

# Household consumption through recent recessions

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# Household Consumption Through Recent Recessions\*

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**Abstract:** This paper examines trends in household consumption and saving behaviour in each of the last three recessions in the UK. The ‘Great Recession’ has been different from those that occurred in the 1980s and 1990s. It has been both deeper and longer, but also the composition of the cutbacks in consumption expenditures differs, with a greater reliance on cuts to nondurable expenditure than was seen in previous recessions, and the distributional pattern across individuals differs. The young have cut back expenditure more than the old, as have mortgage holders compared to renters. By contrast, the impact of the recession has been similar across education groups. We present evidence that suggests that two aspects of fiscal policy in the UK in 2008 and 2009 - the temporary reduction in the rate of VAT and a car scrappage scheme – had some success in encouraging households to increase durable purchases.

**Keywords:** Consumption, Spending, Recessions

**JEL Classification Numbers:** E21, D12

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# 1 Introduction

The Great Recession was the deepest and longest recession in the UK since the 1930s and is likely to have had marked effects across all types of individuals. However, different households will have been affected to different extents, and may well have responded by cutting consumption in different ways. The aim of this paper is to show how consumption of different goods and services has been affected by the recent recession, and how these effects differ across different types of household. We compare the Great Recession to previous recessions in the UK to highlight both the similarities across recessions and also the distributional and other aspects of this recession which mark it out as being different.

Our focus is on the impact of the recession on household consumption. Consumption is both the largest component of GDP and the component most immediately connected to the welfare of individuals and households. Comparing the extent of cutbacks in household consumption between recessions therefore provides a good indicator of the severity of their impact. Furthermore, a comparison between the changes in consumption by households of different types in a particular recession illustrates the overall distributional impact of the recession.

In this paper we document a number of features that have been common to each of the previous three recessions in the UK. These include a propensity for households to increase their saving as the economy enters a recession and a tendency for households to focus their cutbacks to the greatest extent on some particular goods and services, such as durable goods, catering and alcohol. The most recent recession, though, has been different in a number of ways. First in its depth and length. Annual growth in consumption through the most recent recession has been nearly six percentage points below average growth in expansionary years. This is a substantially larger contraction than in either of the two previous recessions. The falls in consumption could, perhaps, have been even greater in the most recent recession if it were not for a number of other differences: accommodative monetary and fiscal policy and, at least until the time of writing, a labour market that has been relatively resilient given the large falls in GDP that have occurred. With respect to the length of the downturn - at time of writing, four years after the beginning of the recession, there is no evidence yet of a sustained recovery taking hold. A second feature that distinguishes the most recent recession from its two predecessors concerns the composition of the cuts in household expenditure. In previous recessions, there was a marked tendency for households to reduce their purchases of durables to a greater extent than nondurables. In this recession, this difference is much less marked. Durable purchases, after an initial decline, recovered swiftly before falling again, while purchases of nondurables continued to decline steadily throughout the recession. One possible explanation for this is the combination of the temporary reduction in the main rate of VAT that was in place for 13 months from December 2008 and the introduction of a

vehicle scrappage scheme. Both of these initiatives would be expected to increase durable purchases while in operation, partly by bringing forward purchases that would otherwise have happened in the future. A final difference in the recent recession was in the distribution of cuts by home ownership: home-owners, especially those with outstanding mortgages, have made larger cuts in expenditure than those renting, whereas in previous recessions, there was no difference across these groups.

The rest of this paper is structured as follows. Section 2 gives some background to our work; it introduces our data (which includes both micro survey data and aggregate data from the national accounts) and explains how we define the start and endpoints of a recession in our empirical work. Section 3 provides some descriptive context on the most recent recession. The heart of the paper is in Sections 4 and 5, which compare the most recent recession to the two preceding recessions. Section 4 illustrates how household expenditure, its components and the household saving ratio have evolved since the mid 1970s, with a particular focus on the cyclical properties of those aggregates. Section 5 examines how the cuts to expenditure in each recession were distributed across types of households, defined according to age, education and housing tenure. Section 6 concludes.

## 2 Background

### 2.1 Data

Our analysis uses both aggregate and micro survey data. The aggregate data that we use are from the UK Economic Accounts (UKEA). The microdata that we use come from the Living Costs and Food Survey (LCFS).<sup>1</sup> Our LCFS data cover the period 1976 to 2010; the data from the UKEA additionally covers the period up to the final quarter of 2011.

For our purposes both of these sources of data have strengths and weaknesses. Both data sources allow us to investigate how much households reduced their spending (in aggregate) during a recession and what goods and services they cut back on. The key advantage of the LCFS is that it allows us to examine which households cut back to the greatest extent. We can use the microdata to perform analysis separately by household groups defined according to demographic and socioeconomic characteristics of interest. The disadvantages of the LCFS include the fact that it is available with a greater lag than the UKEA data (so that we currently have data only to the end of 2010) and that it is not feasible to examine quarterly changes. There are two reasons for the latter. The first is that quarterly sample sizes are small, making estimates imprecise. The second is that households report spending on different goods over different intervals, and these intervals are sometimes longer than a quarter

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<sup>1</sup>This was previously known as the Expenditure and Food Survey (2001-2008) and the Family Expenditure Survey (to 2001); in what follows we use LCFS to refer to all of these surveys.

(particularly for durables and other infrequently purchased goods).<sup>2</sup> Therefore, when using the LCFS data we perform the analysis on an annual basis. Further detail on our use of the LCFS data is included in the appendix.

The UKEA data allows us to analyse quarterly changes and is available with less of a lag. In addition, the UKEA data contains information on corporate investment, government purchases and net exports. The sum of these aggregates and household consumption gives GDP, and so we can place the falls in household consumption in the context of what has happened to the other components of national income.

## 2.2 Dating recessions

There is no universally-accepted rule for defining the start and end-points of a recession. In the US the Business Cycle Dating Committee at the National Bureau of Economic Research defines a recession as “a period between a peak and a trough [in economic activity]” (National Bureau of Economic Research 2011). They operate no fixed rule for arriving at their judgments, nor is “economic activity” interpreted solely in terms of GDP. There is no similar body in the UK, and different authors have typically defined recessions in keeping with their own understanding of the term (see Chamberlin 2010 and Jenkins 2010 for two recent papers that use slightly different definitions of recessions). A popularly-applied definition in the media is that a recession can be defined as two consecutive quarters of negative growth in GDP. While the mechanical nature of this method makes it easy to apply, it is not universally accepted and Layton and Banerji (2003) argue that the two-consecutive-quarters rule should be considered neither necessary nor sufficient for determining whether or not an economy is in recession.<sup>3</sup>

In our empirical analysis we use two definitions of a recession, one based on quarters and one based on years. This is driven by the fact that, as we noted in Section 2.1, the LCFS does not have sufficient sample sizes to examine accurately quarterly changes in the components of expenditure; as a result we must define the entirety of each calendar year as either in a recession or not when using the LCFS. We define a recessionary period as consecutive quarters of negative GDP growth and we define a recessionary year as any year that contains at least one recessionary quarter. This definition yields three recessions since 1976: the first from 1980 Q1 to 1981 Q1, the second from 1990 Q3 to 1991 Q3 and the third from 2008 Q2 to 2009 Q3. In our empirical analysis we define recession one, therefore, as

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<sup>2</sup>Respondents are issued with a diary in which they are asked to record all purchases over a two week period. In addition, there is a questionnaire which records purchases of infrequently-bought items (such as large consumer durables) over the past number of months (between 3 months and 12 months depending on the item in question).

