIGURE 3.6

Price of durable goods, non-durable goods and services relative to non-housing RPI



Source: Authors' calculations from Office for National Statistics RPI data.

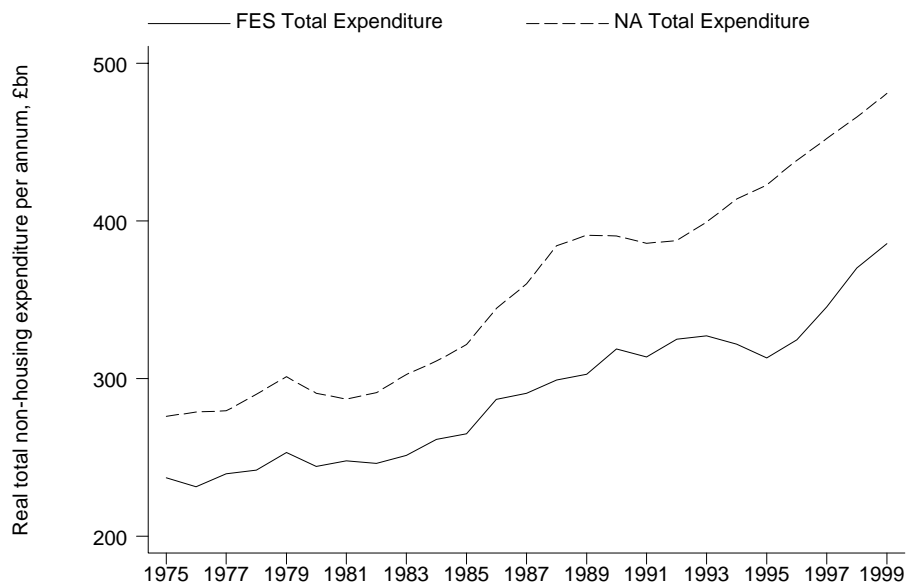
We can see from this graph that the relative price of services compared with the non-housing all-items RPI actually increased almost constantly over the period in question. The price of non-durables almost exactly tracked the all-items index, whilst the relative price of durable goods has been in consistent decline. The increase in the expenditure share of services at the expense of non-durables could suggest that services are price inelastic such that total spending increases with prices. It could also reflect a higher income elasticity for services than for non-durables. Figure 3.6 also tells us something of interest with regard to durables – the expenditure share of durable goods has remained fairly consistent over the whole of the last 25 years (Figure 3.5), during which time their price has fallen by more than 30 per cent relative to the all-items index. The price fall accords with intuition for, say, cars and electronic equipment, where manufacturing and technological processes may have led to significant productivity gains. It is likely that the quality of these goods has improved as well, such that a quality-adjusted price index would be even lower.<sup>9</sup>

### 3.4 How Accurately Is Expenditure Recorded?

Any data-set, of course, has potential inaccuracies and fallibilities. Before we proceed to look at some of the more disaggregated trends in expenditure on the goods defined in Appendix A, it is useful to know how the FES compares with other data sources, as a check on its reliability.

<sup>9</sup>Blow and Crawford (1999) investigate quality bias in the price index for audio-visual equipment between 1974 and 1996. They suggest that had this bias been taken into account, the average annual rate of non-housing RPI inflation would have fallen by 0.5 percentage points over the period.

FIGURE 3.7

**Real total non-housing expenditure from the FES and the National Accounts**

Note: 1999 prices, deflated using seasonally adjusted annual GDP deflators (source: Office for National Statistics).

Sources: Family Expenditure Survey; *Blue Book*.

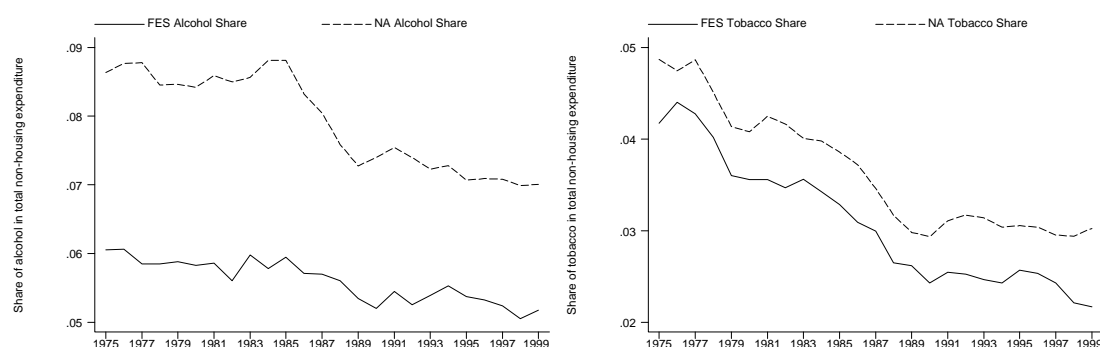
We start by looking in Figure 3.7 at how total expenditure in the FES compares to what is recorded in the National Accounts (*Blue Book*). For the FES, we take the grossed-up values of total non-housing expenditure. Grossing-up means we take each sample household and multiply it by a weight reflecting the frequency of that household type in the whole population. This allows us to obtain total expenditure figures that should be consistent with the total national values. The weights also reflect the fact that certain household types, such as single parents, are less likely to respond to the FES each year. Households with lower average response rates are given a higher ‘grossing factor’ when returning to national-scale level.

From Figure 3.7, we can see that real non-housing expenditure in the FES and National Accounts were at similar levels in 1975 – around £237 billion in the FES and £276 billion in the National Accounts. Nominal growth in the National Accounts has been slightly higher, to £481 billion in 1999 (growth of just over 74 per cent) compared with £386 billion in the FES (growth of just under 63 per cent). There also appears to be a more obvious ‘recession’ in the FES data in the early-to-mid-1990s, when total expenditure falls slightly in real terms; by contrast, the ‘recession’ in the National Accounts occurs a couple of years earlier, in the late 1980s to early 1990s. Nevertheless, we can see that, broadly speaking, the patterns of total expenditure observed in the two series are very similar, both showing consistent growth in the late 1970s and early 1980s, both being hit by the recession of the early 1990s, then both resuming much stronger growth in the later 1990s.

Although nominal expenditure growth has been slightly higher in the National Accounts than in the FES, what is important for our purpose is what happens to the

FIGURE 3.8

Alcohol and tobacco shares in total non-housing expenditure from the FES and the National Accounts



Sources: Family Expenditure Survey; *Blue Book*.

expenditure shares of the different goods over time. It is widely known that the FES under-records expenditure on items such as alcohol and tobacco when compared with the expenditure levels recorded by the UK National Accounts.<sup>10</sup> This may be for a variety of reasons – people may feel guilty about recording expenditure on goods that are considered social ‘vices’, for example. The FES also does not sample some demographic groups for which consumption of these goods may be high, such as the student population living in student accommodation. Further, amongst social groups where sampling does take place, the response rate tends to be lower for those groups – such as single young men – for which consumption of these goods is highest. Figure 3.8 shows expenditure shares for alcohol and tobacco taken from both the FES and the National Accounts. For the FES, we took the grossed-up values of both total non-housing expenditure and alcohol/tobacco expenditure and took the shares from these grossed-up values.

Clearly, the FES under-records expenditure on both alcohol and tobacco, more especially the former. In 1999, the FES definition suggested that alcohol accounted for around 5.2 per cent of total spending, compared with 7.0 per cent or so in the National Accounts; for tobacco, the corresponding figures are around 2.2 per cent and 3.0 per cent. However, the trends in the expenditure shares for both data sources are similar, especially for tobacco (although there appears to have been a substantial decline in the alcohol share in the National Accounts between 1985 and 1989 which was not picked up quite so strongly by the FES).

<sup>10</sup>See, for example, Tanner (1998).

## CHAPTER 4 More Detailed Expenditure Trends

We go on now to look at expenditure trends for the 18 commodity groups we identify in Appendix A. Table 4.1 shows how average real per capita weekly expenditure and shares of total expenditure have changed for each of the categories since 1975. The categories are listed in declining order (excluding ‘miscellaneous’ spending) of their share in total non-housing expenditure in 1999. We also present the standard error of the expenditure figure.

The expenditure figures in Table 4.1 make it clear that the growth of consumer spending has far outstripped inflation since 1975, with all goods except food and tobacco showing a real-terms increase in total spending. The largest increases were for holidays and education, though the latter in particular rose from a low base. However, our focus from now on is on each good’s *share* in total expenditure, since this allows us to compare easily relative growth in spending on the various goods and services. If the expenditure share for a good increases, it means that spending on that good increased, on average, more quickly than expenditure in general. A declining expenditure share shows that spending on a good increased more slowly than overall expenditure, not that actual levels of spending were lower.

Figure 4.1 shows how the expenditure shares changed between 1975 and 1999 for each of the commodity groups we define here (bar miscellaneous). We can see that expenditure shares fell quite substantially for the ‘basics’ we defined in Section 3.3.

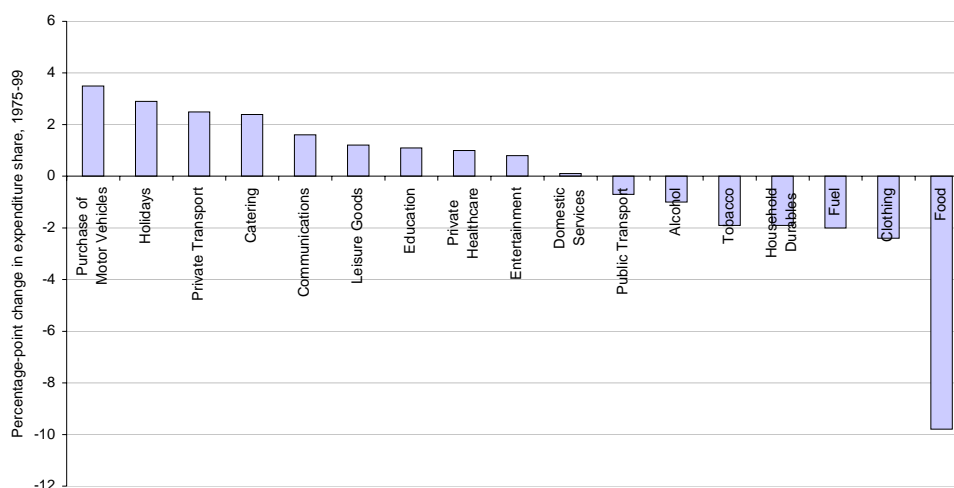
TABLE 4.1  
Expenditure on various commodity groups

Group	1975			1999			Real expenditure increase (%)
	Expenditure (£/week)	Standard error	Expenditure share (%)	Expenditure (£/wk)	Standard error	Expenditure share (%)	
Food	18.29	0.09	24.6	17.18	0.11	14.8	-6.1
Private transport	6.42	0.11	8.6	12.96	0.17	11.1	+101.7
Purchase of motor vehicles	3.34	0.12	4.5	9.25	0.37	8.0	+176.9
Clothing	7.47	0.15	10.1	8.99	0.19	7.7	+20.3
Catering	3.08	0.05	4.1	7.54	0.10	6.5	+145.3
Leisure goods	3.74	0.10	5.0	7.22	0.19	6.2	+93.0
Household durables	5.86	0.22	7.9	7.00	0.27	6.0	+19.5
Holidays	1.60	0.15	2.2	5.92	0.46	5.1	+270.0
Alcohol	4.41	0.08	6.0	5.84	0.10	5.0	+32.4
Domestic fuel	4.66	0.06	6.2	4.88	0.04	4.2	+4.7
Entertainment	1.91	0.03	2.6	3.99	0.08	3.4	+108.9
Private health care	1.42	0.05	1.9	3.38	0.08	2.9	+138.0
Communications	0.85	0.01	1.1	3.09	0.04	2.7	+263.5
Tobacco	3.09	0.04	4.1	2.52	0.06	2.2	-18.4
Education	0.48	0.03	0.6	2.01	0.14	1.7	+318.8
Public transport	1.75	0.09	2.4	1.94	0.09	1.7	+10.9
Domestic services	0.90	0.04	1.2	1.46	0.08	1.3	+62.2
Miscellaneous	5.06	0.22	6.8	10.95	0.29	9.4	+116.4

Notes: The expenditure shares are weighted according to each household’s share in total expenditure. Expenditure levels are the average real per capita figures.

Source: Family Expenditure Survey.

FIGURE 4.1  
Change in expenditure shares of various commodity groups, 1975–99 (percentage points)



Source: Family Expenditure Survey.

Indeed, they are the three groups with the biggest decline in percentage-point terms, most of all food, which saw its expenditure share fall by nearly 10 percentage points. The only service to record a decline in its expenditure share was public transport, though this was more than offset by the increase in private transport, which rose from the third- to the second-biggest item of expenditure over the period. Spending on the combined categories of private transport and purchase of motor vehicles now outweighs that on food. We are now clearly spending a much greater share of our total expenditure on leisure items – holidays, entertainment and leisure goods all saw increases in their shares between 1975 and 1999 (the total leisure share rose from 9.8 per cent to 14.7 per cent). At the same time, the share of spending we devote to looking after our homes appears to have declined – the combined share of fuel, household durables and domestic services fell from 15.3 per cent in 1975 to 11.5 per cent in 1999.

We can see in Table 4.1 how the highest standard errors are for those goods and services that are purchased most infrequently; this is what we would expect, given that for many households in each year’s sample, the recorded expenditure on these items is zero. Many of these goods are durables – motor vehicles, household durables, leisure goods (a category that is largely made up of audio-visual equipment) and so on; holiday expenditure too has a large standard error.

In Appendix B, we present charts for the expenditure shares of each of the commodity groups we define here over the full 25-year period in question. We do not present them all here because for most of them the trends in expenditure shares are fairly consistent in one direction or the other – thus, Table 4.1 showing the start- and end-period shares is sufficient to give a general idea of the trends over the whole period. Of all the groups looked at here, it was the purchase of motor vehicles that saw the biggest increase in its percentage-point share over the period. However, we now

exclude it from the rest of our analysis, as the way in which the expenditure data for this category were collected has changed twice and it is not possible to obtain a consistent series.<sup>11</sup> The collection methods were the same in both 1975 and 1999, though, so the simple ‘beginning to end’ analysis is not affected.

#### 4.1 The Impact of Prices

In the next two chapters, we go on to consider how various demographic variables and the household’s total budget affect expenditure patterns. Before this, we draw attention to some other interesting aspects of the analysis of the expenditure patterns of the population as a whole.

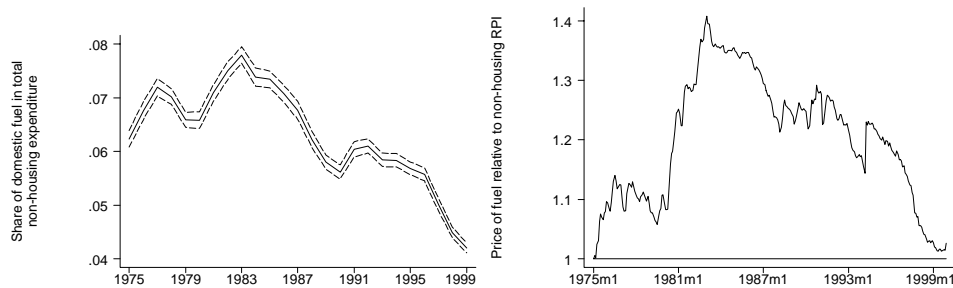
First, as we would expect, relative price movements can have an important impact on expenditure behaviour. Appendix B details expenditure and price trends for all of the goods in our analysis. In this section, we focus on some key findings.

Figure 4.2 shows the expenditure share on domestic fuel (coal, gas, oil and so on) accompanied by the price of domestic fuel relative to a non-housing all-items price index since 1975. We also present 95 per cent confidence intervals around the fuel share.

We can see immediately from the graphs that the pattern of fuel expenditure closely follows the movement in the relative fuel price: as the price peaks in 1976, 1983 and 1991, so too do the fuel shares. This implies that fuel consumption is relatively unresponsive to relative price shifts (other things being equal), such that fuel expenditures move closely in relation to price changes. This price inelasticity is consistent with economic theory regarding goods we consider necessities.<sup>12</sup>

FIGURE 4.2

**Expenditure share on domestic fuel and price of domestic fuel relative to a non-housing RPI**



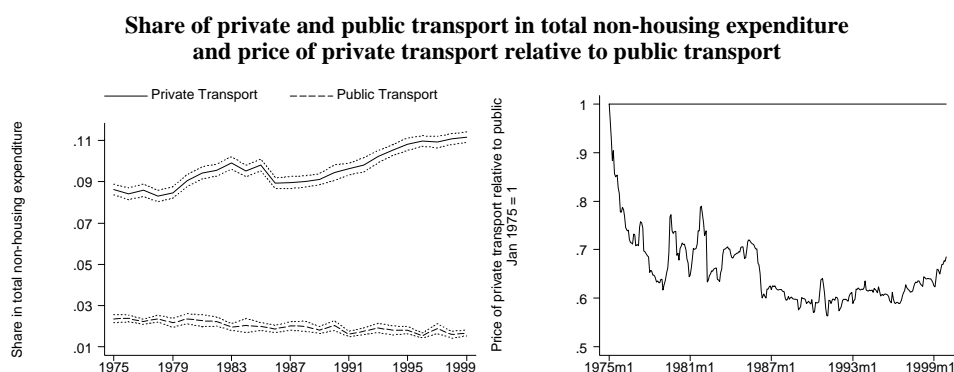
Note: Dashed lines show 95 per cent confidence intervals.

Sources: Family Expenditure Survey; price data from Office for National Statistics.

<sup>11</sup>Between 1975 and 1987, households were asked to recall their spending on vehicles over the last 12 months. This was changed to just three months between 1988 and 1995 and then back to 12 months from 1996 onwards. Whilst, in theory, this should not have impacted on the trend (since we are looking at average household expenditure over a weekly period), there was a significant downward shift in the reported spending in 1989, which lasted until 1994–95.

<sup>12</sup>The term ‘necessity’ refers to a good that is expenditure inelastic, which, other things equal, implies a lower (uncompensated) price elasticity.

FIGURE 4.3



Note: Dotted lines show 95 per cent confidence intervals.

Sources: Family Expenditure Survey; price data from Office for National Statistics; authors' calculations.

