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THE FORMATION OF INFLATION EXPECTATIONS: AN EMPIRICAL ANALYSIS FOR THE UK

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ABSTRACT

This paper uses micro-data from three surveys for the UK to consider how individuals form inflation expectations. Generally, we find significant non-response bias in all surveys, with non-respondents especially likely to be young, female, less educated and with lower incomes. A number of demographic generalizations can be made based on the surveys. Inflation expectations rise with age, but the more highly educated and home owners tend to have lower inflation expectations. These groups are also more likely to be accurate in their estimates of official inflation twelve months ahead, and have less backward-looking expectations.

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1. Introduction

The Monetary Policy Committee (MPC) at the Bank of England has an explicit mandate to maintain CPI inflation at a target of 2%. In such an inflation targeting regime, the effectiveness of monetary policy is likely to be greater if inflation expectations remain anchored to the target. People have to believe that there will be low inflation before they stop building expectations of high inflation into their decision-making process. A sustained rise in inflation expectations in the short-term runs the risk of heightened inflationary pressures in the medium term. Hence, central banks have an incentive to understand how inflation expectations are formed.

In this paper we review the empirical literature concerning how inflation expectations are formed. We then examine empirically how individuals form inflation expectations in the UK by examining micro-data at the level of the individual drawn from a number of UK surveys of inflation expectations. It extends, and updates, earlier work in Blanchflower and Kelly (2008). We find strong empirical support for heterogeneity in the formation of inflation expectations. We make use of data from three main sources: the Bank of England's Inflation Attitudes Surveys from 2001-2009; the GfK/NOP Consumer Confidence Barometer Surveys from 1996-2008 and a 2007 Eurobarometer Survey. There are high non-response rates in the surveys. That is, many respondents have 'no idea' what the inflation rate will be in the future. Also, expectations are backward-looking. Individual's perceptions of current inflation are a highly significant determinant of their inflation expectations. However, despite this backward-looking behavior we still find consistent differences in the formation of inflation expectations according to characteristics such as education, age, income, employment and housing status.

The formation of inflation expectations is likely to be related to the credibility of the monetary authority in controlling inflation. We therefore also consider micro data on individuals' satisfaction with the Bank of England in its job to control inflation. We also consider the characteristics of those individuals more likely to accurately report current rates of inflation and predict future inflation. We find the credibility of the monetary authority differs across individuals according to similar characteristics as those that form their inflation expectations and in their ability to report and predict inflation. This provides complementary empirical evidence for heterogeneity in the formation of agent's inflation expectations.

In section 2 we discuss how inflation expectations may be measured and recent movements in, inflation and measures of inflation expectations. In section 3 we discuss the empirical literature concerning the formation of inflation expectations. In particular, we discuss a recent literature that attempts to test empirically models of inflation expectations formation from survey data on inflation expectations. Section 4 describes our empirical evidence for the UK drawn from a number of surveys of UK households' inflation expectations. Section 5 concludes.

2. Measuring Inflation Expectations

What matters most for inflation, are the expectations of those directly involved in setting prices and wages. Wages are set on an infrequent basis, thus wage setters have to form a view on future inflation. If inflation is expected to be persistently higher in the future, employees may seek higher nominal wages in order to maintain their purchasing power. This in turn could lead to upward pressure on companies' output prices, and hence higher consumer prices. Additionally, if companies expect general inflation to be higher in the future, they may be more inclined to raise prices, believing that they can do so without suffering a drop in demand for their output. A third path by which inflation expectations could potentially impact inflation is through

their influence on consumption and investment decisions. For a given path of nominal market interest rates, if households and companies expect higher inflation, this implies lower expected real interest rates, making spending more attractive relative to saving. But if nominal market interest rates rise in response to expectations that the MPC will raise Bank Rate to curtail any inflationary pressure, real rates might not actually decline.

How can we measure inflation expectations? Mankiw, Reis and Wolfers (2003) provide a comprehensive study. We identify three main groups, namely survey-based measures, market-based measures and economic indicators. In the UK there are a range of surveys of inflation expectations, both of the general public and professional economic forecasters and academics. There is a dearth of surveys for firms' inflation expectations although business surveys include questions concerning firms' pricing intentions. In this paper we examine in detail those surveys of the general public for which we can obtain micro data.

Market-based measures of inflation expectations include estimations of nominal and real forward interest rate curves, from which a forward inflation curve is inferred, and inflation swap rates. In both these cases, the indicators may not only reflect markets' inflation expectations but also inflation risk premia and numerous other market factors. Movements in inflation expectations could also be apparent in economic indicators such as wage settlements, where wage bargainers must make some judgment regarding the course of inflation over the period of the settlement. Of course, wage settlement data does not simply reflect inflation expectations but also factors such as ability to pay and employee productivity.