<sup>3</sup>That paper also provides, as does O’Donoghue (2009), some interesting commentary on the origin and historical use of some of the various definitions of a recession.

containing calendar years 1980 and 1981, recession two containing calendar years 1990 and 1991 and recession three containing calendar years 2008 and 2009.<sup>4</sup>

It is worth emphasising that though, on the working definition applied here, the recent recession ended in the third quarter of 2009, GDP growth since then has been so low and other indicators of recovery have been so few, that on a broader definition (such as that applied by the NBER), the UK could be considered as in recession for a much longer period.<sup>5</sup>

### 2.3 Relative prices and changes in purchases of components of expenditure 1977-2010

Before showing how the purchases of components have changed since 1977 we need to adjust total nominal expenditure and nominal expenditure on particular goods for changes in prices over the period. Adjusting the nominal expenditure on components of expenditure for inflation is less straightforward than it is for total expenditure. Nominal expenditure is converted into real expenditure using an all-goods price index (the Retail Prices Index (RPI)) and, in principle, the same approach can be used to convert nominal spending on durable goods, say, to real spending on those goods. However if the price of durable goods has been changing at a rate different from the average price change of all goods, such a procedure will not yield a measure of the volume of durables purchased.

Table 1 displays relative price movements in UK across both recessions and non-recessionary periods. The first column shows the average annual change in the general level of prices measured according to the Retail Prices Index. The two additional columns show annual average changes in the prices of semidurables and durables relative to nondurables. There is a downward trend in the relative prices of durables and semidurables and this is more marked in recessionary years than in non-recessionary years.

This means that a change in real spending calculated by deflating by an all-goods price index will be driven by a combination of the change in volume purchased and the change in relative prices. As an illustration, consider average household purchases of durables between 2005 and 2010: Average real spending on durables (i.e. average durable spending adjusted for the average change in *all* prices) fell by approximately 10% between these two years. However, the volume of purchases of durables increased by nearly 6%: the fall in expenditure arose because households, on average, purchased a greater quantity of durables in the later year, while having to pay less for those goods. To get a measure of volume purchased of a

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<sup>4</sup>In all but two of the years that we define as non-recessionary the volume of household expenditure rose. The exceptions were in 1977 and 2011 when it fell by 0.4% and 1.2% respectively.

<sup>5</sup>Indeed we note that the first estimate of GDP growth in the first quarter of 2012 is negative, following from negative growth in the last quarter of 2011, putting the UK in recession according to the “two successive quarters of negative growth” rule. We do not use these first estimates, which are subject to (often substantial) revision, in our analysis.

Table 1: Average relative change in prices

	Changes in price level	Changes in prices relative to non-durables	
	RPI	Semi-durable	Durable
Average (all years)	5.3%	-3.9%	-3.3%
Average (non-recessionary)	4.7%	-3.3%	-2.8%
Average (recessionary)	8.1%	-6.8%	-5.7%
Average (1980 recession)	14.9%	-8.8%	-6.8%
Average (1990 recession)	7.7%	-4.3%	-4.5%
Average (2008 recession)	1.7%	-7.2%	-5.8%

Source: Authors' calculations using Retail Prices Index data.

particular good or service that is consistent over time, we must inflate (or deflate) spending on each category by a price index specific to that category, rather than by the all-items RPI.

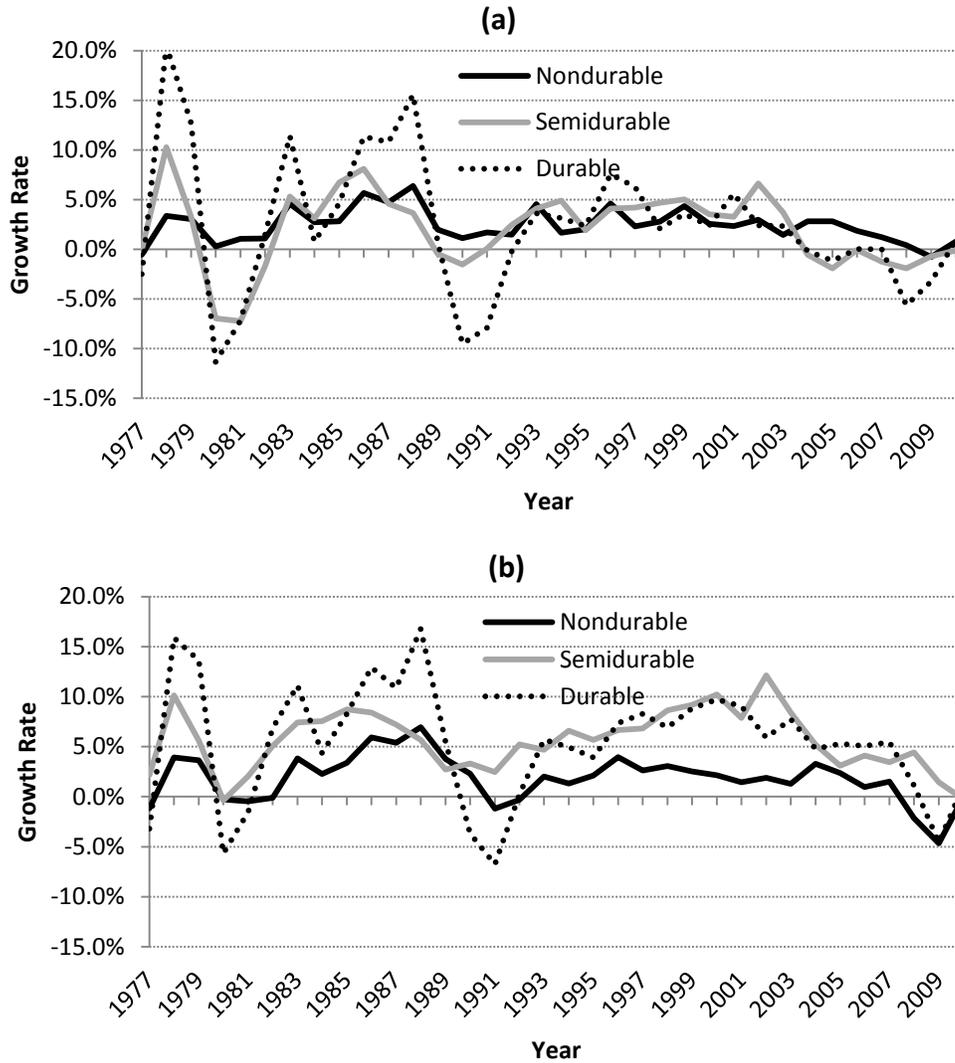
The panels in Figure 1 take, in turn, these two procedures for deflating nominal expenditures. In panel (a) we show the growth rate in real spending on nondurables, semidurables and durables while in panel (b) we show the growth rate in the volume of purchases. Focussing on panel (b) it is clear that the trend rates of growth in purchases of durables and semi-durables (5.3% and 5.7% respectively, on average, over the period) have been higher than that of nondurables (1.8%). This increase in the purchases of the former categories has been coincident with a steady fall in their prices relative to nondurables. Moreover, the fall in the relative price of durables and semidurables tends to be more marked in periods when level of economic activity is contracting than in times when it is expanding. This highlights again the importance of not deflating by a single price index, such as the RPI or CPI (Consumer Prices Index).

In addition to the importance of getting volumes correct, it is worth noting that in recessionary years, relative price falls might have supported durable purchase volumes somewhat, and it is possible that durables purchase volumes would have fallen by an even greater extent had the relative price of durables not fallen.

### 3 The Great Recession

In this section we describe some of the features of the most recent recession in the UK (for a similar treatment of the same time period in the US see Pistaferri et al., 2011). The estimated peak-to-trough fall in real GDP during the recession (with the peak in the first quarter of 2008 and the trough in the third quarter of 2009) was 6.8%. This compares with peak-to-trough falls of 2.5% in the recession in the early 1990s, 4.7% in the early 1980s and

Figure 1: Growth rates in (a) spending and (b) volume of purchases, 1977-2010



Sources: Authors' calculation using UK Economic Accounts and Retail Prices Index. In panel (a) nominal quantities are converted into real quantities using the all-items Retail Prices Index. In panel (b), nominal quantities in each series are converted into a consistent volume measure using a price index specific to that series.