It is interesting to look at trends in the expenditure shares of these commodity groups not only in isolation but also together with trends in groups we consider to be close substitutes or complements. For example, much recent policy debate has centred on transport and congestion problems. Our expenditure groups separate public and private transport, so we can compare trends in the two to see whether consumers are increasingly favouring private modes of transport to public, and perhaps why this may be the case. Figure 4.3 presents the expenditure shares of private and public transport (together with 95 per cent confidence intervals) and the price of private transport relative to public transport since 1975.

Over the course of the last 25 years, the share of private transport in total non-housing expenditure has increased from 8.6 per cent to 11.1 per cent, whilst that of public transport has declined from 2.3 per cent to 1.6 per cent. Although consumers are spending more in absolute terms on public transport than they did in 1975, the growth in spending is not keeping pace with total expenditure growth, unlike that of private transport. The graph on the right shows how there has been a significant reduction in the relative price of private transport compared with public transport since 1975: private transport is now about 35 per cent cheaper relative to public transport than was the case then. However, the bulk of this relative price shift was over by 1980; since then, the relative price of private transport has remained more or less unchanged; indeed, since 1996 or so, public transport has become slightly relatively cheaper, with no corresponding change in the trends in the expenditure shares. The relative decline in the price of private transport may be surprising, given the large increases in petrol prices that have frequently made the news in recent years. However, these large real increases only really started to appear in the 1990s, and we can see how by the end of the period in question, the relative price of private transport had begun to rise slightly once more.



## CHAPTER 5

### Expenditure across Demographic Groups

#### 5.1 Household Type

In the last chapter, we looked at expenditure trends for selected commodity groups and saw how relative price movements could affect expenditure decisions. In this chapter, we focus on how demographic status influences the distribution of expenditure between the various commodity groups as well as total expenditure. Demographics can play a huge role in expenditure decisions for a number of reasons, and almost all models of spending behaviour will include a very large number of demographic variables as key determinants of spending patterns. There are more demographic factors that could influence spending than we can consider here, so our focus will be on three major ones: the age and gender of the head of household and the presence of children, although we will look briefly at the impact of employment status and region as well. We look at the effect of age by comparing the spending habits of those above and below pensionable age; this may capture, for example, shifts in tastes and preferences over time as well as the fact that pensioners, who are not, by definition, working, may skew their expenditure decisions towards those goods complementary to leisure time. Different sexes may have different preferences as well, and the presence of children in a household will affect spending decisions significantly since expenditure patterns will depend to some extent on household composition.<sup>13</sup>

Of course, to capture demographic effects accurately, we would have to compare people who were in essence identical other than in the one demographic factor we were interested in; so, for example, in looking at the spending behaviour of men and women, we would want to look at, say, men and women of the same age, employment status, racial background, educational level, region of abode and so on, and, crucially, total budget. Given our sample size, this is clearly not possible, and so we proceed to look at the expenditure behaviour of eight demographic groups based on the composition of the households in the FES. It must be borne in mind, though, that there may be many factors to which we could attribute expenditure pattern differences between these groups because of the general characteristics of each group. For example, we look at the spending behaviour of single-parent families, which are generally poorer than the average family, are predominantly headed by a woman and tend to be of low educational backgrounds; all of these factors could significantly determine expenditure allocations. In addition, the distribution of total budgets within a group can affect the relationship between average budget and average expenditure patterns.

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<sup>13</sup>Deaton, Ruiz-Castillo and Thomas (1989) suggest the notion of 'demographic separability' – that the expenditure shares for some goods are influenced by household composition (e.g. having children) only inasmuch as the total budget available for each person is reduced. In other words, demographic changes have income effects but no substitution effects for these goods. For a discussion of the effects of children on household behaviour, see Browning (1992).

The groups we define are:

- single men below pensionable age (single ‘young’ men);
- single women below pensionable age (single ‘young’ women);
- single men above pensionable age (single ‘elderly’ men);
- single women above pensionable age (single ‘elderly’ women);
- young childless couples;<sup>14</sup>
- couples with children;<sup>15</sup>
- couples in which head of household is above pensionable age (‘elderly’ couples);
- single-parent families.

We also have an ‘other’ category, which includes extended families and households made up of unrelated people (such as people living with lodgers). We will not look at this group in most of the analysis that follows.

Table 5.1 shows how the proportion of households falling into each of these groups has changed between 1975 and 1999. The biggest relative increases were in the single young male and single-parent family household types, both groups more than doubling their population shares since 1975. There were also big increases in the single young female and single elderly male groups, while there was a large decline in the preponderance of couples with children, from over 40 per cent of the total in 1975 to just over a quarter in 1999. What the table shows is a clear trend towards ‘singledom’ and also a weaker tendency for couples to have children. It could be that the passage from being single to being in a couple to having children is being delayed such that there are many more households made up of just one person. Further, the growth in the number of single-parent households is also evidence either of more children being born outside traditional couples or of those couples breaking up after the birth of the child.

Figure 5.1 shows the path of real equivalised total expenditure since 1975 for the eight major demographic groups we identified. It is immediately noticeable how total expenditure varies between the age groups: single people over pensionable age in 1999 had expenditure levels only around half those of single people below pensionable age. The gap that existed between single young men and single young

TABLE 5.1

**Percentage of households of various demographic types**

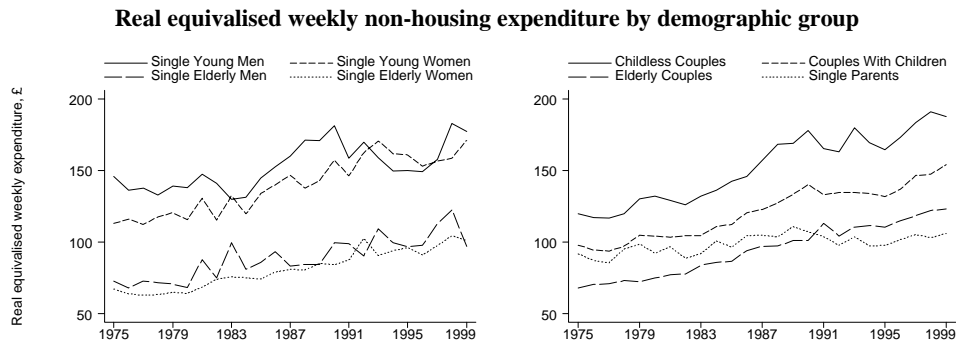
<i>Group</i>	<i>1975</i>	<i>1999</i>
Couples with children	40.4	27.7
Young childless couples	16.8	17.6
Single elderly women	11.0	10.0
Elderly couples	8.9	10.0
Single-parent families	4.2	9.8
Single young men	3.2	8.5
Single young women	3.4	6.5
Single elderly men	2.5	3.8
Other household types	9.7	6.0

Source: Family Expenditure Survey.

<sup>14</sup>‘Couple’ refers to a married couple prior to 1990 and married and cohabiting couples after 1990, as this was when cohabitation began to be recorded in the FES.

<sup>15</sup>In the FES, children are defined as under 16 or unmarried people aged 16–18 who are in full-time education.

FIGURE 5.1



Source: Family Expenditure Survey.

women in 1975 has now disappeared; it seems, therefore, that, in cross-section, age rather than gender is a key determinant of just how much is spent. Although, for brevity, we will refer to ‘age effects’ in the following text, it must be remembered that this is not strictly correct, since we are comparing people from very different birth cohorts when we look at a cross-section of data. For example, when current 25-year-old men are 75 years old, they may not have the same spending patterns as current 75-year-old men. The biggest spenders of all are, on average, young couples without children, at around £188 per week in 1999. There is a discernible difference between elderly couples and young childless couples, the former spending around £65 per week less on average than the latter (again in 1999).

Table 5.2 summarises the real growth in total equivalised non-housing expenditure for each of the demographic groups between 1975 and 1999. It shows how real expenditure has grown most rapidly for couples (regardless of the presence of children or age). Women (both old and young) have also seen fairly large growth, whereas lone parents and single young men have seen much slower growth. The very rapid growth in expenditure for couples with children compared with single-parent families is shown starkly in Figure 5.1: in 1975, couples with children spent only £6 per week more than single-parent families; by 1999, the gap had grown to just under £50 per week.

TABLE 5.2

**Real growth in equivalised non-housing expenditure by demographic group, 1975–99 (per cent)**

<i>Group</i>	<i>Real growth in total non-housing expenditure</i>
Couples with children	81.5
Elderly couples	57.5
Young childless couples	56.7
Single young women	51.2
Single elderly women	50.4
Single elderly men	33.4
Single young men	21.3
Single-parent families	15.6

Source: Family Expenditure Survey.

## 5.2 Detailed Expenditure for Different Household Types

We look now at how expenditure patterns differ across demographic groups. It should be borne in mind that for some of the durable goods categories, which exhibit large numbers of zero expenditure responses (due to purchase infrequency problems), smaller sample sizes in some demographic groups give rise to more volatile mean expenditures with much wider confidence intervals. Given this, we do not present durable goods categories in this section. For those categories that we do discuss, we do not show confidence intervals, since it becomes difficult to interpret the graphs with them included.

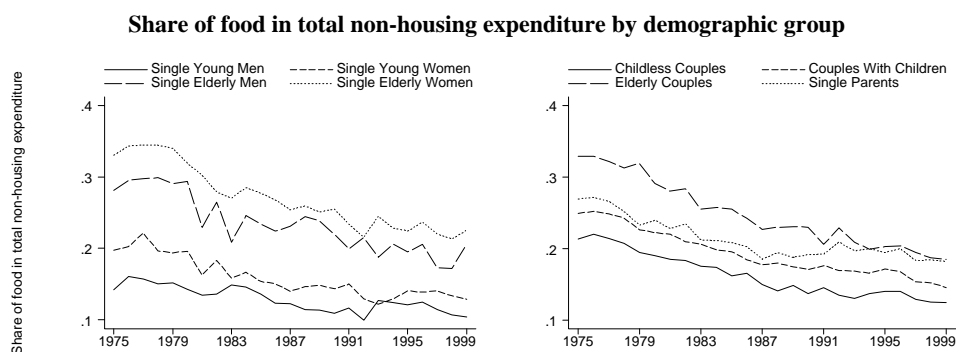
### 5.2.1 Food and catering

Food shares have declined fairly consistently through the entire period for all the demographic groups we observe. For single people, there is a considerable difference in food share between the age groups – probably largely driven by the difference in total budget – but a much smaller, if any, gender effect. Elderly people spend a much higher share of their total expenditure on food than do people below pensionable age: single elderly men spend more than 20 per cent of their total here compared with only 10 per cent for younger men; for women, both figures are slightly higher. However, both age groups have seen their shares diminish rapidly – from some 15 per cent for young men and 28 per cent for elderly men in 1975.

The age difference remains when we compare young childless couples and elderly couples: elderly couples have slightly lower food shares than single elderly people, and young childless couples a similar share to single men and women.

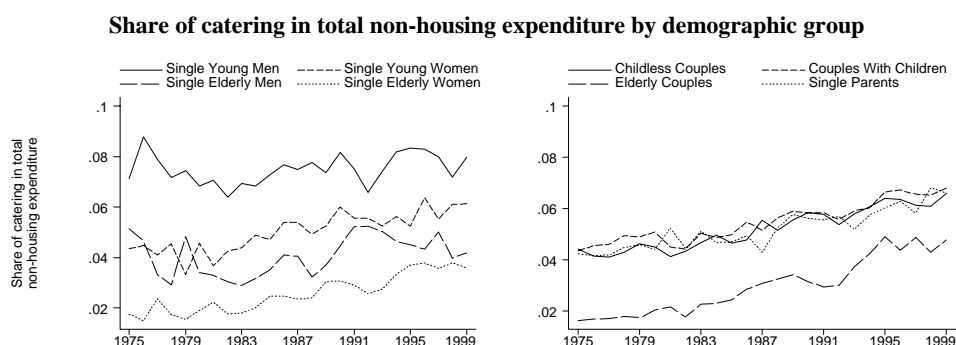
There is a small gap between the food shares of couples with and without children, with childless couples spending around 2 to 3 percentage points less than couples with children. Single parents are an interesting case since they are the only demographic group where the decline in food shares has levelled off – since 1987, their share has remained constant at around 20 per cent – which may largely reflect their fairly stagnant average real budget. Up to this point, the food shares for single parents and couples with children had been remarkably similar. However, the continued decline for couples with children means they now spend around 4 percentage points less of their income on food than do lone parents.

FIGURE 5.2



Source: Family Expenditure Survey.

FIGURE 5.3



Source: Family Expenditure Survey.

Figure 5.3 shows the catering shares for the demographic groups. There are both age and gender differences apparent in single-person households: men spend substantially higher shares of total expenditure on catering than do women, and young people a higher share than older people. Age differences may, of course, be explained by budget differences. However, for people of similar ages, budgets tend not to differ too much between men and women, and so budget effects are unlikely to explain the gender gap. The gender gap does appear to be narrowing: the trend for young single women has been upwards since 1975, whereas the share for young single men has been roughly constant; a similar story is true when we compare older women with older men. The age gap appears to have remained roughly the same when comparing older men with younger men and older women with younger women – younger people tend to spend around twice as big a share of their expenditure on catering as older people of the same sex do. This age gap is also apparent for couples but has narrowed substantially too: in 1975, young couples' catering share was around 4 per cent, compared with 2 per cent for older couples; by 1999, the figures were just over 6 per cent and 4 per cent respectively.

Another noteworthy point is that the levels and trends for the catering share for young childless couples, couples with children and single-parent families are virtually identical, despite the considerable budget differences between these groups.

It may be interesting to consider how people split expenditure between food and catering across the various demographic groups. Table 5.3 summarises this by

TABLE 5.3

**Share of total food expenditure spent on home-prepared food by demographic group (per cent)**

Group	1975	1999
Single elderly women	94.9	86.3
Single elderly men	84.6	83.1
Elderly couples	95.3	79.6
Single-parent families	86.4	73.4
Couples with children	85.1	68.2
Single young women	81.9	67.7
Young childless couples	82.9	65.5
Single young men	66.6	56.6

Source: Family Expenditure Survey.

showing the share of total food expenditure devoted to food prepared at home<sup>16</sup> in 1975 and 1999 for the eight demographic groups.

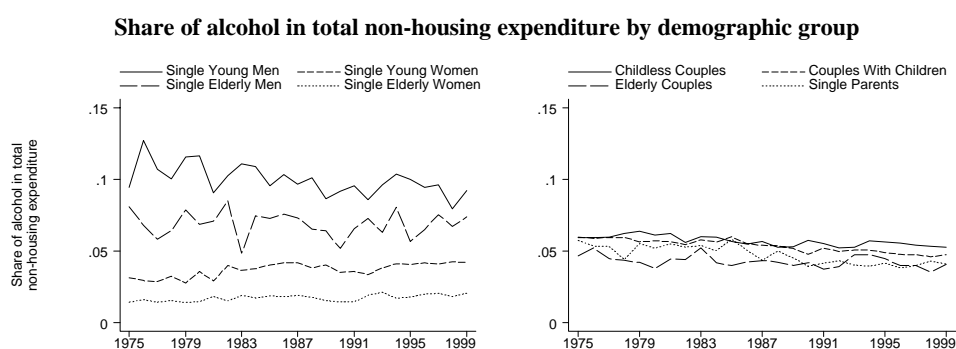
Given the trends we identified earlier, it is not really surprising that the home-prepared food shares for all the groups have fallen, in the main fairly substantially with the notable exception of single elderly men, for whom the share has declined by only 1.5 percentage points. If we look at the rankings, single elderly people now occupy the first- and second-highest positions in terms of share of home-prepared food; in 1975, single elderly men had only the fifth-highest home-food share. The biggest declines have all occurred amongst couples – elderly, childless and with children – who all saw their home-food shares fall by some 16–17 percentage points.

### 5.2.2 Alcohol and tobacco

Table 4.1 showed us that expenditure on alcohol and tobacco had declined from 10.1 per cent of the total in 1975 to only 7.2 per cent in 1999. However, there has been considerable variation in the changes in expenditure shares on these ‘vices’ by demographic group: for single elderly men, the decline has been 4.4 percentage points, from 14.3 per cent to 9.9 per cent, whereas for single elderly women, the share has actually risen, from 3.2 per cent to 3.8 per cent. On average, men have recorded bigger falls in expenditure on alcohol and tobacco than women, and couples a bigger decline than single people.

The alcohol shares shown in Figure 5.4 for single-person households again demonstrate gender differences that probably cannot be attributed to budget differences: single men spend more than twice the share on alcohol that single women in the equivalent age group do. There has, if anything, been a slight narrowing of this gender gap over time, but, broadly speaking, the shares have remained remarkably constant. What is equally remarkable is how the various multi-person households all spend a very similar share of total income on alcohol, all following a slight downward trend since 1975. There is no significant difference in alcohol expenditure shares between couples with and without children.

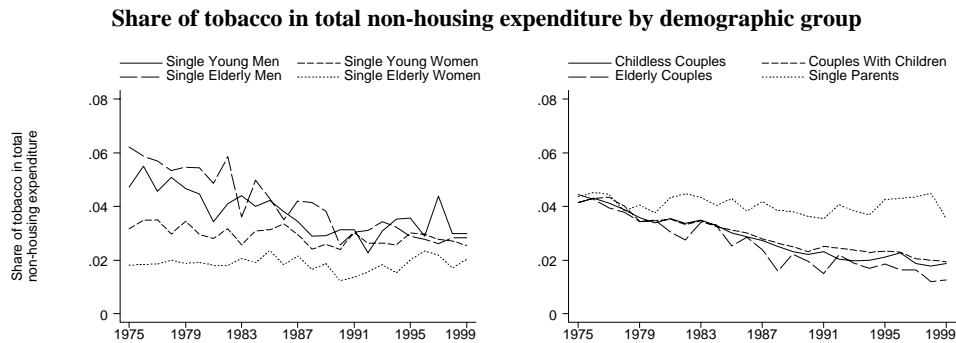
FIGURE 5.4



Source: Family Expenditure Survey.

<sup>16</sup>In other words, Food / (Food + Catering).

FIGURE 5.5



Source: Family Expenditure Survey.