How have the survey measures of inflation expectations we study in this paper behaved over the recent past. **Chart 1** illustrates that a range of survey measures of household's inflation expectations have picked up sharply over the recent past, before falling back in the most recent

surveys. **Charts 2** and **3** illustrate the median inflation expectation from the Bank of England/NOP Inflation Attitudes Survey, together with consumer price inflation (CPI) and retail price inflation (RPIX).[1] The difference between these two measures is twofold. First, the CPI measure is calculated using a geometric rather than an arithmetic average. Second, the RPIX measure includes a measure of housing costs, whereas the CPI does not. Finally, up until the beginning of 2004 the Bank of England's Monetary Policy Committee (MPC) set monetary policy relative to a target of 2.5% for the RPIX measure. Since 2004 the MPC has set monetary policy relative to a target of 2.0% for the CPI measure. Hence, this change in target means it is difficult to judge how inflation expectations have behaved relative to the Bank of England's inflation targeting regime. It appears that up to 2004 at least that the median inflation expectation in the Bank of England Inflation Attitudes survey was closer to the RPIX inflation measure (**Chart 3**) than it was to CPI (**Chart 2**).

Over the recent past RPIX inflation has fallen below CPI inflation, and a third measure of retail price inflation which includes mortgage interest payments, the RPI, has fallen below zero following large cuts in the Bank of England's policy rate (**Chart 4**). This could suggest that some agents in the economy may perceive different rates of inflation; in particular, mortgage holders who will have seen their mortgage interest payments fall sharply in the recent past. Our survey measures of inflation expectations and perceptions do not specify a particular measure of inflation. So we must be careful in assessing the behavior of inflation expectations and perceptions relative to the Bank of England's target.

Despite these caveats there are a number of key points with respect to the behavior of inflation expectations we should highlight. First, median inflation expectations remained broadly

[1] For details of the surveys, plus the latest data see http://www.bankofengland.co.uk/statistics/nop/index.htm

stable, in the range of 2%-3%, through the period 1999-2006 as the Bank of England maintained inflation close to target. Second, during this period inflation expectations moved closely with inflation perceptions (**Chart 5**). This could be consistent with backward-looking behavior by agents in forming their inflation expectations, but also with forward-looking behavior in the sense that agents expected the Bank of England to maintain inflation close to target.

Third, as rising oil, energy and food prices pushed CPI inflation above the inflation target to a peak of 5.2% in September 2008, this coincided with a rise in median inflation expectations. Median inflation expectations picked up sharply, though not as much as actual inflation on all three measures, through 2007-2008 before falling back very sharply to their lowest level since 2005 in February 2009. Fourth, the survey responses have become more volatile in the last two years. **Charts 6** and **7** illustrate a swathe of distributions of the survey responses to the Bank of England Inflation Attitudes survey in the periods 2001-2006 and 2007-2009 respectively. Table 1 illustrates the entire distribution of responses. In the May and August 2008 surveys 37% and 36% of respondents expected inflation to be greater than 5% in twelve months time, but this proportion fell to 21% and 16% in the November 2008 and February 2009 surveys. Between August and November 2008 the proportion of respondents expecting prices to not change or go down rose from 6% to 27%.

Hence, in our analysis of the Bank/NOP micro data we consider the behavior of respondents in two distinct periods. First, in the period when inflation remained close to Bank of England's target in 2001-2006 and second, in the period 2007-2009 when inflation has exceeded the target by more than 1.0pp and the volatility of both inflation and surveyed inflation expectations has increased. Our evidence could suggest that agent may have used different models to form inflation expectations during these periods.

It is worth considering how wages may have responded to inflation expectations. **Chart 8** illustrates that wage settlements showed little response to both the rise in CPI inflation or median inflation expectations over the course of 2008. Rather, wage growth began to fall back as firms cut back on hiring. And over the recent past sharp cuts in bonuses have pushed down on the AEI measure of average earnings. In summary, it has been difficult to detect any strong link between wage settlements, earnings or survey measures of inflation expectations.

3. How are inflation expectations formed?

In the neo-Keynesian model (see, for example, Clarida et al. 2000), sticky prices result in forward looking behaviour; inflation today is a function of expected future inflation as well as the pressure of demand, captured in an output gap term. Thus, expectations are deemed to be an important link in the monetary transmission mechanism. Monetary policy can be more successful when long-term inflation expectations are well anchored.

Hence, many studies have focused on the question of how to assess the response of inflation expectations to macroeconomic shocks, and whether this is likely to be lower in inflation targeting regimes.[2] Bernanke (2007) provides an intuitive definition for anchored inflation expectations, namely that if the public experiences a spell of inflation higher than their long run expectation, but their long run expectation of inflation changes little as a result, inflation expectations can be considered to be well anchored. However, if the public reacts to a short period of higher than expected inflation by increasing their long run expectations, expectations are poorly anchored.

Levin, Natalucci and Piger (2004) show that some survey measures of inflation expectations in the US respond to recent changes in the actual rate of inflation, which would not

[2] See for example Stock and Watson (2007).

be the case if expectations were perfectly anchored. They examine whether inflation expectations are relatively more anchored in inflation targeting economies by estimating a pooled regression (across inflation targeting and non-inflation targeting countries) in order to evaluate the sensitivity of inflation expectations to realised inflation. They find that longer-run inflation expectations have been far less sensitive in inflation targeting countries, suggesting that inflation targeting central banks have been quite successful in de-linking expectations from realised inflation. The authors find some evidence that inflation persistence (for core CPI) is higher amongst non-inflation targeting countries.