3.4% in the early 1970s.<sup>6</sup> Even by the final quarter of 2011, GDP remained 4.1% below its pre-recession peak. As we will see in Section 4, the falls in household expenditure were deeper and have been longer lasting in this most recent recession than in previous ones. These falls are our primary interest in this paper. First, however, and to put those falls in context, this section summarises the trajectory of GDP and its components. In addition to household expenditure, these components are corporate investment, government purchases (which comprises both government final consumption and government investment)<sup>7</sup> and net exports. We split household expenditure into two components: non-durable consumption (purchases of nondurables and semidurables) and consumer durables.<sup>8</sup>

Figure 2 shows how these components of GDP have evolved since the first quarter of 2008. Panel (a) shows the change (measured in billion pounds) in each of these since 2008 Q1 and panel (b) shows the evolution of an index of their magnitude with the level in 2008 Q1 set equal to 100. Figure 2(a) shows that household nondurable consumption and corporate investment have made roughly equal contributions to the fall in GDP since the recession began - falling by a similar magnitude in the first year, after which the former has stayed reasonably constant while the latter fell by more and has since exhibited a modest recovery.<sup>9</sup>

These changes are informative about the contribution of each component to the overall fall in GDP; they do not, however, illustrate which components exhibited the greatest proportionate changes relative to their pre-recession levels. A fall of the same absolute amount in consumption and corporate investment will represent a larger proportionate fall in the latter than in the former given that household consumption typically has a value three to four times that of corporate investment. Figure 2(b) shows the proportionate fall in each component over the period of the recent recession. One striking fact that emerges from these figures concerns the path taken by purchases of consumer durables. These initially exhibited a greater (proportionate) fall than consumer purchases of nondurables but from the middle of 2009 began a sharp recovery. This recovery happened at the same time as two govern-

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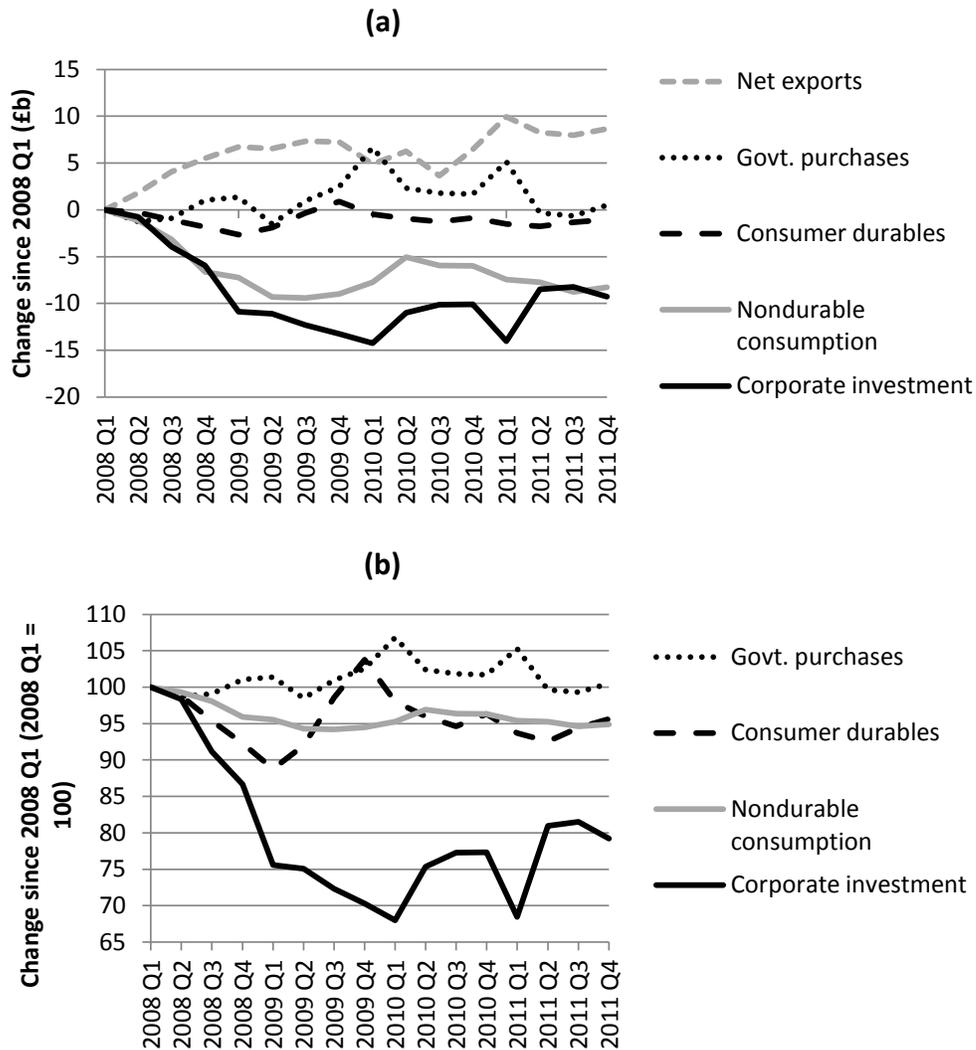
<sup>6</sup>These falls are in the seasonally-adjusted chained volume measure of GDP at market prices (UK Economic Accounts series ABMI). Our peak-to-trough measure is defined as the period between the quarter before an initial fall in GDP and the quarter before the subsequent rise in GDP. On this measure there were other smaller recessions in the post World War II period. The only one of the recessions that we reference here where the peak in GDP is subject to some ambiguity is that in the early 1980s. The use of a slightly different rule would yield falls for that recession of 6.0% or 2.8%.

<sup>7</sup>Note that this quantity will not account for all government activity. To the extent that a change in government expenditure is comprised of changes in net transfers of cash to the household sector the effect of this additional expenditure will be seen in changes to consumption by the household sector rather than in changes in government purchases.

<sup>8</sup>In constructing these figures, we have subtracted actual and imputed rent from nondurable consumption, to ensure the consistency of these figure with our later analysis. As a result the components do not quite add up to GDP.

<sup>9</sup>Hall (2010) carries out a similar analysis in the US and finds a different pattern, with almost the entirety of the fall in GDP there coming from declines in investment and consumer durables.

Figure 2: Paths of components of GDP since 2008 Q1



Source: UK National Economic Accounts.

Notes: Panel (a) shows changes measured in billions of pounds in each component of GDP since the first quarter in 2008. Panel (b) expresses these components as an index with the magnitude in the first quarter of 2008 set to 100. Net exports can, unlike the other series, take negative values and as a result we do not show an index for its time path in panel (b).

ment policies which could have encouraged durable purchases. The first was a temporary reduction in the main rate of Value Added Tax (VAT) from 17.5% to 15% announced in the Pre-Budget Report of November 24th 2008. The reduced rate, heralded as a fiscal stimulus and advertised extensively by retailers, was in operation between the beginning of December 2008 and the beginning of January 2010. Purchases of durables fell back somewhat in early 2010, after the expiration of the temporary tax reduction and showed no growth over the following year. This pattern of a rise in purchases of storable goods (such as durables) immediately before an anticipated tax increase on those goods is consistent with economic theory and the empirical evidence on how consumers respond to anticipated price increases (see Crossley et al. 2009).

The second policy was the introduction of a vehicle scrappage scheme which subsidised the purchase of new cars. This scheme operated from May 2009 to March 2010. We will show below, in Section 4, that, in comparison to the previous two recessions in the UK, there was a smaller fall in the growth rate of purchases of vehicles through the recession. This suggests, albeit tentatively, that the car scrappage scheme may have been successful in bringing car purchases forward; it does not, of course, provide any evidence that there was any ‘new’ spending (i.e. spending that would not have occurred anyway in the coming years) on car purchases. For a further discussion of the VAT cut and the car scrappage scheme alongside an initial assessment of their impact on consumer behaviour see Crossley et al. (2010).