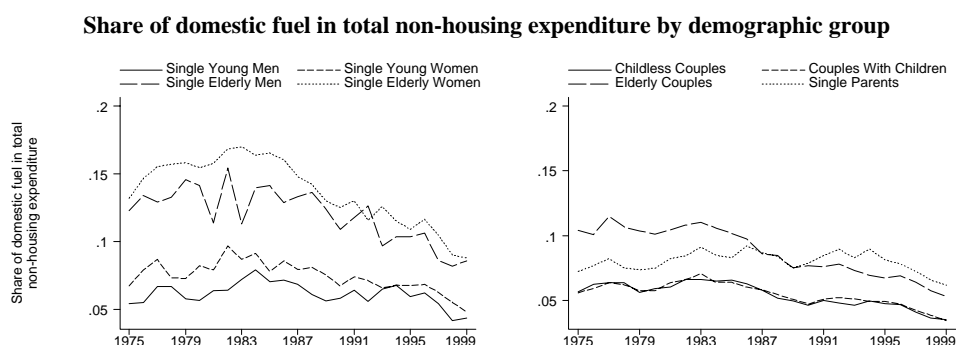
We go on now to look at tobacco shares in Figure 5.5. There is remarkably little age difference between many of the demographic groups: single young and single elderly men spend almost exactly the same share over time, and single young women spend around 1 per cent of total expenditure more on tobacco than single elderly women over the whole period. The trends – downward for men and flat for women – are the same for both age groups. This has resulted in a large narrowing of the gap between sexes that existed in 1975, which was around 3 percentage points and is now practically zero. Similarly, the elderly couple share is very close to that for young childless couples and follows the same sharply downward trend. It is again interesting to note that there is practically no difference between young childless couples and couples with children, since we would not associate children as being complementary to the purchase of tobacco products. Also interesting is the flat trend in the expenditure share for single parents, at around 4 per cent of total expenditure despite their almost unchanged total budget over the period and the big increases in tobacco prices. However, single parents are predominantly female and we saw how single young women have also followed a flat expenditure share trend – although at only around 2 per cent of total expenditure, with the other difference being that the average budget for single young women has increased substantially more than that of single parents over the period.

Of course, for goods such as alcohol and tobacco, there is a considerable difference in expenditure shares based on whether people in the households drink or smoke at all, and it is interesting to see whether the presence of children in the households reduces the likelihood of alcohol or tobacco consumption. In 1999, just over 33 per cent of young childless-couple households recorded positive tobacco expenditure compared with 40 per cent of households made up of couples with children. For alcohol, the figures were 84 per cent and 83 per cent respectively. Thus it appears that the answer to the question is negative.

### 5.2.3 Domestic fuel

The trend in expenditure on household fuel is very similar for all the demographic groups to that for the whole population shown in Appendix B, the difference across

FIGURE 5.6



Source: Family Expenditure Survey.

groups being mainly in the level. For most groups, the expenditure share peaked in around 1983 when prices peaked and has then declined fairly steadily ever since. The exceptions are elderly couples, for whom the decline has been fairly continuous since 1979, and single-parent families, for whom the expenditure share was fairly constant until 1995, when it began to fall.

There is very little evident gender effect in the share of total spending devoted to fuel and lighting for the home. Single young men and women spend very similar amounts, at around 5 to 7 per cent in 1975, 7 to 9 per cent in 1983 and 4 to 5 per cent in 1999. The patterns of expenditure are very similar for single elderly and single young people, both peaking in the mid-1980s when domestic fuel prices were highest and then declining ever since. However, elderly people (not surprisingly) spend a significantly higher share of total spending on fuel than young people – over the whole period, around double the share (single elderly women spent around 13 per cent of their income on fuel in 1975, 17 per cent in 1983 and 9 per cent in 1999). This is what we would expect, given that the majority of elderly people will spend longer at home than younger working-age people, and that they are poorer and fuel is a necessity.

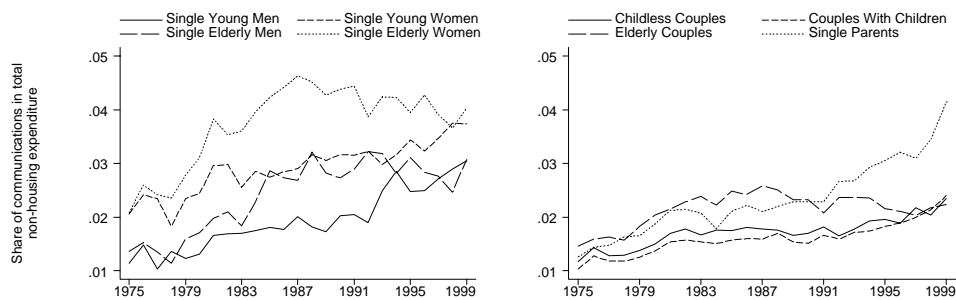
If we averaged out the expenditure of all single-person and all multiple-person households, we would find that multiple-person households spent a smaller share on domestic fuel than those containing only one person – this is probably because of the economies of scale associated with this particular good. However, there does not appear to be much difference in domestic fuel expenditure across similar groups with and without children – again, this perhaps makes sense in that the costs of heating the home are the same whether there are children present or not (assuming that the houses of couples with children are not so much larger than the houses of those without that they cost much more to keep warm).

#### 5.2.4 Communications

Our communications expenditure group is made up of telephone call charges (including mobile phone calls). The demographic variations in expenditure are very interesting. Communications has seen the second-highest real growth in expenditure



FIGURE 5.7

**Share of communications in total non-housing expenditure by demographic group**

Source: Family Expenditure Survey.

of all the categories of goods and services we are looking at in this chapter, and this is reflected in the considerable growth in expenditure shares we observe for all demographic groups over the period. For single people, there are very interesting age and gender differences to be seen: women spend a higher share of total expenditure on communications than men, although the relative gap has narrowed considerably over the last 20 years. What we also notice is that at the beginning and the end of the period, elderly people and young people were spending very similar shares on communications, but between around 1979 and the mid-1990s, elderly people had been spending more. The elimination of this age difference towards the end of the 1990s may reflect the inclusion of mobile phone calls in this category, with ownership of mobiles being much more heavily concentrated amongst younger people than elderly people.<sup>17</sup>

Households containing more than one person appear to have seen their communications share grow less rapidly than single-person households have. The possible age effect of mobile phones we identified for single people remains when we look at elderly couples and young childless couples: young couples have now caught up to the expenditure share of elderly couples, who have actually seen their share decline since 1987. The most rapid growth of all demographic groups has come from single-parent families, whose share has roughly quadrupled since 1975 and has grown most rapidly since 1997 – again, this could be a mobile-phone effect.

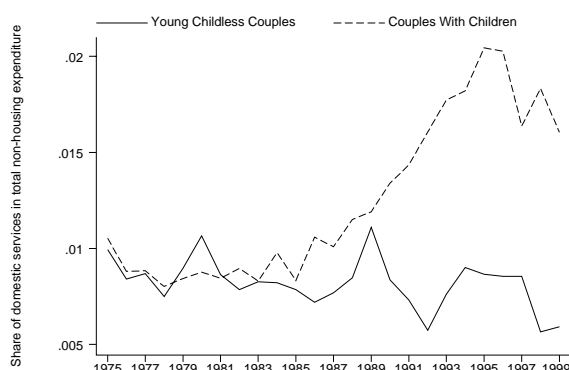
### 5.2.5 Domestic services

Domestic services include such things as gardening and repairs to goods in the home but are largely dominated by childcare costs. They are a small expenditure category with no more than about 2 per cent of all spending being devoted to them at any time. We show in Figure 5.8 how the childcare element is crucial by comparing the expenditure share for young childless couples with that for couples with children. Up until the late 1980s, the levels are similar, at just less than 1 per cent of total

<sup>17</sup>Analysis of an FES question asking about the presence of a mobile phone in the household showed that, in 1999, household ownership rates were only around 10 per cent in our older groups and much higher, at around 51 per cent, in our younger household groups.

FIGURE 5.8

Share of domestic services in total non-housing expenditure: couples with and without children



Source: Family Expenditure Survey.

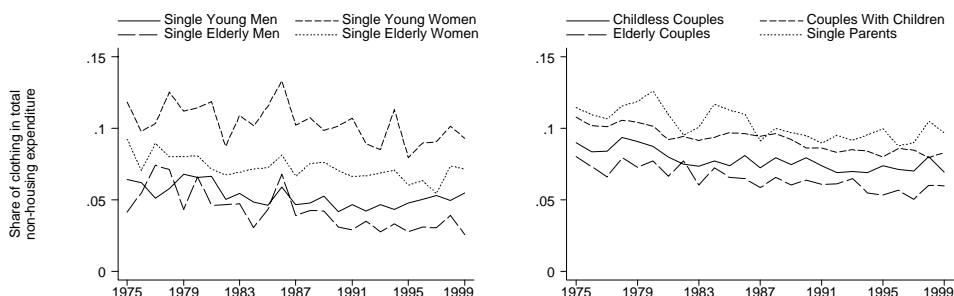
expenditure. However, there is then a clear divergence, with the share for couples with children rising rapidly to over 2 per cent of spending by the mid-1990s before falling slightly. At the same time, the share for childless couples fell slightly. Couples with children now spend around three times the share of total spending on domestic services that couples without children do.

5.2.6 Clothing

There is a significant gender effect on the clothing share. Single women spend a considerably higher share of their total expenditure on clothing than single men do: in 1975, single young women spent roughly twice the share of single young men on clothes (11.8 per cent compared with 6.4 per cent). However, by 1999, the gap had narrowed: single young men’s clothing share has risen marginally since 1990 (to 5.5 per cent by 1999) whilst that of single young women has continued to fall (to 9.3 per cent). There is some suggestion of an age effect as well amongst single people, with single young women spending around 2.5 per cent more of their total expenditure on clothing than single elderly women do, though amongst men of different ages the differences are generally less stark.

FIGURE 5.9

Share of clothing in total non-housing expenditure by demographic group



Source: Family Expenditure Survey.

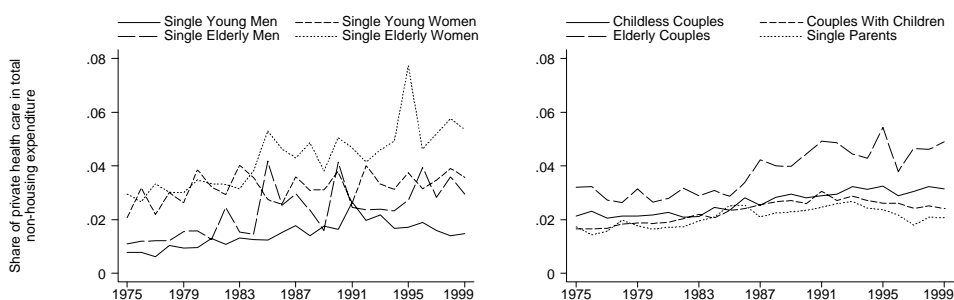
Multi-person households spend on average a greater share of expenditure on clothes than single-person households, and there appears to be a small positive impact of having children on the clothing share since this is clearly a commodity consumed by adults and children alike. Single parents spend a greater share on clothing than couples with children (9.7 per cent versus 8.3 per cent in 1999); this may reflect the fact that single parents are, on average, poorer. The lack of any sizeable age difference is again demonstrated by the small difference between the expenditure shares for elderly couples (6.0 per cent in 1999) and young childless couples (7.0 per cent in 1999) over the whole period.

### 5.2.7 Private health care

Expenditure on private health care has risen substantially over the last 25 years but with some considerable variation among the demographic groups. This category includes not only medical insurance but also things such as over-the-counter medicines and toiletries used in personal care (this definition was necessary in order to keep the spending category consistent over time). Single young women spend more than twice the share of total budget on health care that single young men do (3.6 per cent versus 1.5 per cent in 1999) and elderly people slightly more than young people (elderly women spent 5.4 per cent of spending on health care in 1999), although the trends for all four single groups have been similar (with elderly people increasing spending at a faster rate than younger people). For multi-person households, there is again an upward trend, and, given that there are few economies of scale in health goods, it is not surprising that the expenditure shares are similar to those for single people. There appears to be very little effect of having children, although single-parent families have seen their health share stabilise since the mid-1980s at around 2 per cent.

FIGURE 5.10

Share of private health care in total non-housing expenditure by demographic group



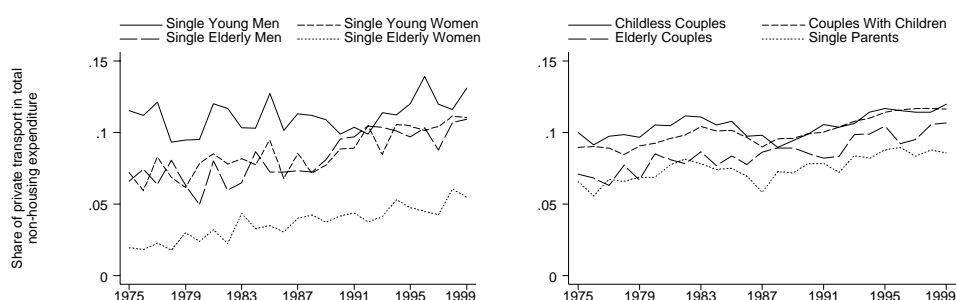
Source: Family Expenditure Survey.

### 5.2.8 Private and public transport

Table 4.1 showed us that between 1975 and 1999, the share of total expenditure devoted to transport (excluding purchase of motor vehicles) rose from 11 per cent to

FIGURE 5.11

Share of private transport in total non-housing expenditure by demographic group



Source: Family Expenditure Survey.

12.8 per cent. This 1.8 percentage-point rise was made up of a 2.5-point rise in the share of private transport, from 8.6 per cent to 11.1 per cent, and a 0.7-point fall in the share of public transport, from 2.4 per cent to 1.7 per cent.

Private transport shares have increased for all the demographic groups we identify, but there is considerable variation in the extent of the increase. Single young men spend a greater share than any other group, but their expenditure shares have remained almost constant since 1975, fluctuating between around 9.5 per cent and 13 per cent of total expenditure. Single young women and elderly men have seen their shares increase to the extent that they have almost caught up to the single young male share. Single elderly women spend a much smaller share than any other group, but they have seen one of the biggest relative increases, from less than 2 per cent of total spending in 1975 to almost 5.5 per cent in 1999.

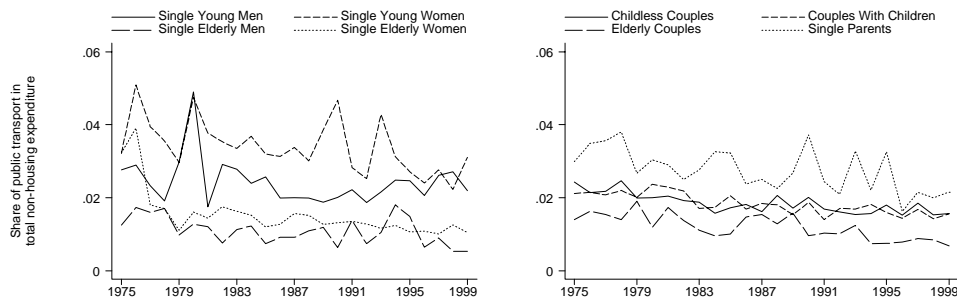
Whilst couples spend less of their total expenditure on private transport than single people (one reason perhaps being that there are presumably some economies of scale in being able to share the costs of private motoring), the differences between the various multi-person household types are small. There appears to be no difference between the trends for young childless couples and couples with children, and whilst elderly couples spend less than young childless couples, the difference is small (10.7 per cent versus 12.0 per cent in 1999).

Turning now to public transport, it is not surprising to see that the overall trend is downwards for all the demographic groups but from a low base in all cases. Thus the share for single young men has fallen from around 2.8 per cent to 2.2 per cent over the whole period, whilst that for single elderly men has declined from 1.3 per cent to just 0.5 per cent. Elderly people would be expected to spend a smaller share on public transport, thanks to the lower fares and free bus travel that most receive. Comparing couples with and without children suggests little evident effect of having children, although single parents have tended to have a higher share than couples. Indeed, the single-parent share is very similar to those of single young men and women, which by the end of the period had converged at around 2 per cent of total expenditure.

We go on now to look at how total transport expenditure is made up for the various demographic groups. Table 5.4 shows the percentage of total transport spending devoted to private transport. We can see that for all groups, the share of private

FIGURE 5.12

Share of public transport in total non-housing expenditure by demographic group



Source: Family Expenditure Survey.

TABLE 5.4

Share of total transport expenditure spent on private transport by demographic group (per cent)

Group	1975	1999
Single young men	80.7	85.7
Single young women	69.1	78.0
Single elderly men	84.0	95.4
Single elderly women	37.8	84.0
Young childless couples	80.4	88.4
Couples with children	80.9	88.2
Elderly couples	83.5	94.0
Single-parent families	68.7	79.9

Source: Family Expenditure Survey.

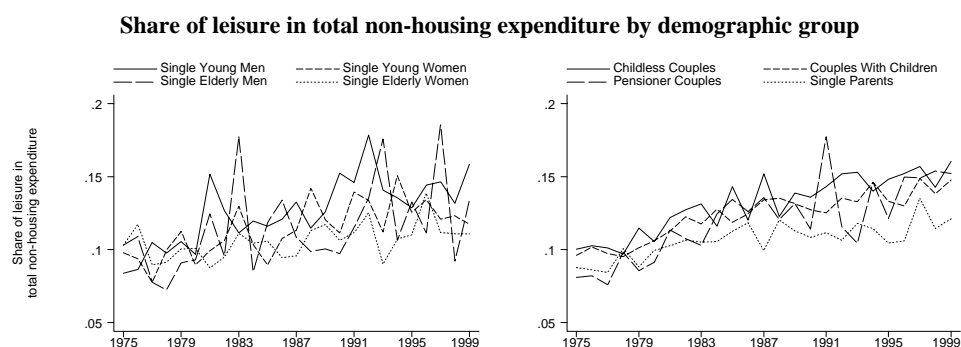
transport rose between 1975 and 1999, in several cases quite substantially. This is to be expected, given the trends we observed in Figures 5.11 and 5.12. For some demographic groups, the jump in the private transport share was very large – notably that for single elderly women, for whom the increase was from just over one-third of total transport expenditure to over four-fifths. For single elderly men and elderly couples, more than 90 per cent of spending on transport now goes on private forms, although this, of course, partly reflects the fact that their public transport costs are lower.

### 5.2.9 Leisure

We have merged our individual data for leisure goods, entertainment and holidays into one broad ‘leisure’ group for analysis at the demographic-group level.<sup>18</sup> We might expect that some households would spend more on leisure than others – for example, richer households or those where the individuals have more free time (for example, pensioner households). However, there is very little evidence that leisure spending as a proportion of total expenditure is governed by demographics – the rankings of household types are subject to frequent change and the expenditure shares

<sup>18</sup>Results for the smaller groups broken down by demographic status are available from the authors on request. However, individually, all three series are extremely noisy and it is difficult to pick out particular consistent demographic differences over time.