Two further features of the economy during the Great Recession may have been associated, as either a cause or an effect, with smaller falls in household consumption than might otherwise have occurred. These are unusually accommodative monetary policy (historically low interest rates and quantitative easing) and the relative resilience (relative to the falls in GDP) of the labour market. The Bank of England base rate was reduced to 0.5% in March 2009 where it remains at the time of writing.<sup>10</sup> It is important to note, however, the base rate gives a very incomplete picture of intertemporal prices facing consumers, and the resulting incentives for saving and spending. This is illustrated in Figure 3 which shows the expected real borrowing rate on various types of loans (panel (a)) and the expected real rate of return for a number of different asset classes (panel (b)).<sup>11</sup> The vertical line shows the beginning of the recession. Both borrowing rates and returns to saving fell in the first quarter of the recession as inflationary expectations rose quickly. As the recession took hold, this was quickly

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<sup>10</sup>In contrast the Bank of England base rate remained substantially higher throughout the previous two recessions and while it fell from its peaks as those recessions progressed, the falls were of a more modest kind than those seen in the most recent recession. In fact, in both cases high interest rates were one of the proximate causes of the recession, but were considered necessary to reduce inflation and additionally, in the 1990s to support the value of Sterling in keeping with the UK’s membership of the European Exchange Rate Mechanism.

<sup>11</sup>We apply the basic rate of tax (either 20% or 22% during this period) and use the median expected rate of inflation measured according to the Bank of England/Gfk NOP Inflation Attitudes Survey (Bank of England (2012)) .

reversed. As The Bank of England base rate fell through the autumn of 2008, nominal and real returns to saving fell. However, the real cost of many kinds of borrowing actually *rose* (mortgages being the exception). Thus this recession was characterized foremost by a widening of spreads between saving and borrowing rates. Falling returns to saving may have given savers some incentive to increase current expenditures while rising borrowing costs (accompanied by substantial reductions in the availability of consumer credit, Chamberlin, 2010) likely dampened the spending of other consumers.

Turning to the labour market, falls in employment were 3.4% during the 1990s recession, 2.4% during the 1980s recession and 1.9% during the most recent recession (Jenkins 2010). The depth of the fall in employment, while substantial in each recession, was more moderate in the most recent recession in spite of the greater fall in output that occurred. Gregg & Wadsworth (2010) note that there has been substantially less drift into inactivity (with the exception of a greater student population) or onto inactivity benefits than was seen in the previous two recessions.

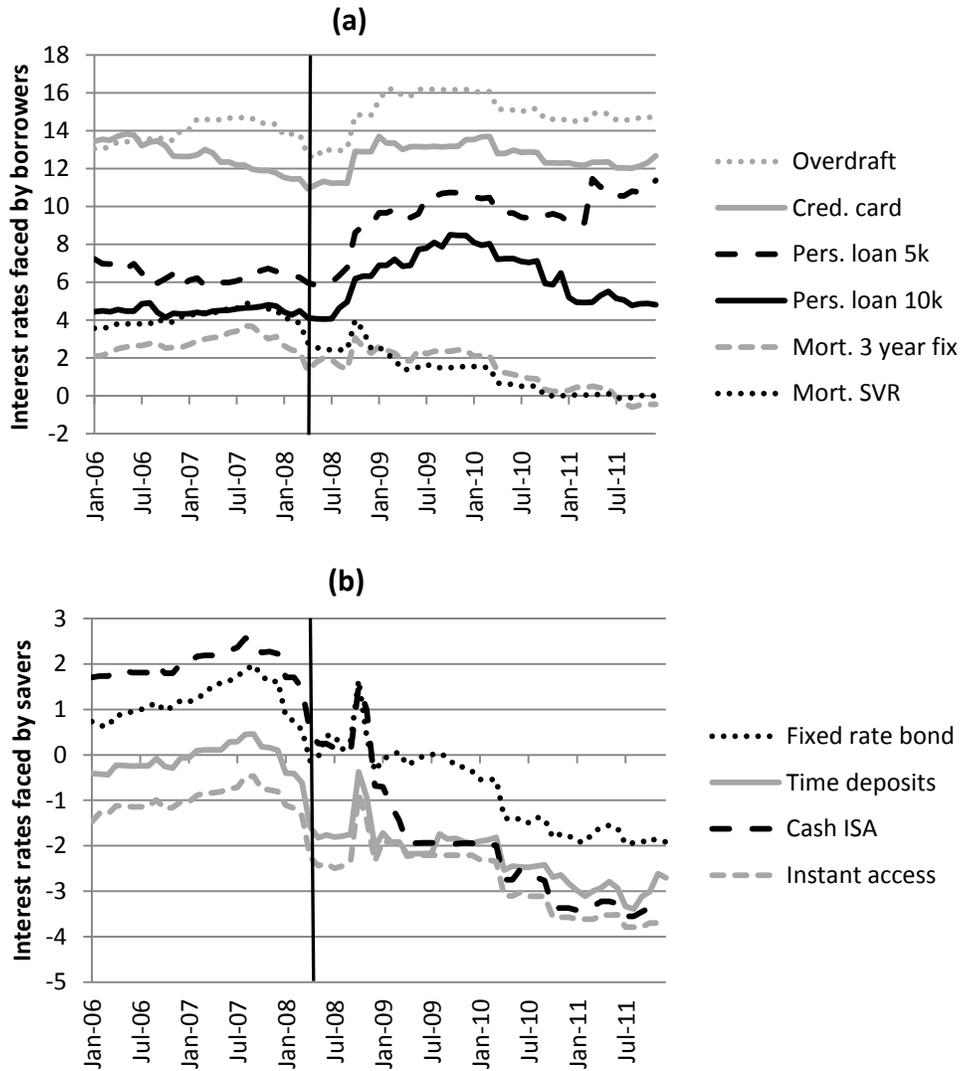
## 4 Comparing Recessions and Recoveries: spending components, prices, and saving

In this section we show, using UKEA data, how household purchases of nondurables, semidurables, durables, and household saving evolved during each of the past three recessions in the UK.

### 4.1 Nondurables, Semidurables and Durables.

Unlike in the recessions that occurred in the 1980s and 1990s in the UK, the proportionate fall in durable purchases in the recent recession was of a similar magnitude to the proportionate fall in nondurable purchases. The next two figures show that, since the beginning of 2008, both fell initially, recovered somewhat and then fell again. Figure 4 shows the time profile for household purchases of nondurables. The values are expressed as an index based (at 100) in the quarter preceding the beginning of the recession. It is immediately clear that the fall in household nondurable purchases was substantially deeper and has been longer lasting in the most recent recession than in either of the first two. By the fourth and eleventh quarter after the beginning of the 1980s and 1990s recessions respectively, purchases of non and semidurables had returned to their pre-recession level. In the current recession, by the 14th quarter after the beginning of the recession (quarter 4 of 2011, our most up-to-date observation) these purchases remained over 5% below the peak registered in the first quarter

Figure 3: Expected real borrowing rates (panel (a)) and expected real post-tax rates of return (panel (b)) from; 2006-2011



Source: Bank of England

of 2008.<sup>12</sup>

Figure 5 shows the analogous trends for household purchases of durables. The initial path followed in each recession was similar with a cumulative fall in durable purchases on the order of 10% over the first year. The paths then diverge. Over the following year in 1980s recession there was a moderate recovery, in the 1990s recession a stagnation, and in the recent recession a strong recovery. The last of these represents the sharp increase in durable purchases recorded through 2009, coincident with the temporary cut in the main rate of VAT and the vehicle scrappage scheme, that we discussed in Section 3. This recovery did not represent the beginning of a period of sustained growth in durable purchases; durable purchases fell back somewhat from their post-recession peak in the last quarter of 2009, and remained, in our most recent quarter of data, over 6.5% below their pre-recession peak. The trajectories following the third year after the beginning of the recession look quite different for the 1980s and the 1990s recessions, with much stronger growth in durable purchases in the earlier period.