FIGURE 5.13



Source: Family Expenditure Survey.

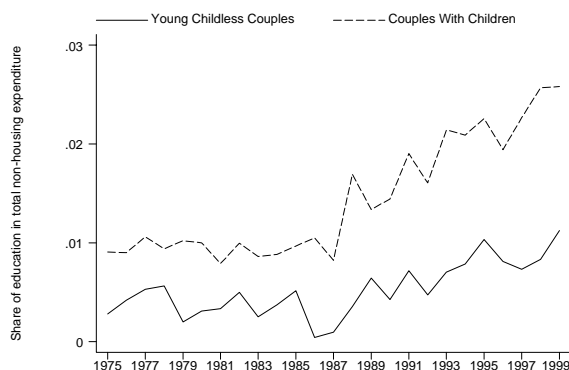
are quite volatile, although with generally an upward trend for all groups. The evidence strongly suggests that there is no age or gender difference in leisure shares, nor does there appear to be any clear impact of having children. It might be thought that single-parent households spend less on average than other multi-person households – since the early 1980s, there has been a persistent negative gap between their leisure share and that of couples with children, for example. These results are interesting and suggest that it is both time and money that go into leisure expenditure. Thus, for example, pensioner households may be on average poorer but more time-rich and so spend roughly the same share on leisure as income-rich but time-poor working households (perhaps by taking more frequent but less expensive holidays, for example).

### 5.2.10 Education

Table 4.1 showed that education shares are small, averaging less than 1 per cent of total expenditure in 1975 and 1.7 per cent in 1999. In Figure 5.14, we present education shares for just two of our demographic groups – young childless couples and couples with children. We present only these groups because the levels are very

FIGURE 5.14

**Share of education spending in total non-housing expenditure: couples with and without children**



Source: Family Expenditure Survey.

small indeed for all other groups, at less than 0.5 per cent of total spending (except for single-parent households, which typically lie somewhere in between the two groups we do show but with very volatile expenditure shares). It should be borne in mind that over two-thirds of couples with children in 1975 and more than three-quarters in 1999 spent nothing on education as recorded in the FES. However, it is clear that (not surprisingly) there is a strong demographic effect on education shares, with 1999 shares for couples with children being more than double those for couples without – a gap that has persisted quite solidly since 1975. This suggests that spending on adult education is fairly low – indeed, had we presented the other demographic groups, this would have proved to be the case, especially amongst elderly people.

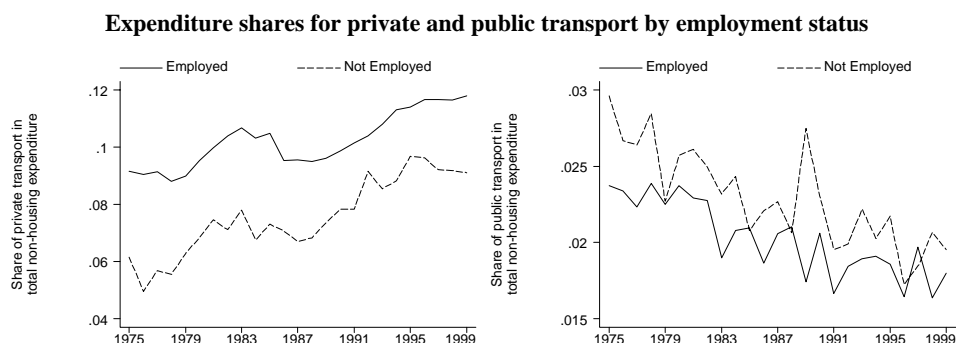
### 5.3 Other Demographic Effects

It is not, of course, just the age and gender of the household members that can affect spending patterns. We consider briefly now some other demographic indicators and look at a few of the categories where we may expect them to show up in terms of expenditure behaviour.

An obvious place to start is the impact of employment status (of the head of the household). Employed people may have very different expenditure patterns from unemployed people – for example, there may be significant work-related expenditure on items such as clothing and transport, and those in employment are likely to substitute money inputs for time inputs in meeting their needs, hence increasing spending on items such as domestic services and catering. Of course, we need to be careful, when trying to identify the effects of employment status, that we do not merely reiterate much of what has already been said when looking at the household types – if unemployed people tend to be predominantly of one gender or one age group, then this, rather than employment status, might be the determining factor (in terms of, say, tastes and preferences) for expenditure behaviour. In addition, those in employment, of course, tend to be better off than the unemployed.

In Figure 5.15, we show how spending on both private and public transport is affected by employment status. We ignore households where the head is retired and those where the FES does not record employment status: ‘employed’ people are either employees or the self-employed and ‘not employed’ people are unemployed,

FIGURE 5.15



Source: Family Expenditure Survey.

unoccupied or unable to work through sickness or injury. The percentage of the working-age population we define as employed is around 83.6 per cent in 1975 and 76.4 per cent in 1999.

These graphs reveal that those in employment spend a considerably higher share of their income on private transport than those out of work: in 1975, the difference was about 3 percentage points; this had narrowed slightly to around 2.5 percentage points by 1999, although the rate of growth was higher for the non-employed. This suggests considerable work-related private travel, although it could also reflect the fact that those in employment tend to be richer and richer demographic groups tend to spend more of their budget on private transport.

With public transport, the results are different – here, it is non-working people who spend on average a greater share of their total spending, although the differences are small. There may be conflicting forces at work: whilst those who use public transport as a means to get to work are likely to push up the share for the working population, it is also likely that public transport has a low income elasticity and, given that working people tend to be richer, this reduces the share.

It is not just employment status that can affect spending on goods such as transport; where one lives in the country could also have a significant impact, given that transport infrastructures are very different in rural and urban areas. From 1986, we are able to identify the population density of the area in which households in the FES are situated, divided into five groups: Greater London, metropolitan districts, and non-metropolitan districts with population densities of 3.2 people or more, 0.9 to 3.2 people and less than 0.9 people per acre. Table 5.5 shows the proportions of households in each category in 1986 and 1999. There has actually been very little population shift over the past 15 years or so; if anything, there has been a slight migration out of very heavily populated areas and into suburbs and very rural areas. Figure 5.16 shows both private and public transport expenditure shares for Greater London and the most and least heavily populated non-metropolitan districts. There is an obvious impact of population density on transport expenditure: whilst total levels of transport spending differ very little across the population density categories, the split between private and public transport varies considerably. Those living in London have an expenditure share for public transport around four times higher than those in the most rural areas and around double that of those living in relatively heavily populated non-metropolitan areas. This reflects the public transport infrastructure being more advanced in urban areas and the higher costs of private motoring, greater delays and so on that are likely to affect the tastes and preferences of Londoners. Given that, on average, those living in London are wealthier, it is clear that the

TABLE 5.5

**Percentage of households in various population density regions**

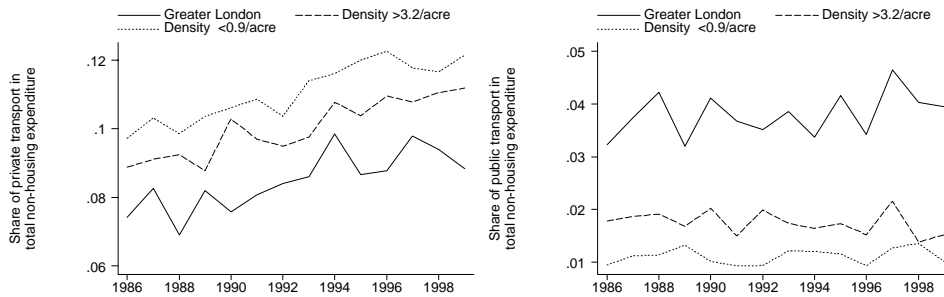
	1986	1999
Greater London	11.1	10.3
Metropolitan districts	23.4	19.2
Non-metropolitan districts: 3.2 people or more per acre	22.8	25.6
Non-metropolitan districts: 0.9–3.2 people per acre	20.1	18.3
Non-metropolitan districts: less than 0.9 people per acre	22.6	26.6

Source: Family Expenditure Survey.



FIGURE 5.16

Expenditure shares for private and public transport by population density



Source: Family Expenditure Survey.

negative wealth effect for an inferior good such as public transport is small in comparison to these positive effects. However, across all areas, the share of total transport expenditure devoted to public transport has declined – this is clear from the rising expenditure trends for private motoring and the flat trends for public transport.

## CHAPTER 6

### The Effect of Total Budget on Expenditure Patterns

#### 6.1 Engel Curves

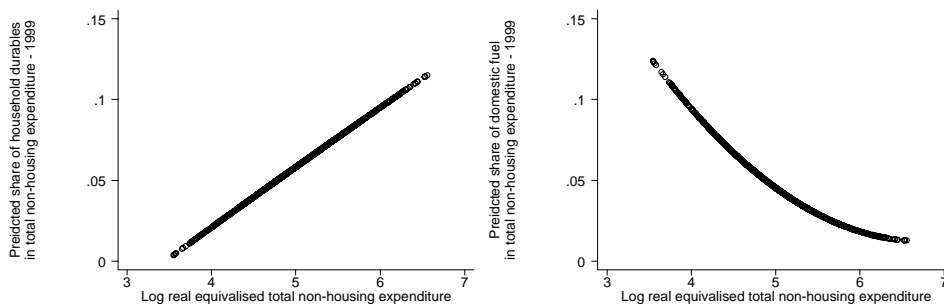
Another factor that clearly may influence expenditure patterns is the total budget available to the household. We discussed in Chapter 1 Engel's observation that as total expenditure rose, the share of spending on food declined. In this chapter, we look at Engel curves in share form (i.e. expenditure shares against total expenditure) for different goods. In order to obtain the Engel curves, we regressed the expenditure share of each good against the natural logarithm of real expenditure and the square of this variable to give us quadratic Engel curves (see Banks, Blundell and Lewbel (1997)) and used this regression to give us a predicted expenditure share for each good at each level of total expenditure. This was done for several different demographic groups, including all those described in Chapter 5 and others reflecting, for instance, employment status. This allowed us to determine whether the Engel curves for different household types varied substantially both within goods and across time.

The shapes of Engel curves tell us something about the nature of goods. Downward-sloping Engel curves result when the good in question is expenditure inelastic: as total expenditure rises, the expenditure share of the good falls. This result defines economic necessities, of which food is a well-known example. Upward-sloping Engel curves define luxury goods. Figure 6.1 shows examples of both luxury goods and necessities for one of our demographic groups – young childless couples – in 1999. The left-hand Engel curve is that for household durables; as expenditure rises, the expenditure share increases. The right-hand curve is that for domestic fuel, a necessity.

Given that we are looking at quadratic functions, we may well find for many goods that the curve is upward-sloping over some range of total expenditure and downward-sloping over another; this tells us that the expenditure elasticity changes as expenditure itself changes and that goods can switch between luxury and necessity

FIGURE 6.1

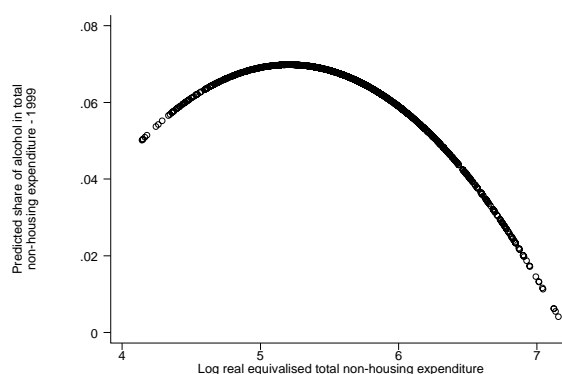
**Engel curves for household durables and domestic fuel: young childless couples, 1999**



Source: Authors' calculations from the Family Expenditure Survey.

FIGURE 6.2

Engel curve for alcohol: young childless couples, 1999



Source: Authors' calculations from the Family Expenditure Survey.

over different expenditure ranges. Alcohol is one example of this type of Engel curve, tending to display an inverted-U shape, as shown in Figure 6.2 – those in the middle of the expenditure range tend to spend a higher proportion of their total budget on alcohol than those at either extreme.

## 6.2 Results

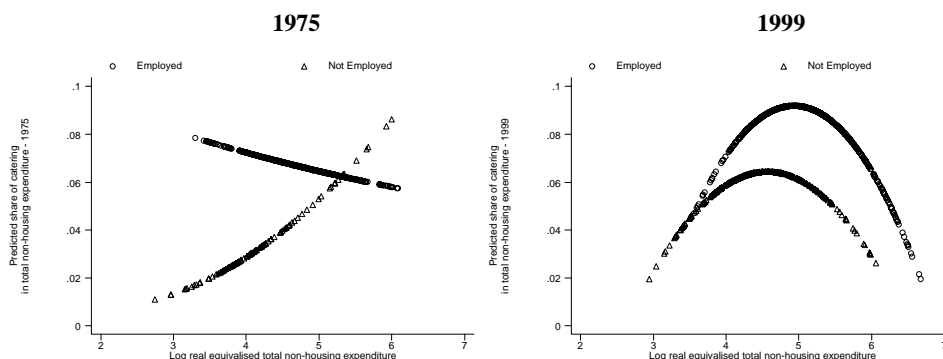
We look now at how Engel curves for some of the other goods we defined have varied either across time or between different demographic groups.

### 6.2.1 Catering

Catering provides an alternative, money-intensive way of meeting nutritional needs to time-intensive, home-prepared food. Figure 6.3 shows how the Engel curves for catering have changed over time for two groups – single young people who are employed and those who are not. We may expect that employed people with less time and more disposable income will not only spend more on catering but also see it as

FIGURE 6.3

Engel curves for catering: single young people (employed and not employed)



Source: Authors' calculations from the Family Expenditure Survey.

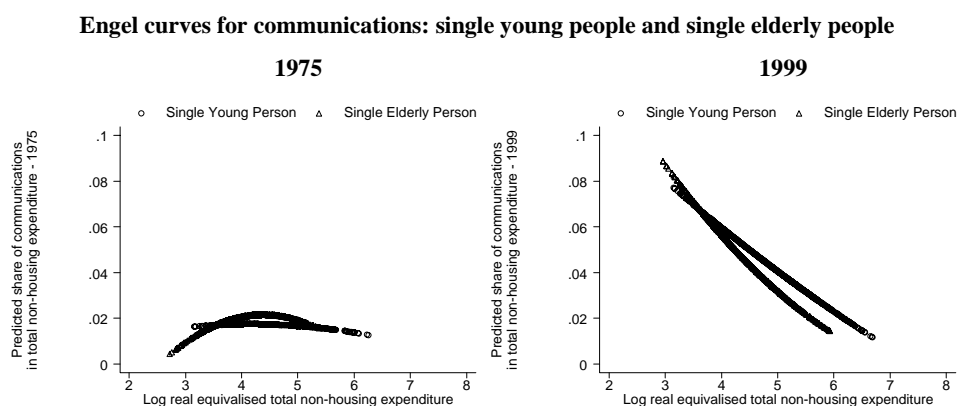
something of a necessity, whereas those not in employment may see it as a luxury good. From the left-hand graph, we can see that this was indeed the case in 1975. However, by 1999, there has been a considerable change and convergence in the Engel curves for the two groups. Now, catering is a luxury item over low expenditure ranges, but it becomes a necessity at higher ranges. The only difference currently between the groups is that at each expenditure level, employed people appear to spend more on catering (this may capture work-related catering expenditure such as work canteens as well as a time-use effect).

### 6.2.2 Communications

The role of communications – defined in our data as the cost of telephone calls and mobile phone account payments – has changed fairly substantially since 1975 in the UK, largely through the growth of the Internet (for which many people pay normal call charges) and mobile telephony. It may well be, therefore, that the Engel curves for communications have changed over time and differ between demographic groups – if, for example, younger people are more likely to own mobile phones or use the Internet than elderly people, or if phone calls were luxury items in the mid-1970s but have since become something akin to a necessity in modern life. Figure 6.4 shows the Engel curves for communications both for single young people and for single elderly people in 1975 and in 1999.

We can discern two quite distinct things by comparing the 1975 and 1999 results. First, there has been a large increase in the communications share over time (we saw in Table 4.1 that the average expenditure share rose from 1.1 per cent to 2.7 per cent for the whole population). Secondly, communications has now become a necessity, as we predicted it might; the Engel curves are strongly downward-sloping for both single young people and single elderly people such that whilst elderly people with real expenditures of some £20 a week are predicted to spend around 9 per cent of that on communications, those spending around £400 a week spend only 2 per cent on it. There is, however, little difference between these demographic groups compared with that which existed in 1975, when communications appeared to be largely unresponsive to total expenditure for young people and, over most of the expenditure

FIGURE 6.4



Source: Authors' calculations from the Family Expenditure Survey.

range, a luxury item for single elderly people (although the scale of increase in the predicted expenditure share is fairly small).

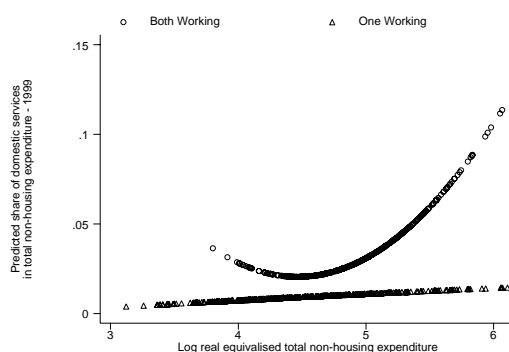
### 6.2.3 Domestic services

Figure 6.5 shows the 1999 Engel curves for domestic services for young couples with pre-school-age children where one or both partners work. As noted in Chapter 5, the bulk of our domestic services category is made up of childcare costs, so we chose this split to look at how childcare needs differ when one partner is in the home and when both are away from the home at work.<sup>19</sup>

Where one adult is at home, we can see that expenditure on domestic services is virtually zero, though the Engel curve has a slight upward slope, suggesting that as expenditure rises, the household is more likely to bring in outside help – perhaps in looking after the child or in taking care of other domestic chores. However, the Engel curve for households where both adults work is very differently shaped. First, the predicted expenditure share of domestic services is higher. Secondly, at high overall expenditure levels, the predicted share approaches 10 per cent; over most of the range of total expenditure, domestic services appear to be a luxury item, although there is a trough approaching zero at mid-range expenditure levels of some £90 per week. This higher expenditure level clearly reflects the need for childcare where both parents work. At low expenditure levels, of around £45–£90 per week, domestic services are something of a necessity, giving us a downward slope. At the turning point, it may be that the higher income allows the household to begin to use more-expensive and ‘better-quality’ childcare (perhaps private nurseries or hiring nannies, for example) such that it becomes a luxury item.