Table 2 shows the volume of purchases, net of trend in non-recessionary years, varied across these categories and between recessions. It also shows the movements, net of trend, in total expenditure and disposable income. The numbers in the table are coefficients from regressions of the annual growth rates (of purchases, expenditures or income) on a constant and a set of three dummies, one for each recession, set to one if the observation represents a year in that recession. Again we see that, relative to the past two recessions, the Great Recession has seen larger falls in nondurables purchases, and smaller falls in durables purchases. We also see that, in all three recessions, total expenditure fell by more than disposable income, implying a rise in saving, which we discuss further below.

## 4.2 More Detailed Composition of Expenditure

So far our discussion of the composition of the spending cuts has considered three broadly-defined categories: nondurables, semidurables and durables. It is possible to analyse narrower categories. In their collection of price data for the derivation of the RPI, the Office for National Statistics define 14 categories of goods and services. In Table 3 we show how the volume of purchases, net of trend in non-recessionary years, varied across these categories and between recessions. The numbers in the table are coefficients from a regression of the annual growth rates in purchases of a particular commodity on a constant and a set of three dummies, one for each recession, set to one if the observation represents a year in that

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<sup>12</sup>This is a fall in a national aggregate so does not make a correction for the number of households or individuals in the economy although the results do not materially differ when we look at per household or per capita consumption. The analysis that we carry out in the next sub-section when we use the microdata is at the average household level.

Figure 4: Trends in Household Nondurable Purchases Across Recessions

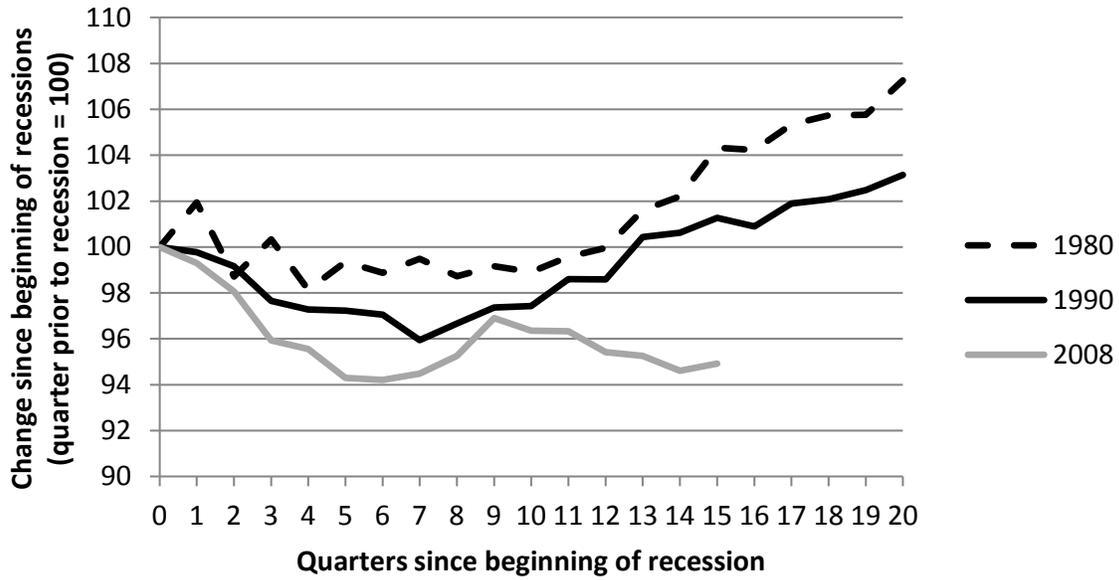
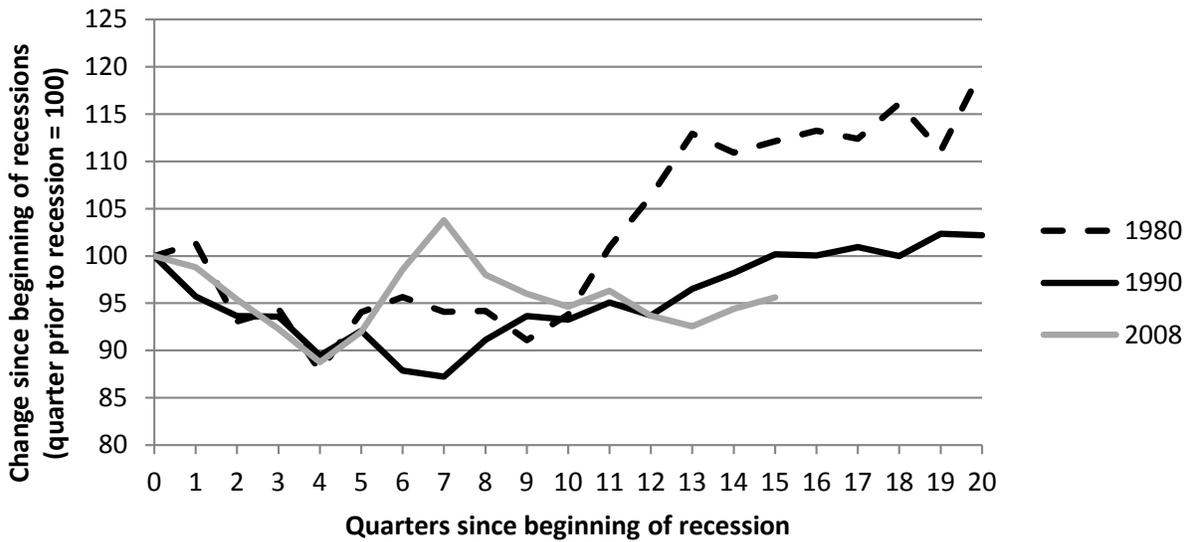


Figure 5: Trends in Household Durable Purchases over Recessions



Source: UK Economic Accounts

recession.

Some categories are consistently affected by recessions. These include household goods (mainly large consumer durables) and catering (e.g. restaurant meals). These categories largely represent luxuries, which are easier to postpone, or indeed cancel altogether, than necessities (see Browning & Crossley 2000).

There are a number of differences between the most recent recession and previous downturns. First, in this recession, there was a statistically significant and relatively large (at 6.1 percentage points per year) fall in the growth rate purchases of food.<sup>13</sup> Between December 2007 and December 2009 there was an increase in the relative price of food (that is an increase in the price of food over and above the increase in the all-items Retail Prices Index) of 8%, which presumably explains some of this fall. Also of note is the absence of any statistically significant fall in the volume of purchases of household fuel. Between December 2007 and December 2009, the relative price of household fuel rose by 23%. The lack of any discernible response to this (at an average level at least) speaks to the very price-inelastic nature of the demand for household fuel. A final point concerns the fall in purchases within the motoring category which was a great deal more modest than in either of the previous two recessions. The temporary VAT cut and the vehicle scrappage scheme could well have supported spending in this area by bringing forward purchases that would have happened subsequently.

### 4.3 Saving

We turn now to the household saving ratio. Figure 6 shows the evolution of this quantity in the quarters following the start of each recession. Panel (a) shows the level (in percentage points) in each quarter, and panel (b) shows the difference between the level in each quarter and the level in the quarter immediately preceding the first quarter of the recession. Panel (a) illustrates quite clearly that the saving ratio of the household sector was very different at the start of each of the three recessions, which is at least partly driven by the fact that the savings rate has been trending downwards over the past 30 years. In the quarter before the beginning of the 1980s recession the saving ratio<sup>14</sup>, at 11.5%, was approximately located

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<sup>13</sup>This, of course, does not mean that individuals are consuming fewer calories or food with less nutritional content. Recall that volume of expenditure on food (say) is defined as nominal expenditure on food deflated by a food price index. Falls in volume mean that individuals are paying less for the food that they purchase even after allowing for the changes in the price of food. A fall in volume of food therefore could involve either purchases less food, or a greater tendency to purchase inexpensive types of food. Aguiar & Hurst (2005) show that while there is evidence of a substantial fall in spending on food after retirement, there is less evidence of falls in consumption of food as the time spent shopping for and preparing food also increases substantially in retirement.