FIGURE 6.5

Engel curves for domestic services: couples with young children (one or both partners working), 1999



Source: Authors' calculations from the Family Expenditure Survey.

<sup>19</sup>We could, of course, have looked at cases where both partners were without work, but here the sample sizes were small. It should be noted that we make no attempt to distinguish those cases where one partner is voluntarily out of work in order to look after the child and those where they are simply temporarily between jobs at the time of the survey.

### 6.2.4 Private transport

Much recent policy debate in the UK has centred on the issue of transport and how to reduce the ‘reliance’ on the car. It may be that over the last 25 years, the Engel curves for private transport have changed if its use has become a more significant part of daily life for most people. We look in Figure 6.6 at the Engel curves for private transport in 1975 and 1999 for couples with and without children; it may be that the presence of children increases car usage (the so-called ‘school run’, for example) or impacts on preferences for private transport to the extent that the Engel curves look different from those for couples without children.

FIGURE 6.6



Source: Authors' calculations from the Family Expenditure Survey.

We can see that there is in fact very little difference between the Engel curves for couples with and without children but that there has been a significant change over time in the shape of the curves. In both 1975 and 1999, private transport appears to be a luxury over some range of total expenditure, before becoming a necessity over a higher expenditure range. However, between 1975 and 1999, the point at which this turning point occurs has fallen from an expenditure level of around £220 per week to £100 for young childless couples and from £150 to £120 for couples with children – this appears to be the only difference between the household types. This change towards private transport becoming largely a necessity, having been largely a luxury, does tie in with the ‘car culture’ notion in which private transport has become as much a part of everyday life as food and fuel for relatively wealthy people, though for poorer people private transport remains a luxury item of which more is consumed as income rises.

## CHAPTER 7

### Counterfactual Analysis

In our analysis so far, we have looked at the impact of factors such as prices and demographics on expenditure behaviour by comparing how expenditure shares vary with relative price movements or over different household types. An alternative method of looking at how such factors impact on expenditure decisions is to pose a counterfactual question such as ‘how would expenditure shares have differed from those we observe had relative prices – or the demographic make-up of the population – remained unchanged?’. This chapter is an attempt to address such issues.

#### 7.1 Theory and Methodology

Our analysis proceeded along two fronts in order to try to discern the effects of what we term ‘prices’ and ‘demographics’ respectively for ease of exposition. In Section 7.2, we present our results as graphs comparing actual shares with counterfactual shares. In this section, we will first explain how these graphs should be interpreted, by means of hypothetical examples, and then go on to describe how we calculated the counterfactuals. We calculate two counterfactuals and label the resulting graphs as the ‘effect of prices’ and the ‘effect of demographics’. Figure 7.1 shows a hypothetical ‘effect of prices’ counterfactual. The solid line shows the actual average budget share of the good in question over our data period, 1975–99. The dotted line shows a counterfactual share, which, for each year,  $t$ , plots what the average share would have been with that year’s actual demographic structure and household budget levels, but if prices and preferences had remained at their 1975 levels. For brevity’s sake, we call this the ‘effect of prices’. The difference between the actual and counterfactual shares shows the effect of the change in relative prices (and preferences) between 1975 and the current year on the share of the good. In this example, the difference is given by the distance  $A-B$  in the diagram – a negative number, since the actual share is lower

FIGURE 7.1

Illustrative ‘effect of prices’ counterfactual

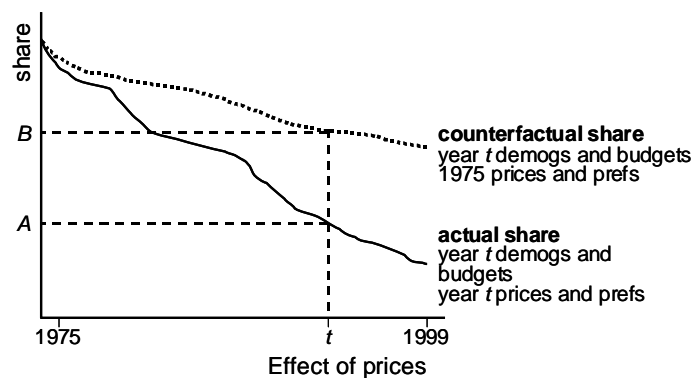
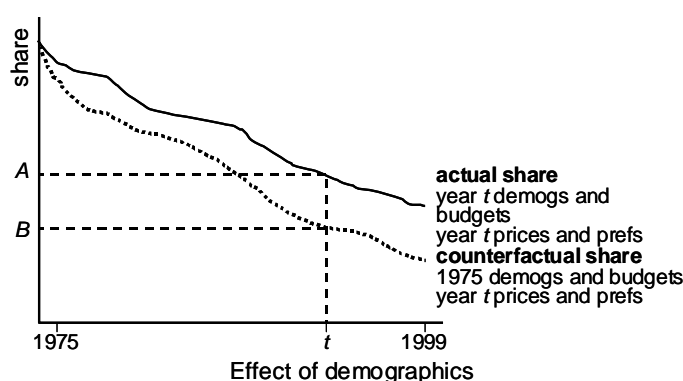


FIGURE 7.2

Illustrative ‘effect of demographics’ counterfactual



than the counterfactual share. This means that the effect of the price (and preference) change has been to reduce the share. If the relative price of the good has fallen (risen), this would indicate that demand for the good is relatively price inelastic (elastic) (assuming preferences have remained constant and ignoring cross-price responses). If, instead, the effect of the price change had been to increase the share – i.e. if the counterfactual were lower than the actual – then a fall (rise) in the price would indicate that demand is price elastic (inelastic).

Figure 7.2 shows a hypothetical ‘effect of demographics’ counterfactual. This time, the counterfactual for year  $t$  shows what the average share would have been with prices and preferences at their actual year  $t$  levels, but had demographics and household budgets remained at their 1975 values. So now the difference between the actual and counterfactual shares shows the impact of the change in demographics and budgets since 1975, which we abbreviate as the ‘effect of demographics’. In this example, the counterfactual is lower than the actual share –  $A-B$  is positive. This means that, had demographics and budgets not changed since 1975, the share would be lower than it actually is, so the effect of the change in demographics and budgets has been to increase the share of the good. We know that average budgets have tended to increase over time, so a higher actual than counterfactual share would tend to indicate a luxury good – although the effect of the changing demographic structure is also included in the change.

To create the counterfactuals, we started by estimating a system of Engel curves for each year of our data for the goods and services we identify in Appendix A based on a quadratic almost ideal demand system (QUAIDS).<sup>20</sup> Our model consisted of a number of demographic, regional and quarterly variables, log real non-housing expenditure

<sup>20</sup>We ran several specifications of the QUAIDS model and chose our final specification based on the overall explanatory power of the regression. The demographic covariates included log household size, proportions of people in different age groups, proportion of females, dummies for different tenure types, variables relating to household employment, a dummy for single-parent households, age of head of household and age of head of household squared. In our analysis, we excluded households that had an actual expenditure share that was particularly high for certain goods (for example, those with alcohol shares above 60 per cent). For a theoretical discussion of QUAIDS, see Banks, Blundell and Lewbel (1997). Further details are available from the authors on request.



and its square (instrumented by after-housing-costs income) and various interactions between some of the demographic and quarterly variables and expenditure.

For the ‘effect of prices’ counterfactual, we used the 1975 Engel curves to predict expenditure shares for each good for each household across the whole sample period and took the average<sup>21</sup> within each year. Since the 1975 Engel curve estimates demands at 1975 prices and preferences, we are predicting what each household’s expenditure pattern would have looked like had they been living in 1975, i.e. having 1975 preferences and facing 1975 prices. Thus the difference between the actual and the counterfactual shares gives us some indication of how relative price movements and preference changes since 1975 have affected households’ expenditure behaviour. In the discussion, we tend to focus on the price change of the individual good we are considering, but, of course, there could also be cross-price effects from complementary or substitute goods and services. In addition, the counterfactuals estimate shares at 1975 prices *and* 1975 preferences, and it is not possible to disentangle the two effects, since we do not have information on preference change. So if preferences towards the good or service in question have increased (decreased) over time, the counterfactual will be too low (high) compared with a pure price counterfactual (i.e. one that estimated demands at 1975 prices and year  $t$  preferences). For the ‘effects of demographics’ counterfactual, we took the 1975 sample and predicted their expenditure shares for each of the goods in each subsequent year using the estimated Engel curves for that year. In essence, we are estimating what households in 1975 would have demanded under the price and preference structure of every subsequent year to 1999. In this case, the counterfactual gives us an estimate of what shares would have been had the demographic structure of the population and the level and distribution of household budgets not shifted since 1975. In summary, the comparison between actual and counterfactual shares in year  $t$  for the ‘effect of prices’ counterfactual is a comparison of the same households (year  $t$ ) on different Engel curves (year  $t$  and 1975), whereas in the ‘effect of demographics’ counterfactual, it is a comparison of different households (year  $t$  and 1975) on the same Engel curves (year  $t$ ).

## 7.2 Results

We present below graphs for each of the goods in our analysis.<sup>22</sup> In each case, the solid line represents the actual expenditure shares in each year and the dotted line the

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<sup>21</sup>Throughout this counterfactual analysis, we have used simple averages of household shares, whereas in the earlier analysis, we weighted each household according to its share in total expenditure to get National-Accounts-type aggregates (i.e. the share of aggregate spending on a good in total aggregate spending) to facilitate our comparisons with National Accounts data. It is a feature of least squares regression that, within sample, the average of the predictions is the same as the actual average, whereas the weighted average of the household predictions, which gives the predicted aggregate share, is not equal to the actual aggregate share. A counterfactual that does not have the same starting point as the actual figure can be hard to interpret. The difference between the two types of average shares can be seen by comparing the ‘actual’ path on the graphs in this chapter with the graphs in Appendix B. It can be seen that the important trends in spending are unaffected by which measure we use. The difference between the numbers can be illustrated by thinking of the food example. Food share tends to go down as total expenditure increases; therefore the weighted average food share will tend to be lower than the simple average because the former gives a higher weight to high-expenditure households.

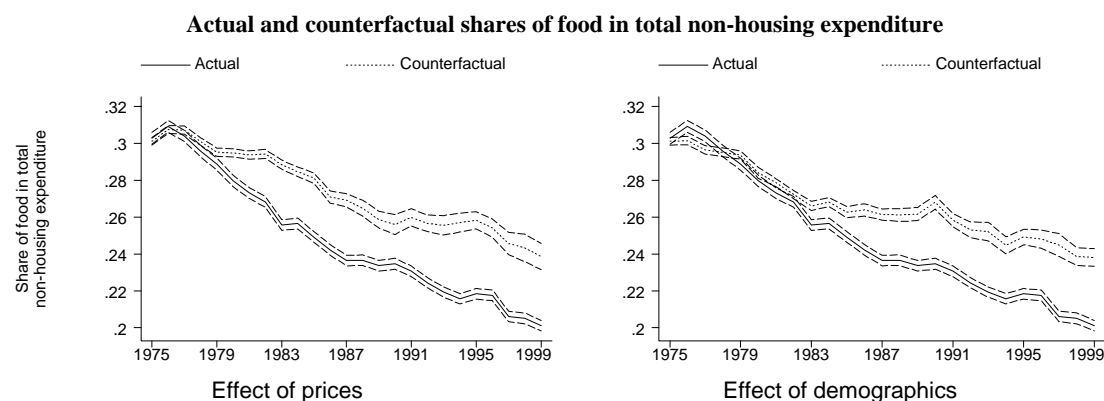
<sup>22</sup>We do not look at education because of its low expenditure shares and high degree of purchase infrequency. These factors led to quite inaccurate predictions with very wide confidence intervals.

counterfactual; each is also presented with 95 per cent confidence intervals. The left-hand graph in each pair shows the effect of changing prices (and preferences) and the right-hand graph the effect of changing demographics (and budget).

### 7.2.1 Food and catering

The actual household food share fell from around 30 per cent to 20 per cent between 1975 and 1999 at a fairly steady rate.<sup>23</sup> This coincided with a decline in the relative price of food as shown in Appendix B. The left-hand side of Figure 7.3 shows that had the relative price not changed, the food share would have been higher than it actually is, and so the decline in the share of food would have been smaller – from 30 per cent in 1975 to 24 per cent in 1999. We can conclude from this that the effect of the change in relative food prices was to reduce the expenditure share of food. This, of course, is what we would expect, given that food is a necessity – we need to purchase a given amount of food and so we would anticipate the price elasticity of demand for food to be low.<sup>24</sup> This means that as the price of food falls, household expenditure on food tends to fall. Note that some of the difference between the actual food share and the counterfactual food share could be due to changes in tastes and preferences. For example, since food and catering are substitutes, if preferences between food and catering shifted towards the latter this could explain some of the fall in the observed food share. Thus some of the decline in the food share we attribute to relative prices could in fact be due to preference factors, such that were we able to hold preferences constant, the actual impact of prices would be less pronounced. However, we are not

FIGURE 7.3



<sup>23</sup>This compares with the trend in the weighted average we saw in Table 4.1 from 25 per cent to 15 per cent.

<sup>24</sup>Although the term ‘necessity’ refers to a good’s expenditure elasticity being less than 1, this is linked to its price elasticity via the Slutsky equation. A low expenditure elasticity tends to lower the (absolute) value of the price elasticity.

able to identify the effects of prices and preferences separately in this manner, as noted in Section 7.1.

The right-hand side of Figure 7.3 shows the effect of changing demographics. We can conclude from this picture that changes in the demographic structure of the population and household budgets led to a decline in the share of food over the period, since the counterfactual share is higher than the actual share. Had the population remained as it was in 1975, the share of food would have declined by only 6 percentage points (from 30 per cent to around 24 per cent) rather than by 10 percentage points. Therefore the effect of demographics was to reduce the share of food by 4 percentage points over the period.

The demographic counterfactual fits neatly with the observations on food shares by demographic status that we recorded in Chapter 5. We saw then how couples with children and elderly people had higher food shares than childless couples and young people respectively. We saw also how, between 1975 and 1999, the population shares of single young men and women and childless couples grew, whilst those of couples with children fell dramatically. We also know that average spending has been increasing across all groups (with the exception of single parents), which lowers the average share of food expenditure.

The counterfactual results for catering are perhaps surprising. The price counterfactual (the left-hand side of Figure 7.4) tells us that had the price of catering remained unchanged since 1975, spending would have been around 4.5 per cent of total expenditure by 1999 – only a small increase on the actual 1975 figure and way below the 6.5 per cent or so actually recorded. This means that the change in the price of catering that occurred over the period led to an increase in the share of catering in total expenditure. However, the relative price of catering rose substantially, by around 50 per cent (compared with a non-housing RPI), between 1975 and 1999. In terms of meeting nutritional needs, we might expect that food would have a low price elasticity and catering a higher one; these results, however, suggest that the price elasticity for catering is also low (i.e. less than 1 in absolute value). Again, we must remember that preferences could also have changed. It could be simply that people enjoy eating out more now than they did in 1975, so that if we could isolate the effect of prices, the

FIGURE 7.4

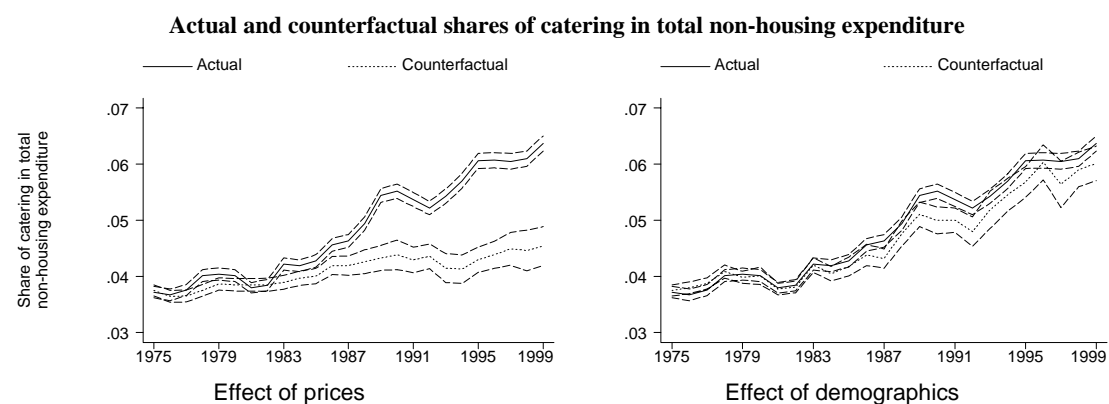


TABLE 7.1

**Food as a percentage of food and catering, by different counterfactual**

<i>Year</i>	<i>Actual</i>	<i>Unchanged prices</i>	<i>Unchanged demographics</i>
1975	89.1	89.1	89.1
1987	83.6	86.5	85.8
1999	75.9	84.0	79.8

Source: Authors' calculations from Family Expenditure Survey.

increase in the share of catering that we attribute to prices would be smaller than the increase that is attributed to changing prices *and* preferences.

Unlike for food, demographic and budget changes appear to have had very little effect on the average share of catering in total expenditure.

As in Chapter 5, we can look at the food share as a percentage of the sum of the food and catering shares and see how this has changed over time. Instead of comparing this by demographic group, we now look at how this figure would have looked had 'prices' and 'demographics' remained unchanged (Table 7.1). As we can see from these results, and as is evident from Figures 7.3 and 7.4, both price (or preference) movements and demographic changes worked to reduce the share of food relative to catering over time, with the greater impact coming from relative price shifts. Had prices remained unchanged, the percentage of total food and catering spending devoted to food would have been more than 8 percentage points higher by 1999 than it actually was.