<sup>14</sup>The saving ratio is quite a volatile series, and being the difference between two large aggregates is necessarily measured with substantial error. To remove some of this volatility the saving ratios that we discuss here and those that we present in the figure are three-quarter moving averages.

Table 2: Annual growth (net of trend) in volumes of income and expenditure during recessions

Category	Recessions		
	1980	1990	2008
Income	-1.6*	0.9	-3.1*
Total expenditure	-3.5*	-3.9*	-5.4*
Non-durables	-3.2*	-3.4*	-6.8*
Semi-durables	-4.8*	-3.9*	-5.8*
Durables	-11.5*	-13.6*	-8.8*

Notes: Stars indicate that a particular number is statistically different from zero at the 10% level; i.e., the average rate of growth in the recession in question differed statistically from the average rate of growth in non-recession years. Coefficients represent percentage point deviations from mean growth in non-recessionary years. For example, take the -2.0 at the top left of the table. This means that in the recession starting in 1980, the growth rate in average income was 2 percentage points per year below the average growth rate in non-recessionary years.

at the 90th percentile of the distribution of quarterly saving ratios observed between 1976 and 2010; in the quarter before the beginning of the 1990s recession, the saving ratio (8%) was at the 50th percentile while in the quarter before the most recent recession it (2.2%) was the joint lowest observed in any quarter of the time period. Despite these differences, in each of the three recessions the saving ratio climbed as the economy went into recession.<sup>15</sup> In the case of the 1980s recession, the climb was both the shortest-lived and of the smallest magnitude. The initial increase in the saving ratio after the beginning of the recession was greatest in the 2000s and in the final quarter of 2011 was at 7.8%.<sup>16</sup> Alan et al. (2012) model the determinants of this change in the savings ratio in recessions.

## 5 Comparing Recessions by Household Type

In this section we discuss the extent to which the changes in expenditure differed among different types of household. Recessions can affect households in many ways. Falling asset values will reduce wealth levels; expectations of future earnings will be lowered for some households and uncertainty increased; unemployment reduces current income and may undermine labour market prospects later in life (Arulampalam 2001). Many of these factors will tend to bear to a greater or lesser extent on different types of households. Older households, for example, are more likely to have wealth stocks and so be affected by falls in asset

<sup>15</sup>Moore & Palumbo (2010) provide a similar analysis of the last three recessions in the US and document an increase in the savings ratio at the beginning of the current recession. In the previous two recessions in the US (in the early 1990s and in the early 2000s), the personal saving rate was essentially unchanged.

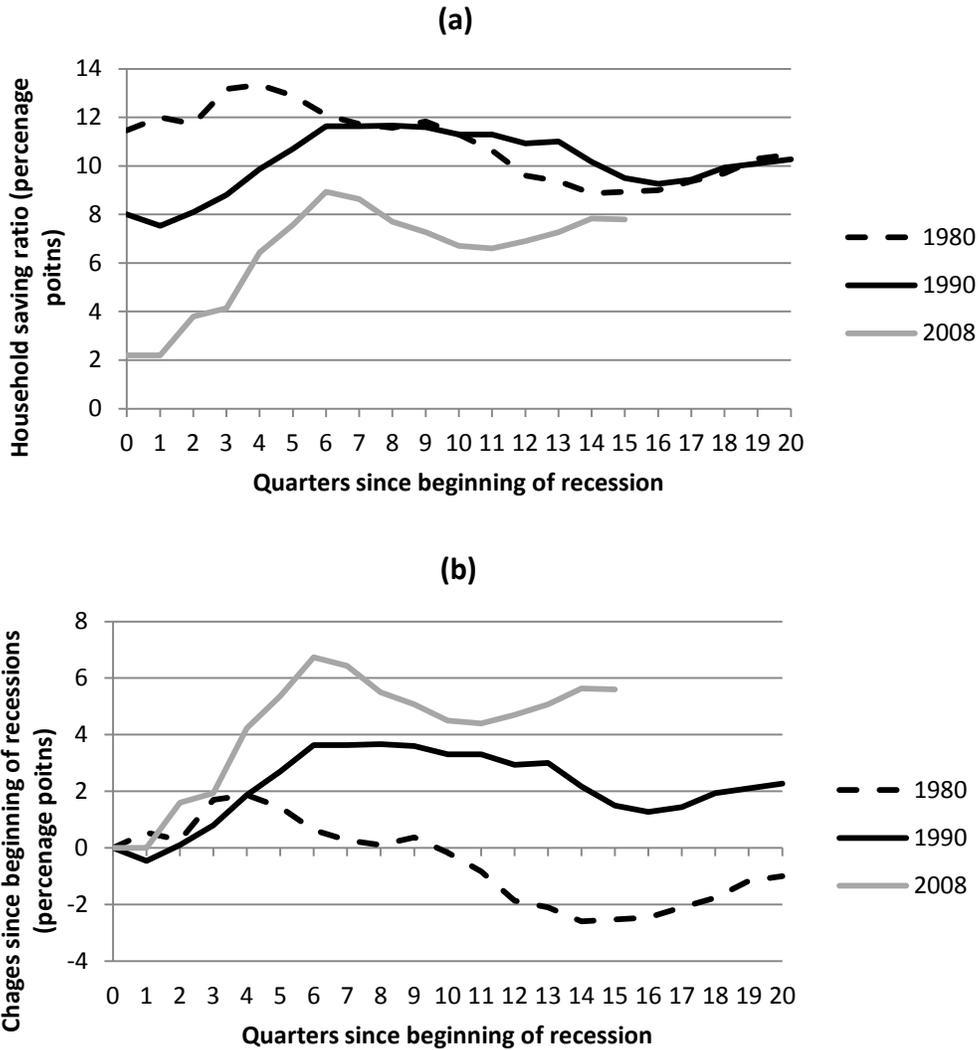
<sup>16</sup>The household saving ratio reflects only saving done directly by households and not saving done by the corporate sector, much of which is owned by the household sector in the UK.

Table 3: Average annual growth (net of trend) in volumes of expenditure during recessions

Category	Recessions		
	1980	1990	2008
<i>Nondurables</i>			
Food	-0.2	-2.6	-6.1*
Leisure services	-5.6*	-6.4	-9.5*
Household fuel	-4.1*	-2.0	-3.6
Household services	-6.5	5.8	-7.8*
Catering	-6.4*	-7.4*	-7.4*
Personal goods and services	-2.2	-3.1	-8.1*
Alcohol	-5.1*	-5.0*	-8.3*
Public transport	-3.6*	-8.7	-7.7
Tobacco	-1.1	-1.6	-2.9*
<i>Semidurables</i>			
Clothes and shoes	-3.9*	-4.1*	-2.9
<i>Durables</i>			
Motoring	-10.5*	-9.8*	-3.5*
Household goods	-12.8*	-13.1*	-10.2*
Leisure goods	-12.3*	-11.8*	-1.9
<i>Housing</i>			
Housing	0.3	1.4	-0.7

Notes: Stars indicate that a particular number is statistically different from zero at the 10% level; i.e., the average rate of growth in the recession in question differed statistically from the average rate of growth in non-recession years. Categories are placed into one of four broad types (nondurables, semidurables, durables, housing) according to which of those types accounts for the largest part of spending in the category (the narrowly-defined categories do not always fit neatly into exactly one broadly-defined category). Within these broad types, categories are sorted from high to low with respect to their average budget share in 2010, our most recent year of data. Coefficients represent percentage point deviations from mean growth in non-recessionary years. For interpretation of the coefficients see notes to Table 2.

Figure 6: Household Saving Ratios: (a) levels, (b) changes



Source: UK Economic Accounts. The household saving ratio is seasonally-adjusted.

Notes: The household saving ratio shown in panel (a) is smoothed using a three quarter moving average. Changes since the beginning of the recession are differences between the smoothed value in a particular quarter and the smoothed value in the quarter before the recession started.

values, while the employment effects (both those contemporaneous with the recession and the future effects) will be more of a concern for younger households.