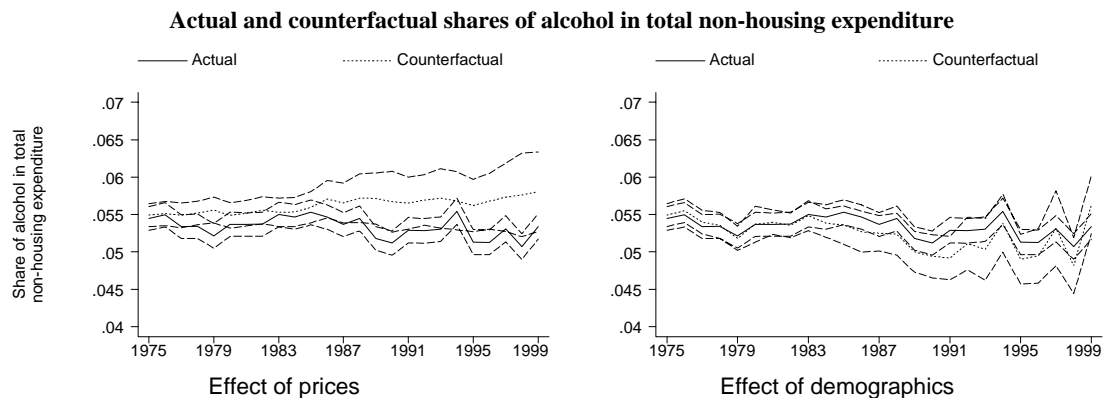
### 7.2.2 Alcohol

The relative price of alcohol rose by some 40 per cent between 1975 and 1999. The price counterfactual for alcohol suggests that had prices remained at their lower 1975 levels, the expenditure share for alcohol would have been marginally higher than it was in 1999, at around 5.75 per cent compared with the observed 5.25 per cent.

However, there are wide confidence intervals around this predicted share, reflecting the fact that for many households, the recorded purchase of alcohol was zero. In fact, the actual value lies within the 95 per cent confidence interval around the predicted value except for a brief period in the late 1980s and again in the late 1990s. This suggests that alcohol expenditure is not particularly responsive to price changes (a roughly unchanging share as prices change suggests a price elasticity of close to minus one). However, there may be a taste shift in evidence here too; if (amongst the population as a whole) people have become less disposed to consume alcohol for, say, health reasons, then were we able to abstract from this effect, a 'pure' price effect may be greater.

Nor, it would seem, have demographic changes had a particular impact on alcohol expenditure: in no single year does the actual alcohol share lie outside the 95 per cent confidence bands for the predicted share based on the demographic counterfactual. Given that we saw a large increase between 1975 and 1999 in the share of single young men, for whom alcohol expenditures are highest (see Figure 5.4), this might seem strange: we might have expected the counterfactual to show that in the absence of demographic change, alcohol shares would have been lower. However, total

FIGURE 7.5

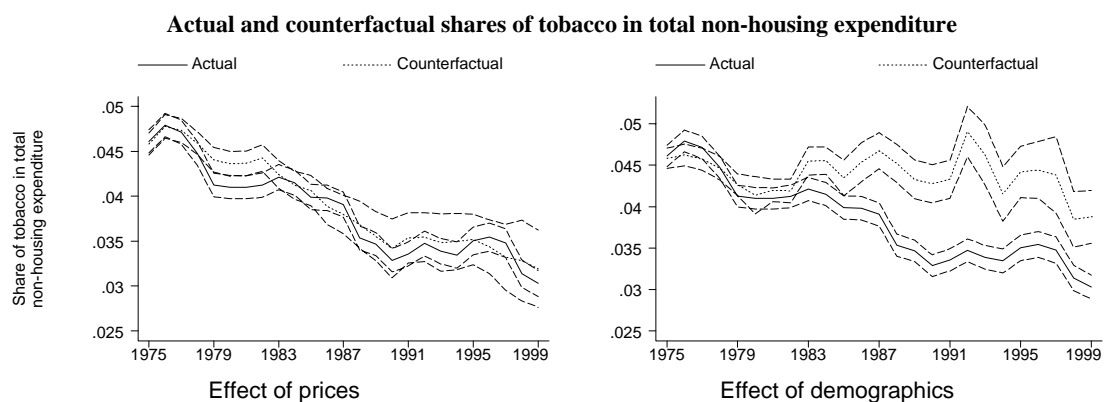


budgets increased compared with 1975, and, given the inverted U-shape of the alcohol Engel curve (see Figure 6.2), this could act to decrease the share of alcohol.

### 7.2.3 Tobacco

Tobacco shares appear not to have been affected by price movements despite the very large relative increase in tobacco prices observed in particular in the 1990s (by 1999, the increase in tobacco prices since 1975 was 2.5 times the increase in the non-housing price level). This suggests something of the addictive nature of tobacco in that very large price increases have failed to reduce its expenditure share: had prices remained unchanged since 1975, the predicted share would not be significantly different from the actual share (again, there are very wide confidence intervals around the counterfactual, reflecting the fact that for many households, actual expenditure on tobacco is zero). This effect might be exaggerated by our inability to separate shifts in preferences from price effects. Fewer adults now smoke than was the case in 1975, perhaps because as health concerns over tobacco have become stronger, more people have given up and fewer people have started smoking. This shows up strongly in our data – only 37 per cent of households recorded zero tobacco expenditure in 1975

FIGURE 7.6



compared with 66 per cent in 1999.<sup>25</sup> If preferences *have* shifted away from smoking, then the response to prices is more elastic than suggested in the left-hand side of Figure 7.6.

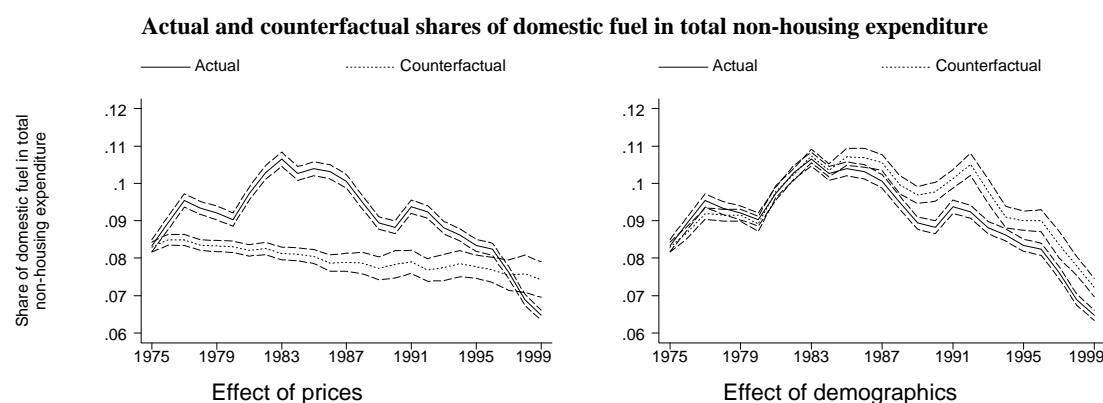
However, demographic change *has* had an impact on reducing the tobacco expenditure share – our results suggest that, had demographic change not occurred, the share would be around 4 per cent compared with the 3 per cent we observed in 1999. So the effect of demographic change was to reduce the average tobacco share by around 1 percentage point.

### 7.2.4 Domestic fuel

We argued in Chapter 4 that the domestic fuel expenditure share appeared particularly sensitive to relative price fluctuations and suggested that this may reflect its status as a necessity of which we need to purchase a given amount irrespective of its price. The left-hand side of Figure 7.7 bears this out. Had prices remained unchanged since 1975, the fuel share would have exhibited a gentle decline, probably largely due to increasing average total budgets, rather than the volatility actually exhibited, which mirrored price fluctuations.

Demographic change appears to have slightly reduced the fuel share compared with what it otherwise would have been, although by less than 1 percentage point, from some 7.2 per cent to 6.5 per cent. Demographic (and budget) changes really only seem to have any discernible impact from around 1983, which is when expenditure on fuel peaked for most household types. Since then, the growth of young childless couples and single young households relative to elderly households may well be the reason behind the differences between the actual and counterfactual shares we observe – we suggested in Chapter 5 that younger households spend a significantly smaller share of their budget on fuel than do elderly households, perhaps partly reflecting the amount of time each spends within the home (as well as, of course, differences in how well off they are).

FIGURE 7.7

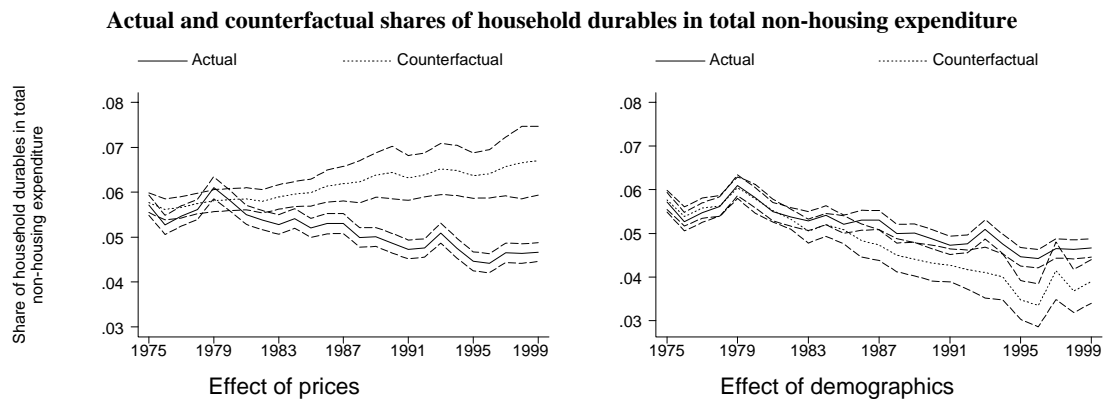


<sup>25</sup>This shift was probably slightly offset by the growth of single-parent households, which have a higher tobacco share than any other demographic group (see Figure 5.5). However, even among single-parent households, the proportion recording zero expenditure rose from 33 per cent in 1975 to 52 per cent in 1999.

### 7.2.5 Household durables

The relative price of household durables fell by around 30 per cent between 1975 and 1999 (see Appendix B), yet our counterfactual analysis suggests that the effect of prices was to reduce the share of durables by around 2 percentage points – had prices remained unchanged (i.e. relatively higher), the expenditure share would have been almost 7 per cent rather than 5 per cent.

FIGURE 7.8



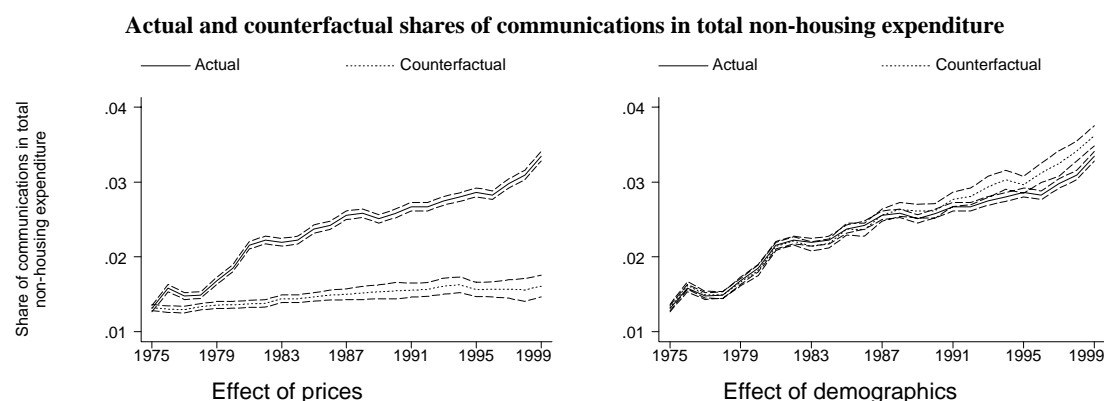
The change in the demographic structure of the population over the period led to an increase in the durables expenditure share of around 1 percentage point. Had demographics remained unchanged, the predicted expenditure share for household durables in 1999 would have been around 4 per cent (although again with a fairly wide confidence interval) rather than around 5 per cent. This may be due to, say, the growth of single-person households if there are some economies of scale in the purchase of household durable goods. Alternatively, it could reflect the increase in the real budget since 1975, which, as our regressions indicate that the budget elasticity for durables is greater than one, would tend to increase the budget share for durables.

### 7.2.6 Communications

The communications share in total spending has increased significantly since 1975, and our counterfactual analysis suggests that this rise has been largely driven by prices (and preferences). In Appendix B, we show how the relative price of communications has fallen substantially since the early 1980s. Had prices and preferences remained at 1975 levels, however, the communications share would have been only 1.6 per cent in 1999, not much different from the 1.3 per cent in 1975 and far below the 3.3 per cent actually recorded in 1999. This means that prices and preferences led to an increase in the expenditure share of communications of 1.7 percentage points – although, as always, if preferences for communications have increased, the effect of prices alone would be less than this.

By contrast, demographic and budget change has done little to affect the communications share; indeed, if anything, it would be even higher than it is had

FIGURE 7.9



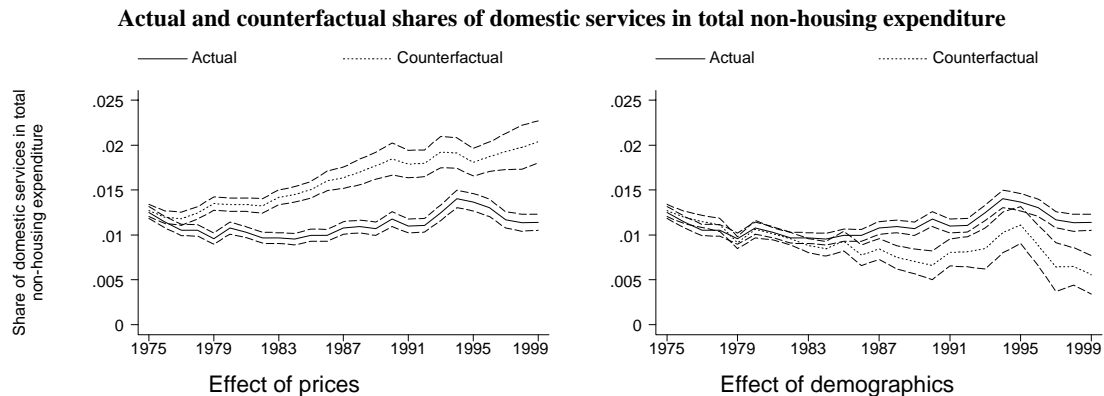
demographic variables and budgets remained unchanged. This is perhaps surprising – we may have thought that the demographic shift towards single young households (though not forgetting that the population shares of single elderly people and elderly couples also rose) would have generated an increased demand for communications. However, as we showed in Figure 5.7, there was remarkably little demographic impact on communications expenditure in 1975 other than between the genders: multi-person households all spent between 1 and 1.5 per cent of total spending here, and single elderly people and young people spent roughly the same. A very similar story was true in 1999, except at a higher overall expenditure share. With this in mind, the lack of any real demographic impact is not so surprising. Further, we saw in Figure 6.4 that the Engel curve for communications in 1999 is downward-sloping. This means that as total budgets rise, the expenditure share of communications falls. Thus at the same time as demographic changes were occurring, increasing budgets worked to reduce the share of communications.

### 7.2.7 Domestic services

Whilst the share of domestic services in total expenditure has changed very little over the whole period, our counterfactual analyses suggest different effects of prices and demographics that may have cancelled one another out. Appendix B shows that the relative price increased by about 60 per cent over the whole period. We can see in Figure 7.10 that the effect of this change was to roughly halve the expenditure share of domestic services by 1999. Had prices (and preferences) remained unchanged at their lower 1975 levels, the share would have been around 2 per cent rather than 1 per cent as actually recorded. This suggests that domestic services are price elastic. There could have been a shift in preferences towards childcare that has developed with changing attitudes towards female employment – possibly tied in with reforms to the benefits system. This would make the price effect alone even higher. On the other hand, the right-hand side of Figure 7.10 shows that changing demographics and budgets roughly doubled the expenditure share of domestic services. Unchanged demographics and budgets would have seen the expenditure share by 1999 turn out to be only 0.5 per cent rather than 1 per cent as actually



FIGURE 7.10

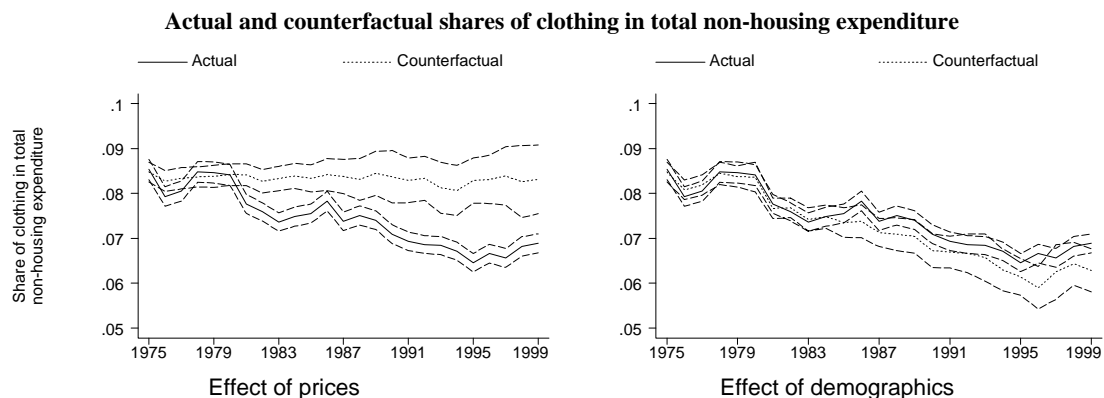


recorded. This may appear surprising – the bulk of domestic services, as already suggested, is made up of childcare costs, and between 1975 and 1999, the share of couples with children in the population fell quite substantially. However, when we look at this more closely, the result may not be so surprising. In 1975, households with pre-school-age children where at least one partner was not at work (thus, by assumption, ‘free’ to look after the child) constituted 9.5 per cent of the population. By 1999, this figure had fallen to 4.4 per cent. Thus the *need* for childcare was greater in 1999 than it was in 1975 and this could well explain the counterfactual result we observe here. In addition, there may have been an effect from increasing total budgets.

### 7.2.8 Clothing

Rather like the food counterfactual analysis in Section 7.2.1, the price counterfactual for clothing suggests that it is a price-inelastic good. The relative price of clothing fell by some 60 per cent between 1975 and 1999, and our analysis here suggests that the effect of this was to reduce the expenditure share by around 1.5 percentage points. In fact, had prices remained at the higher 1975 levels, the clothing share would have remained virtually unchanged over the whole period, and would have been 8.3 per cent by 1999 compared with the 6.9 per cent we observe.