We define households along three dimensions: their age, their education, and their housing tenure. We need to split households along dimensions which are not affected by the recession. We cannot therefore split households by their position in the income distribution because this will be affected by how severely the recession has affected them. We do not have information on past income in our cross-section data and so we use education and age. While housing tenure may well change because of the recession, it is likely to adjust slowly.

We show how income, total expenditure and three of its components - nondurables, semidurables, and durables have changed in each recession. These three components, together with housing expenditure, add up to total expenditure. We do not show housing here, due to the fact that it is not possible to obtain a good measure of housing *consumption* (as opposed to spending on housing) using our microdata.

## 5.1 By Age

We take the ‘age of a household’ to be the age of the oldest individual in the benefit unit containing the ‘household reference person’.<sup>17</sup> We split households into three groups: the young (those aged less than 35), the middle aged (those aged 35 or greater and less than aged 65), and the old (those aged 65 or older).

Table 4 shows the income and expenditure changes for the young, the middle aged and the old that occurred in each recession. The numbers (as in Tables 2 and 3) represent the coefficients on recession dummies in a regression of the annual growth rates on three of those dummies. A coefficient (in the ‘young’ or the ‘old’ rows) is in boldface if the effect associated with a particular recession differed statistically (at the 10% level) between that age group and the youngest age group.

While there are large differences in some of the point estimates reported in Table 4 in the recessions of the 1980s and 1990s there were no significant differences in total expenditure between the groups. There were significant differences, however, in expenditure in the most recent recession. Average annual expenditure growth in 2008 and 2009 was 7.6 percentage points below its non-recessionary trend value for households aged less than 35 and it was 5.8 percentage points below the trend for households aged between 35 and 64. The deviation from the non-recessionary trend for the oldest households (i.e. pensioners) was not statistically different from zero and was significantly different from expenditure growth for the youngest group. The extent to which younger households have been affected by the most recent recession is striking- their income and their expenditure both fell at rates of about 8

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<sup>17</sup>The household reference person was known as the head of the household until the issuance of the 2001 data. A benefit unit is a single individual or couple along with any dependent children that they have.

percentage points below trend.

In none of the three recessions did the oldest households experience a statistically significant fall in either income growth or growth in total expenditure relative to the non-recessionary trend. Further, the average income of the oldest households actually grew at a rate significantly *above trend* in recession two.

Table 4: Changes in income, expenditure and its components in the three recessions; comparison by age

		1980	1990	2008
Income	Young	-2.3*	0.7	-8.2*
	Mid.	-1.3	0.2	-2.3
	Old	-0.8	2.8*	0.1
Expenditure	Young	-5.0*	-5.1*	-7.6*
	Mid.	-2.7*	-4.1*	-5.8*
	Old	-2.2	-2.4	<b>-1.3</b>
Nondurables	Young	-5.1*	-5.7*	-8.5*
	Mid.	-2.8*	-2.9*	-7.0*
	Old	<b>-1.2</b>	-3.3*	-4.0*
Semidurables	Young	-7.1*	-9.6*	-11.9*
	Mid.	<b>-3.4*</b>	<b>-3.0*</b>	<b>-4.0*</b>
	Old	-5.1	<b>2.0</b>	-5.9*
Durables	Young	-15.9*	-10.4	-12.5
	Mid.	-7.9*	-15.8*	-9.2*
	Old	-13.2*	-7.2*	-3.0

Notes: Stars indicate that a particular number is statistically different from zero at at least the 10% level, that is - the average rate of growth the recession in question differed statistically from the average rate of growth in non-recession years. A coefficient in the ‘mid’ or ‘old’ rows are shown in boldface if it is statistically different from the same coefficient for the young at at least the 10% level.

## 5.2 By education

In this subsection we examine whether the education level of those within a household displayed any association with the extent to which households were affected by each recession. We look at education as it will be correlated with the ‘permanent income’ of households. We divide households into two groups according to the age at which its most educated member left full-time education. Our ‘low education’ group is comprised of households where every member left education at or before the age of 16. Our ‘high education’ group is comprised of those which contained at least one member who left full-time education at or after the age

of 17. A difficulty with splitting households according to their level of education attainment is that the proportion of households in the high education group rises from 18% in 1978 (the first year in which we have information on education in our data) to 44% in 2009, and so the underlying composition within each education group is likely to be markedly different.

Table 5 shows the impact of each recession on both of these education groups. The first recession, on average, passed the more educated by. Their income actually increased at a rate significantly *greater* than trend; there was no significant change in expenditure indicating that the additional income was dedicated towards greater saving. The less educated group in the first recession, on the other hand, experienced income growth at a rate 2.9 percentage points below trend. It has been well documented (see, for example, Blundell & Etheridge 2010) that during the 1980s, income inequality increased substantially. Our results here suggest that the dynamics that drove that process were operative during the recession of the 1980s.

During the later two recessions, however, there are no significant differences between the impact of the recession on the average incomes of the two groups or in the average consumption responses to the recession.

Table 5: Changes in income, expenditure and its components in the three recessions; comparing those with less and those with more education

		1980	1990	2008
Income	Low	<b>-2.9*</b>	-0.2	-3.6
	High	<b>3.5*</b>	2.5	-2.7
Expenditure	Low	<b>-4.0*</b>	-4.1*	-6.6*
	High	<b>-0.8</b>	-4.5*	-5.2*
Nondurables	Low	-3.7*	-4.6*	-8.0*
	High	-1.4	-1.4	-6.2*
Semidurables	Low	<b>-5.9*</b>	<b>-1.4</b>	-3.9*
	High	<b>1.2</b>	<b>-9.9*</b>	-7.1*
Durables	Low	-12.1*	-12.0*	-11.1*
	High	-8.9	-18.1*	-7.0

Notes: Stars indicate that a particular number is statistically different from zero at at least the 10% level, that is - the average rate of growth the recession in question differed statistically from the average rate of growth in non-recession years. A pair of coefficients are shown in boldface when those two numbers are statistically different from each other at at least the 10% level.

### 5.3 By housing tenure

The final characteristic by which we split households is with regard to their housing tenure. We divide households into those who rent their accommodation (whether privately or from a local authority) and those who own their property (whether outright or who are paying off a mortgage). One of the reasons that households might cut back on their expenditure during a recession is the possibility of a wealth effect when its assets fall in value even in the absence of any change to that household's income or employment prospects. An alternative reason is that if the household is paying off a mortgage, interest rate payments are included in expenditure, and so variation in interest rates in recessions will impact on expenditure directly.

Each of the three recessionary periods that we define has coincided with a fall in the value of housing. The fall in the 'real' average property price<sup>18</sup> in the UK between the quarter before the recession began to its final quarter was in the 1980s, 1990s and 2000s respectively 16%, 24% and 15%. This will have had a substantial impact on household asset portfolios. The net value of housing (i.e. value of housing less mortgage debt) made up 39% of the aggregate household private (i.e. excluding state pension wealth) portfolio between 2006 and 2008 (see Daffin (2009) p.8) with the other components being pension wealth (39%), financial wealth (11%) and physical wealth (11%). Owner-occupiers who are still paying off mortgages will have been particularly vulnerable to the fall in the value of housing; any fall in the value of the property that they own will be magnified by virtue of their leveraged position.

We emphasise that the content of this subsection does not contain an estimate of the magnitude of wealth effects, nor even a formal test of their presence (for these, see Banks et al. 2012). Differences that we observe between renters and owners could be down to many reasons other than wealth effects from house prices. These could include, for example, different shocks to earnings or employment, different shocks to perceptions of future uncertainty, wealth effects coming from different holdings of non-housing assets<sup>19</sup>, or the differential impact of falls in interest rates (to which we return below).

The most interesting feature of these recessions illustrated in Table 6 is the quite considerable difference in the fall in expenditure between renters and owner-occupiers in the most recent recession. Expenditure growth was 6.4 percentage points below trend for owner-occupiers compared to 1 percentage point below trend for renters. These deviations from (respective) trends are statistically different from one another. This is in spite of no differ-

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<sup>18</sup>By 'real' property prices we mean the average nominal value of housing adjusted for changes in economy-wide inflation as measured by the RPI. The data on property prices that we use comes from Nationwide (2011).