FIGURE 7.11

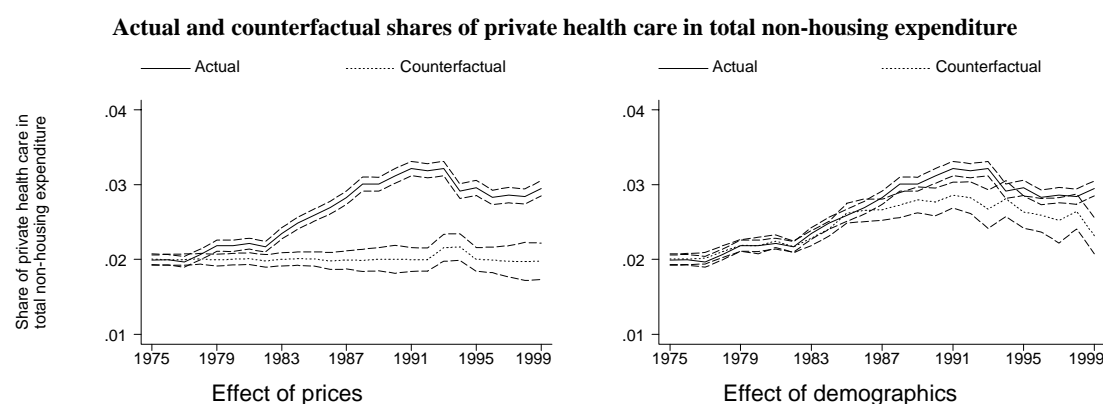


Once more, the demographic impact appears to have been minimal for clothing; there are hardly any instances when the observed values lie outside the 95 per cent confidence interval for the predicted share had demographics remained unchanged. If anything, the share would have been slightly lower; this may reflect the growing population share of single young people, who have higher clothing shares than single elderly people, and perhaps of single-parent families as well, who tend to have higher clothing shares than couples with children.

### 7.2.9 Private health care

Our counterfactuals suggest that the change in the expenditure share of private health care has almost entirely been price- and preference-driven – without price and preference changes, the share would have been almost completely constant, at some 2 per cent of total spending, compared with 3 per cent as it was in 1999. The price of health care (private and public) rose by some 70 per cent relative to the non-housing index over the 25 years. This could suggest that over time, preferences for private health care have increased (this may be especially true of certain items within this category, such as health club memberships) such that consumers are more willing to pay the higher prices, or indeed that it is something of a necessity, irrespective of the prices faced, to buy many of the personal care items that are included within this expenditure group (after all, there are few close substitutes for goods such as spectacles, contact lenses and toiletries).

FIGURE 7.12



There appears to have been a small, if barely significant, upward effect from demographic change on expenditure on private health care, perhaps from the increasing number of older people in the population (and thus in our sample). However, there are considerable confidence intervals around the predicted counterfactuals in the later years.

### 7.2.10 Private and public transport

Over the whole period, the relative price of private transport increased. From the left-hand side of Figure 7.13, we can see that the effect of this in 1999 was to increase the

average share of private transport by around 2 percentage points – had prices remained at their 1975 levels, the share would have been around 9 per cent rather than the actual level of 11 per cent. The broad patterns in the left-hand side of Figure 7.13 and in the graph of the relative price of private transport suggest that private transport is price inelastic. At times when the relative price is (generally) falling, the counterfactual share lies above the actual share; and when the relative price is (generally) rising, the counterfactual share lies below the actual share. This means that an increase in price leads to an increase in the private transport share and a decrease in price leads to a decrease in the private transport share. The relative price inelasticity may be due to the lack of substitutes for petrol – other than switching to public transport – coupled with large relative price increases of around 30 per cent since 1992, due in part to fuel price escalators which increased duty on fuel in successive Budgets between 1993 and 1999.<sup>26</sup> Again, we must note that if preferences towards private transport have increased over time, this would account for some of the rise in the private transport share over time and so the price response would be more elastic than it seems here.

FIGURE 7.13

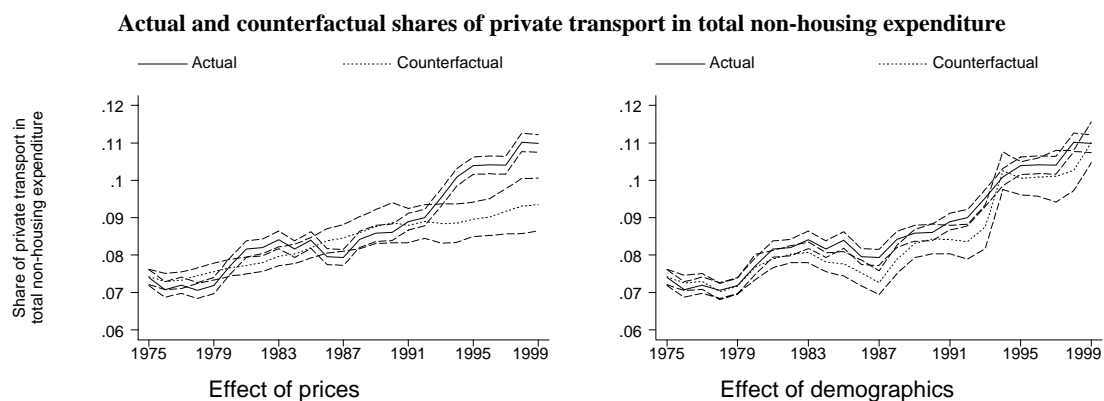
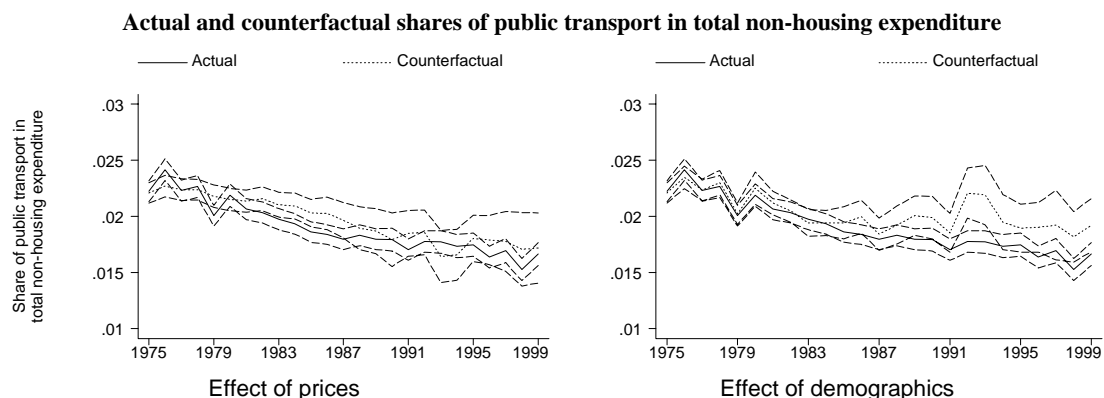


FIGURE 7.14



<sup>26</sup>Indeed, other studies have found that the demand for private motoring is price inelastic. See, for example, Blow and Crawford (1997).

TABLE 7.2

**Private transport as a percentage of total transport, by different counterfactual**

<i>Year</i>	<i>Actual</i>	<i>Unchanged prices</i>	<i>Unchanged demographics</i>
1975	77.1	77.1	77.1
1987	81.5	79.8	81.1
1999	86.8	85.1	84.5

Source: Authors' calculations from Family Expenditure Survey.

Perhaps surprisingly, there is very little evident impact of demographic change on the private transport share. However, this is another good that tends to have an inverted U-shaped Engel curve, and so, again, budget increases could offset any increase in the expenditure share we would attribute to pure demographic changes.

Interestingly, neither price nor demographic change appears to have had a discernible impact on the share of public transport. Despite the relative price having almost doubled over the last 25 years, our analysis suggests that even had prices remained unchanged, the share of public transport in 1999 would have been virtually identical to that which we observe (Figure 7.14). This suggests that attempts to encourage people to use public transport by reducing its price may fail – after all, if consumers were particularly responsive to the price of public transport, then we would expect to see a counterfactual share that was considerably higher than the observed share. The pure price counterfactual would be even lower if preferences for public transport have declined since 1975.

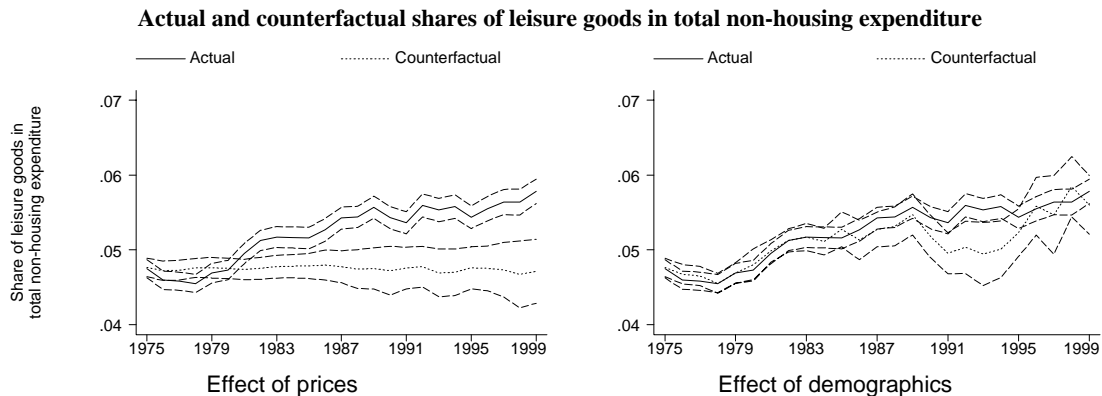
Demographic change may have had a small depressive impact on the share of public transport, but it is an almost insignificant one.

As with the food and catering split in Section 7.2.1, and as we did in Chapter 5, we can look at the total transport split between private and public modes in our counterfactual worlds. Table 7.2 shows the results. We can see that whilst, overall, there has been very little impact on the breakdown between private and public transportation from either prices or demographics – as we might expect given the counterfactual evidence above – there was a switch in which of them had the greater impact over time. For the first half of our period, price changes appear to have had the greater effect, with the price counterfactual private transport share almost 2 percentage points lower than the actual share; by contrast, the demographic counterfactual share was almost identical to the observed share. However, over the second half of the period, that position reversed: by 1999, the price counterfactual share was closer to the actual value than the demographic counterfactual share was.

### **7.2.11 Leisure goods**

The relative price of leisure goods (which include both large and small goods ranging from VCRs and PCs to CDs) fell dramatically between 1975 and 1999, by around 40 per cent. The left-hand side of Figure 7.15 suggests that the effect of this large decrease in the relative price of leisure goods was to increase the share of leisure goods. Had prices remained at the relatively higher 1975 level, the expenditure share would have hardly changed at all over time, being 4.8 per cent in 1975 and 4.7 per cent in 1999. This compares with an actual share of 5.8 per cent in 1999. Whilst the

FIGURE 7.15



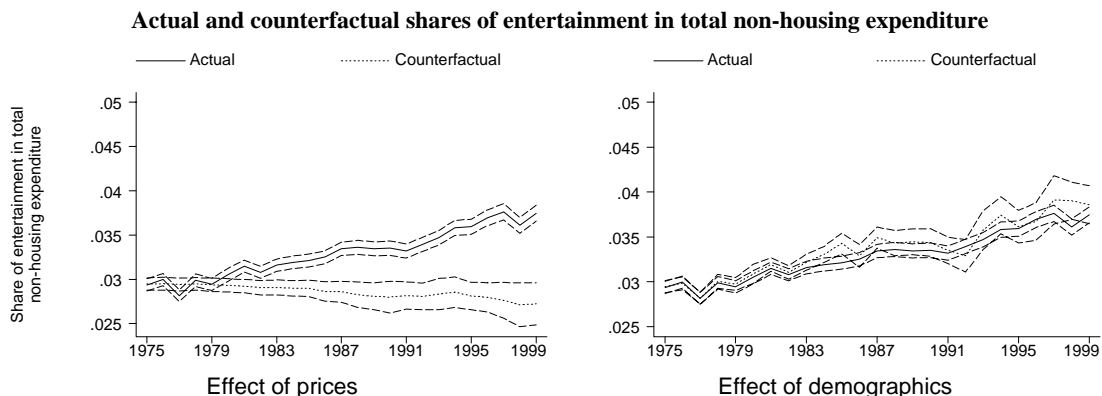
confidence intervals around our prediction are fairly wide in the later years, the price effect does appear to have been significant and suggests that we can explain almost all the rise in the expenditure share of leisure goods by relative price movements and preference changes.

Thus our demographic analysis reveals that population changes have had no significant impact. Recall our demographic analysis of the overall leisure share in Section 5.2.9: we found there was very little observable age or gender effect on leisure expenditure over the whole period and that the rankings of different demographic types by leisure shares fluctuated greatly. Thus the conclusion that demographic change has had little impact on leisure goods expenditure is perhaps to be expected.

### 7.2.12 Entertainment

As with leisure goods, our leisure service/entertainment counterfactuals suggest that the growth in the actual expenditure share we observed, from 2.9 per cent to 3.7 per cent, was entirely price-driven. However, we must be careful, as we do not have a separate relative price index for leisure services (see Appendix B), only a general one that combines leisure services and holidays. This index rose by some 20 per cent over

FIGURE 7.16



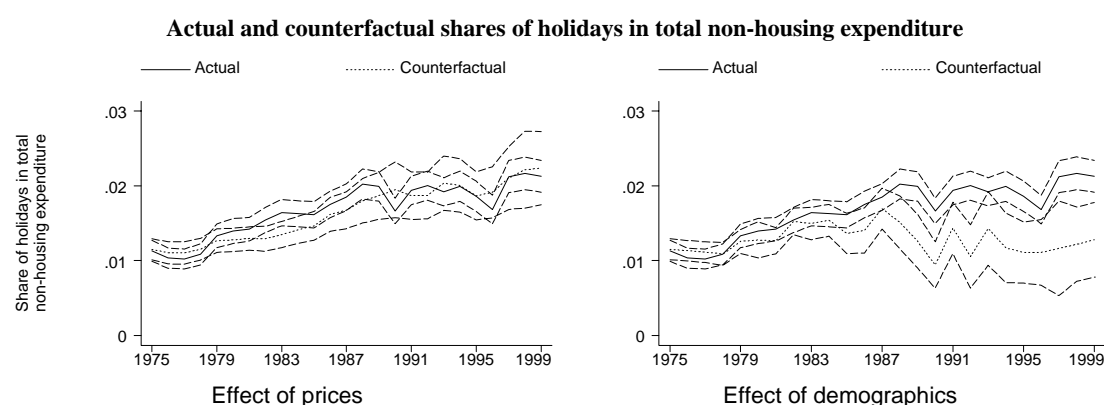
the whole period, although there was a sharp 10 per cent relative price drop between 1975 and 1978. The finding that, had prices remained relatively lower, people would have spent a smaller share of their budget on leisure services is again a puzzling one, since it implies that these items have a low price elasticity – not perhaps what our a priori assumption would have been. A preference shift towards leisure services could explain this: if we could disentangle the effects of prices and preferences, it may be that the effect of the increased relative price alone was to depress the expenditure share for entertainment, but this was offset by a preference shift which increased it. We cannot be sure that this is the case, however.

There are no discernible effects of demographic and budget changes on the entertainment share.

### 7.2.13 Holidays

For holidays, there is no apparent price effect,<sup>27</sup> although, again, since we do not disentangle the price effect from any preference change, any shift in preferences towards holidays would lead to an underestimate of the pure price effect. There does appear to be a small, just significant impact of demographic changes. Our counterfactual suggests that in the absence of these changes, the holidays share would have been slightly lower than it actually was, at around 1.3 per cent in 1999 compared with actual spending of 2.1 per cent.

FIGURE 7.17



## 7.3 Summary

A convenient way to sum up the effect of price/preference and demographic/budget change on expenditure habits is to present a table that shows expenditure on each good (bar education) as it was in 1999 and as our counterfactuals predict it would have been in the ‘unchanged’ world. This is done in Table 7.3.

Figure 7.18 shows the percentage-point difference between the actual world and the counterfactual world in 1999. A positive number indicates that the effect of changes

<sup>27</sup>As noted above, we do not have separate price indices for holidays and leisure services, so some care needs to be taken in the interpretation of our counterfactual here.

in prices or demographics was to increase the expenditure share compared with what it would have been in the 'unchanged' world.

TABLE 7.3

**1999 expenditure shares of the various commodity groups in different counterfactual worlds (per cent)**

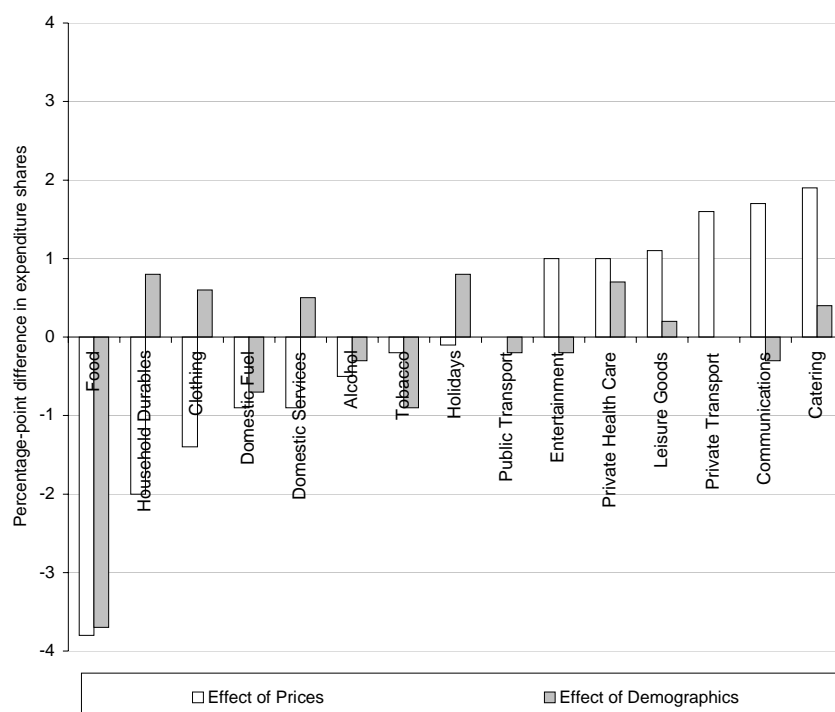
	<i>Observed shares</i>	<i>Shares in a world where prices and preferences remained unchanged</i>	<i>Shares in a world where demographics and budget remained unchanged</i>
Food	20.1	23.9	23.8
Catering	6.4	4.5	6.0
Alcohol	5.3	5.8	5.6
Tobacco	3.0	3.2	3.9
Domestic fuel	6.5	7.4	7.2
Household durables	4.7	6.7	3.9
Communications	3.3	1.6	3.6
Domestic services	1.1	2.0	0.6
Clothing	6.9	8.3	6.3
Private health care	3.0	2.0	2.3
Private transport	11.0	9.4	11.0
Public transport	1.7	1.7	1.9
Leisure goods	5.8	4.7	5.6
Entertainment	3.7	2.7	3.9
Holidays	2.1	2.2	1.3

Note: Expenditure shares are unweighted averages.

Source: Authors' calculations from Family Expenditure Survey.

FIGURE 7.18

**Difference between counterfactual and actual expenditure shares, 1999 (percentage points)**



In absolute terms, it is the food share that has been most affected by demographic and price changes; in both cases, the effect was to reduce the share of spending between 1975 and 1999.

At the opposite end, the catering share is almost 2 percentage points higher than it would have been in the absence of relative price shifts. Overall, price and preference changes have reduced the share of eight goods and increased the share of six; demographic and budget changes have reduced the share of seven goods and increased the share of seven others. Figure 7.18 also shows that, in general, it was prices rather than demographics which had the biggest effect on the expenditure shares over time. For all goods and services except tobacco, public transport and holidays, prices had a larger absolute effect than demographics; and food is the only good where demographics have had an effect of more than one percentage point in either direction. This is not to say that demographics and budget are not important determinants in household spending patterns. What our results show is that when taken as a whole, change in demographics and budgets does not explain, to any great extent, the changes in observed spending patterns since 1975.



## CHAPTER 8

### Conclusion

How consumers spend their money is clearly a large and complicated subject. Expenditure patterns are governed by a myriad of factors, many of which we are able to account for – such as prices and demographics – but not all of which can easily be modelled – such as preferences and habits. We cannot easily account for the quality of goods as a factor governing what people buy. Over time, there may also be considerable ‘shocks’ to expenditure behaviour that would be almost impossible to predict, making the use of these data – or even a more complex system of demand equations – to forecast how expenditure patterns may look even just a few years ahead particularly difficult. Who could have predicted, for example, the information and communications revolutions which have made items such as mobile phones and PCs, once the preserve of the wealthy, be regarded almost as necessities across the whole income distribution? Our work is also limited by focusing entirely on expenditure and ignoring saving behaviour and the factors influencing how much of their income people save (such as interest rates, income levels, availability of savings outlets and consumer information).<sup>28</sup>

However, we have demonstrated that expenditure patterns today are very different from those that existed only 25 years ago. Having noted the problems inherent in the analysis of housing expenditure, we have focused on non-housing items of spending, examining first the broad trends in expenditure and then how the distribution of our total spending has varied across various narrowly defined expenditure groups. We have shown that over time, expenditure has increased substantially in real terms but become more unequal. Britons are now spending much more of their money on ‘non-basics’ rather than the three basic goods – food, fuel and clothing; spending on services has also risen, at the expense of non-durable goods, despite unfavourable price movements. In terms of smaller expenditure groups, spending on private transport has been growing in recent years whilst that on public transport has continued to dwindle; similarly, we are now spending more on having food prepared for us and less on preparing our own food than was the case 25 years ago. We have suggested that household type can play a significant role in determining our expenditure decisions for many goods, such as clothing, transport and education. We have seen how the effect of income on spending decisions has changed over time for several goods, suggesting that income elasticities are far from constant over time. We have also shown how, in a world where prices or demographics had remained unchanged, expenditure patterns could look very different from the way they look today – much of the change in overall spending patterns since 1975 appears to have been price- and preference-driven, but for some goods there is also an important demographic and total budget effect.

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<sup>28</sup>Work on this has been done at the Institute for Fiscal Studies. See, for example, Banks and Tanner (1999).

## **APPENDIX A**

### **Data Description**

The data we are using come from the UK Family Expenditure Survey between 1975 and 1999. They comprise 176,311 households containing in total 453,574 people. We exclude three observations (over the whole period) where real equivalised non-housing expenditure exceeded £5,000 per week.

The Family Expenditure Survey for 1999 divides expenditure into 14 major categories and 77 subcategories. Each subcategory is made up of a number of expenditure 'codes'. We have taken these expenditure codes (ignoring housing) for each year and reclassified the expenditure variables into 18 broad expenditure groups that are as consistently defined as possible across time. In the late 1980s and early 1990s, the FES began to collect data on some items of spending (such as furniture and holidays) by asking respondents to recall how much they had spent on these items in the last three months as well as collecting the data via the expenditure diary. In these cases, we use the diary measure across the whole time period to ensure consistency in our data. We detail below the sorts of goods in our groups.

#### **Food**

Our food variable is taken as part of the food category from the FES definition. It includes all food prepared and consumed in the home.

#### **Catering**

'Catering' is a catch-all term for food purchased and consumed on premises outside the home, and takeaway foods eaten at home. Together, our food and catering variables make up the food category as defined in the FES.

#### **Alcohol**

Our alcohol category is taken almost directly from that in the FES; it includes both alcoholic drink bought at off-licences and alcoholic drink consumed on licensed premises.

#### **Tobacco**

Again, this is taken from the FES definition, including cigarettes, pipe tobacco and cigars.

#### **Domestic Fuel**

This covers domestic fuel and lighting costs such as gas bills, electricity bills, coal and bottled gas.

#### **Household Durables**

This category includes goods such as furniture and soft furnishings, electrical appliances, gardening equipment and furniture, and kitchen utensils.

### **Communications**

This category covers telephone calls (the cost of the calls themselves rather than the costs of purchasing the phones) including mobile telephone calls.

### **Domestic Services**

Our domestic services variable includes childcare costs, laundry services and repairs.

### **Clothing**

This variable is taken from the FES definition and includes men's, women's and children's clothing and footwear.

### **Private Health Care**

The category 'private health care' includes private medical insurance, over-the-counter medicines, membership of health clubs, spectacles and contact lenses, and toiletries (such as cotton wool and toothpaste used in personal care).

### **Private Transport**

This covers the private costs of motoring other than the purchase of the vehicles themselves. It includes petrol, tax, insurance, repairs and accessories.

### **Public Transport**

Our public transport variable includes rail and bus fares and season tickets and the costs of air travel where these are easily distinguished from air travel costs included as part of a package holiday deal. Where these costs cannot be distinguished, the air travel is included in our holidays variable (see below).

### **Leisure Goods**

This category includes audio-visual equipment and smaller leisure goods such as CDs, books, newspapers and garden plants.

### **Entertainment**

Our entertainment category includes TV licences, cinema and theatre admissions, entry fees to sporting events and subscriptions to sports and social clubs.

### **Holidays**

This category covers the costs of UK and foreign holidays, including air travel where the individual costs cannot be distinguished. It also includes money spent abroad and costs of currency conversion and traveller's cheques.

### **Education**

Our education variable includes school fees, costs of school trips and payments made for university education.

### **Purchase of Motor Vehicles**

This includes the purchase of new and second-hand cars, motorbikes, vans and so on.

**Miscellaneous Expenditure**

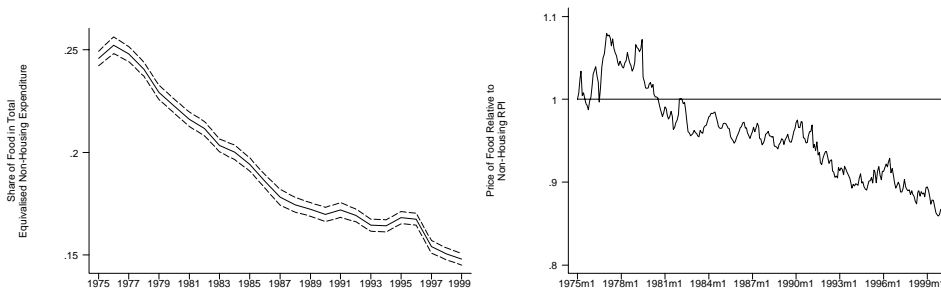
This category includes goods such as pet care, postage costs, fees and subscriptions, some small travel costs and any NHS prescription charges or fees. For most of the analysis, purchase of motor vehicles is looked at only as a miscellaneous item.

## APPENDIX B

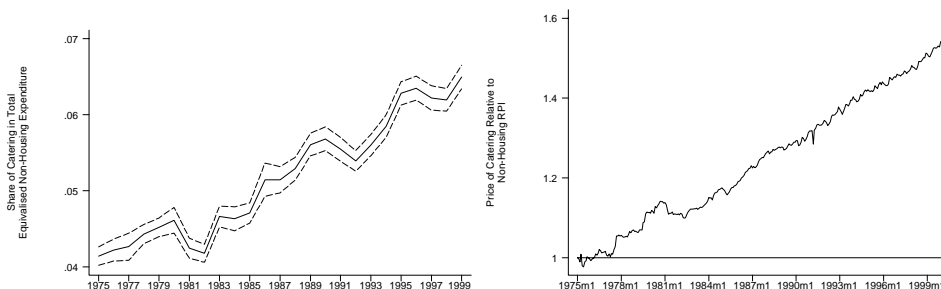
### Expenditure Shares and Relative Prices, 1975–99

In this appendix, we present graphs showing the evolution of expenditure shares for nearly all the commodity groups listed in Appendix A, accompanied by the relative prices of those groups compared with a non-housing all-items price index since 1975. We also show 95 per cent confidence intervals around the expenditure shares. It should be noted that for some of the groups, it has not been possible to obtain a price index that is fully consistent with the definitions of the expenditure groups, due to limitations with the RPI data at our disposal. The major problems arise with the health group, where the price level is a general ‘health’ index rather than a specifically private health care index, and with the leisure groups, where only one price index is obtainable for leisure services (entertainment and holidays) in general rather than for these categories individually, although we can obtain a separate leisure goods price index. Care should be taken, therefore, when attempting to infer the effects of relative price movements on the expenditure shares of these goods. It should also be noted that it was not possible to obtain a satisfactory price index for education, so none is presented here. In addition, we do not present graphs for the purchase of motor vehicles because of the inconsistency in definition noted in Chapter 4. We also ignore the miscellaneous category. The graphs use data from the Family Expenditure Survey and price data from the Office for National Statistics.

#### Food

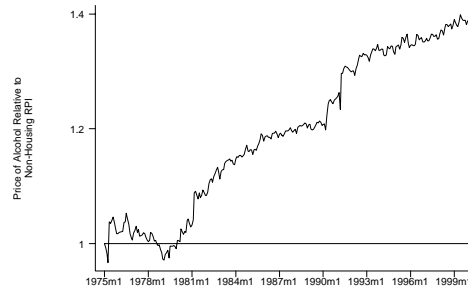


#### Catering

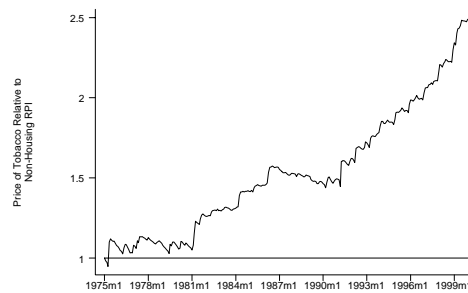


## Consumption trends in the UK, 1975–99

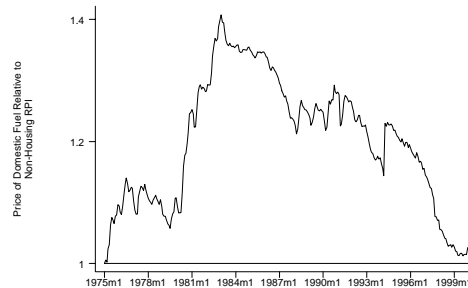
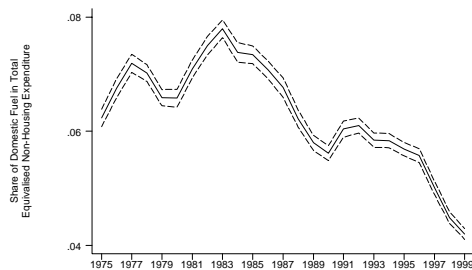
### Alcohol



### Tobacco



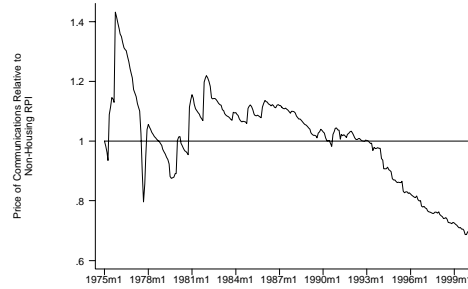
### Domestic Fuel



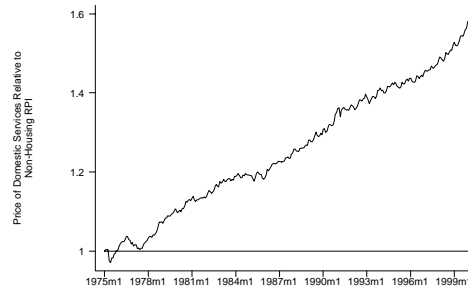
### Household Durables



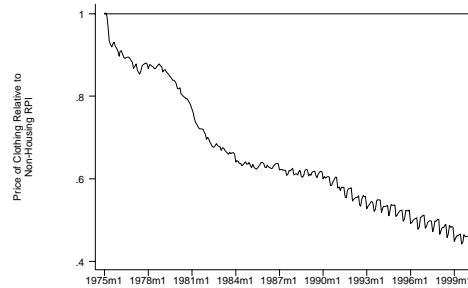
## Communications



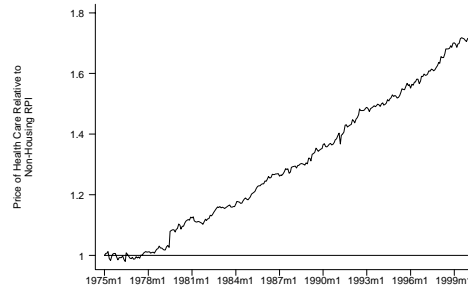
## Domestic Services



## Clothing

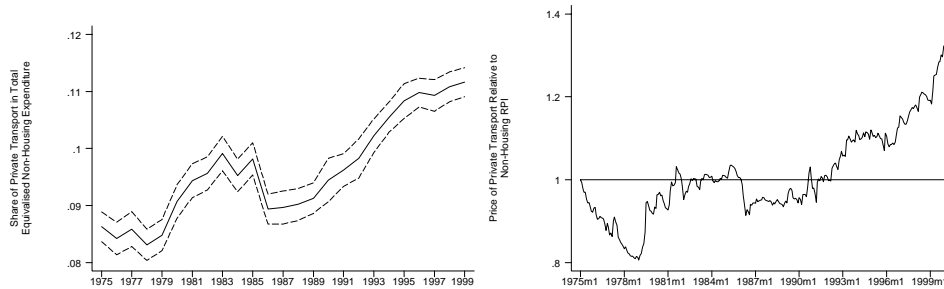


## Private Health Care

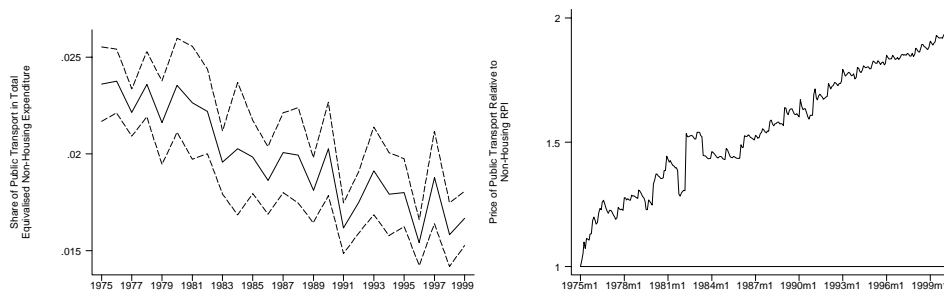


## Consumption trends in the UK, 1975–99

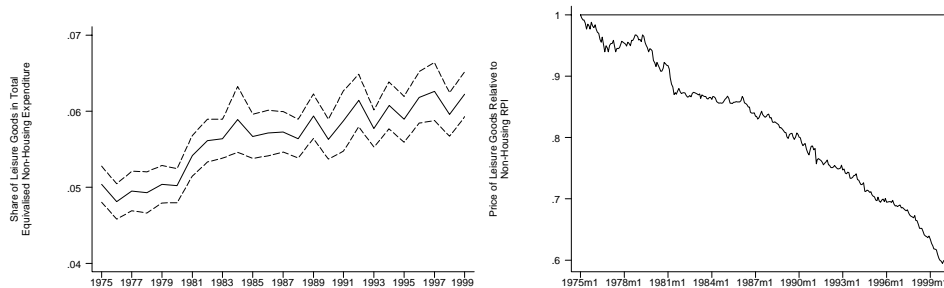
### Private Transport



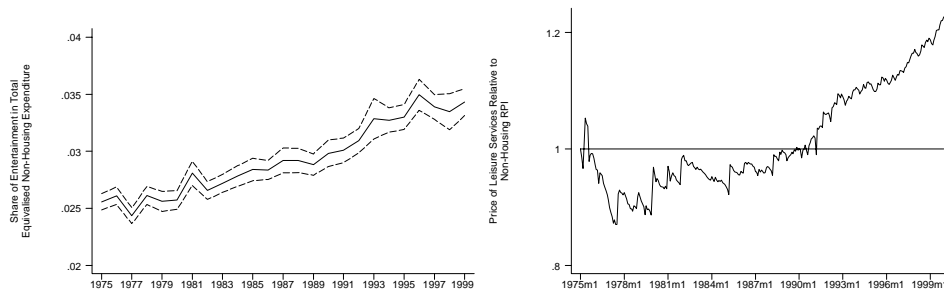
### Public Transport



### Leisure Goods

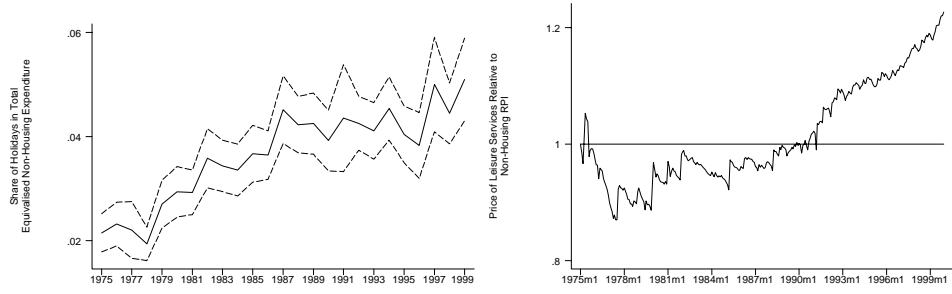


### Entertainment





## Holidays



## Education



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