<sup>19</sup>Although, if wealth effects are operating through falls in the prices of assets other than housing, we would expect them to be stronger for owner-occupiers than they would be for renters. Crossley & O'Dea (2010) show that, on average, owner-occupiers are more likely to have private pensions and have higher liquid financial wealth than renters.

ential deviations from trends in income growth. The pattern was different in recessions one and two. In those periods there was no statistical difference observed between the deviations from the trend growth in the expenditure of renters and owners.

Table 6: Changes in income, expenditure and its components in the three recessions; comparing renters with owner occupiers

		1980	1990	2008
Income	Renter	<b>-2.5*</b>	0.4	-1.6
	Owner	<b>-0.7</b>	0.2	-3.0
Expenditure	Renter	-3.6*	-5.8*	<b>-1.0</b>
	Owner	-3.0*	-4.1*	<b>-6.4*</b>
Expenditure (ex. mort. interest)	Renter	-3.6*	-5.8*	<b>-1.0</b>
	Owner	-3.7*	-4.8*	<b>-5.2*</b>
Nondurables	Renter	-3.2*	-6.1*	<b>-3.7*</b>
	Owner	-2.9*	-3.3*	<b>-7.4*</b>
Semidurables	Renter	<b>-8.6*</b>	<b>-7.6*</b>	-5.4
	Owner	<b>-2.1*</b>	<b>-3.7*</b>	-5.4*
Durables	Renter	-11.1*	-16.5	-4.7
	Owner	-11.0*	-13.6*	-9.0*

Notes: Stars indicate that a particular number is statistically different from zero at at least the 10% level, that is - the average rate of growth the recession in question differed statistically from the average rate of growth in non-recession years. A pair of coefficients are shown in boldface when those two numbers are statistically different from each other at at least the 10% level.

A partial (proximate) explanation is that during the Great Recession, interest rates fell while in the previous two recessions interest rates remained high, with the bank base rate increasing in the early part of the 1980s recession before falling slightly, and the bank base rate falling through the 1990s recession but at a pace that was more moderate than the dramatic reductions that were seen in 2008 and in 2009. Mortgage interest is included in the measure of expenditure shown here so these falls will have reduced expenditure for (some) mortgagors. We report expenditure excluding interest payments, and this shows that while part of the decline in spending by owners is due to lower interest payments, the deviation in other spending from its non-recessionary trend is significant and, at 5 percentage points, large indicating that property owners are likely to have increased their saving during the most recent recession.

To assess this further, we present in Table 7 the changes in income and expenditure for mortgagors and owners-outright separately. The latter group will not be directly affected

(through mortgages at least) by changes in interest rates. In addition they will be, all else equal, less vulnerable to wealth shocks as their housing wealth is not leveraged. The table shows that there was no statistically significant fall in income for either group in the most recent recession while the deviation in the growth of total expenditures from its non-recessionary trend was 2.4 percentage points for owners-outright. The deviation in growth from the trend in non-recessionary years for mortgagors was also significant and much larger at 7.9 percentage points. Some combination of wealth effects and reduced servicing costs associated with mortgages have, no doubt, contributed to the large increases in saving among those paying off mortgages in the most recent recession. The fact that income and expenditure growth fell by similar magnitudes for the owners-outright indicates that they are not likely, on average, to have increased saving.

Table 7: Changes in income, expenditure and its components in the three recessions; comparing mortgagors with owners-outright

		1980	1990	2008
Income	Mortgagor	<b>-1.6</b>	<b>-2.0*</b>	-2.8
	Owner Out.	<b>1.7</b>	<b>4.4*</b>	-2.0
Expenditure	Mortgagor	-2.8*	-5.4*	<b>-7.9*</b>
	Owner Out.	-3.1*	-2.2	<b>-2.4*</b>
Expenditure (ex. mort. interest)	Mortgagor	-3.9*	-6.2*	<b>-6.5*</b>
	Owner Out.	-3.1*	-2.2	<b>-2.4*</b>
Nondurables	Mortgagor	-2.5*	-4.2*	-7.8*
	Owner Out.	-3.4*	-2.2*	-5.9*
Semidurables	Mortgagor	-3.1*	<b>-6.2*</b>	-5.9*
	Owner Out.	0.7	<b>1.8</b>	-2.7*
Durables	Mortgagor	-11.4*	-16.1*	<b>-14.2*</b>
	Owner Out.	-9.8*	-8.5	<b>-0.1</b>

Notes: Stars indicate that a particular number is statistically different from zero at at least the 10% level, that is - the average rate of growth the recession in question differed statistically from the average rate of growth in non-recession years. A pair of coefficients are shown in boldface when those two numbers are statistically different from each other at at least the 10% level.

## 6 Conclusion

Our analysis shows that the recent recession has been different in a number of ways from the recessions of the early 1980s and early 1990s. First, the falls in household consumption

have been deeper than in either of the previous two. Second, we find that in the most recent recession, purchases of durables (excluding housing) contracted by a similar magnitude to nondurable goods and services. By contrast, in the previous two recessions purchases of durables were cut by substantially more than nondurables. One potential reason for the relative resilience of durable purchases through the recession is the temporary reduction in the main rate of VAT and the vehicle scrappage scheme. Third, when we look at the effect on different types of household, home-owners have made larger cuts to expenditure than non-home owners, whereas in the past there has been no difference across these households.

In addition to highlighting these differences between the current recession and the previous two, this paper highlights some features that are common to each of the recessions. These include a tendency for households to cut back on their spending on certain goods and services (e.g. alcohol, eating out, household durables) and the fact that household saving rose sharply in each recession.

The aim of this paper was to draw out patterns of consumption behaviour through recessions. We have not tried to model how these consumption decisions have been reached by households and without such a model it is hard to identify whether observed differences are due to the effect of the recession or to the composition of the groups. Alan et al. (2012) provide such a framework but without disaggregating into types of consumption expenditure. This modelling task is one important future step to understanding our observations on the impact of recessions.

## Appendix

It has been documented elsewhere (Brewer & O’Dea 2012) that there are inconsistencies between the aggregate levels of income and expenditure implied by the LCFS and those reported as part of the UKEA. In particular, the proportion of the total household expenditure recorded in the UKEA that is reported by households in the LCFS has been falling steadily since the early 1990s.<sup>20</sup> We adjust the microdata so that the implied aggregates are consistent with the UKEA. In the absence of evidence to the contrary, we base our adjustment on the assumption that under-reporting varies across time but not systematically across households. For a particular household, the proportion of expenditure that they report is equal to the ratio of aggregate expenditure implied by reports to the LCFS in their year of sampling to

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<sup>20</sup>Low recorded expenditure in microdata relative to the National Accounts aggregates has also been documented in the US. See Attanasio et al. (2006) for a comparison of the implied aggregate expenditure recorded in the US Consumer Expenditure Survey and aggregates published as part of the National Income and Product Accounts.

the aggregate measure in the UKEA in that same year.<sup>21</sup>

Much of our analysis of expenditure patterns uses broadly-defined expenditure categories - e.g. total expenditure, nondurable expenditure, semidurable expenditure and durable expenditure. We also present results on changes in spending on groups defined more narrowly (e.g. food). To account for potential under-reporting of expenditures here, we gross up the individual reports of expenditure on a narrowly-defined category with the grossing factor pertaining to the broadly-defined category to which it belongs. For example, given that the narrowly-defined category food is part of the broadly-defined category nondurables, we gross up food expenditure reports in a given year by the ratio of aggregate implied nondurable expenditure in the LCFS in that year to aggregate nondurable expenditure in the UKEA in that same year.

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<sup>21</sup>The approach we take is exactly the same when it comes to income and to components of expenditure (nondurables, semidurables and durables).

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