In two empirical studies using expectations based on market data Gurnayak et al (2002, 2003) provide evidence that US nominal forward rates at long horizons react significantly to surprises in macroeconomic data releases and monetary policy announcements, while forward rates derived from inflation-indexed Treasury debt show little sensitivity to these shocks. This suggests the response of nominal forward rates is mostly driven by changes in inflation expectations. However, they note that in the UK long-term forward rates have not demonstrated excess sensitivity since the Bank of England achieved independence. Mishkin (2007) notes that in the US inflation persistence rose during the 1970s and has subsequently fallen back consistent with a re-anchoring of inflation expectations. This hypothesis is consistent with various indicators of inflation expectations, for example estimates of inflation compensation derived from indexed Treasury yields.[3]

However, although there may be some consensus that inflation expectations have become more anchored, and perhaps more so in inflation targeting countries, these studies do not

[3] Similar evidence concerning inflation persistence is found for other countries. Levin and Piger (2004) find that there has been a significant decline in inflation persistence since the 1980s for major European economies as well as for Japan, Canada, Australia and New Zealand. However, O'Reilly and Whelan (2005) find little evidence of a recent decline in persistence for the Euro area as a whole.

explicitly consider how inflation expectations are themselves formed. Rational expectations has been the traditional framework used for modeling inflation targeting. Agents are assumed to share a common information set and form expectations conditional on that information. Thus, we assume that everyone has the same expectations. However, this implies the public has firm knowledge of the long-run equilibrium inflation rate. This gives rise to a conflict between policy practice and policy modeling, which is well described by Orphanides and Williams (2003). Generally, models assume a fixed and perfectly known structure of the economy and specify that expectations are model consistent. In linear fixed parameter models, for example, once the monetary policy rule is specified, inflation expectations can be represented as a fixed linear function of economic outcomes. Economic agents are then assumed to form expectations mechanically based on these simple linear functions of economic outcomes that are assumed to be perfectly known. In such a world, expectations are perfectly anchored, and as such there is no need for central banks to monitor and analyse information regarding inflation expectations, and no need for central bank communications.

However, once imperfect knowledge is acknowledged, the mechanical link from economic outcomes to the expectations formation process breaks down. There have been a large number of papers documenting the general failure of the rational expectations hypothesis to account for the survey data on inflation expectations (for example Pacquet, 1992, Batchelor and Dua, 1987). A widely cited explanation for the failure is that agents lack the sophistication to form expectations rationally. The presence of information costs is a major factor. To form rational expectations, agents must know the time structure and probability distribution of the economy, and the costs of information may exceed the benefits, making it rational for agents to form their expectations some other way. Most empirical tests of rationality of surveyed

expectations have focused on the inflationary expectations of economists (e.g. Keane and Runkle, 1990), although a few studies have examined inflationary expectations of consumers in general, mainly using aggregated Michigan survey data (Maddala, Fishe and Lahiri (1981), Gramlich (1983), Batchelor (1986)). However, these studies suffer from aggregation bias, meaning that the implications of tests for individual rationality are difficult to derive.

More recently, a few studies have attempted to empirically test rationality of expectation formation on an individual basis (Bakhshi and Yates (1988) provide a review of tests of rationality commonly used in the literature). Souleles (2004), for example, seeks to test rationality of consumer expectations (including inflation expectations) by looking at the relationship between answers to the US Michigan survey over a number of years, in order to capture an individual's expectational error. They find that expectations appear to have been biased, but that the bias is inconsistent, and related to inflation regime and business cycle.

In a similar approach to Souleles (2004), Mitchell and Weale (2007) use the British Household Panel Survey (BHPS) to test the rationality of individual-level expectational data in Britain. They statistically identify the characteristics of individuals for whom the costs of forming rational expectations exceed the benefits. They find that the British are more optimistic about the future when they have recently seen their household income rise, and vice versa. Using a regime switching model, they find that 40% of individuals form expectations consistent with rationality, and that the propensity to form rational expectations increases with age rather than education. However, they do not investigate the alternative model used by the other 60% to form their expectations.

Another class of study has investigated empirically the increasing consensus that expectation formation is heterogeneous across agents. Three main possible reasons for this

heterogeneity have been proposed. First, reliance of agents on different models; second, the use of different information sets by agents; and third, agents have different capacities for processing information. Using US Michigan data, Branch (2004) finds evidence that agents rely on different models and use different information sets. He looks at rationally heterogeneous expectations, stemming from the notion of Adaptively Rational Equilibrium Dynamics (ARED) proposed by Brock and Hommes (1997). Under this framework, agents forecast inflation rates using a predictor function chosen from an increasingly sophisticated set of alternative predictors; the probability of any predictor being chosen depends on its relative net benefit. His results show that agents do dynamically select predictor functions. This suggests that rational expectations are not rejected because agents blindly follow an ad-hoc rule; rather because it is not worthwhile for them to invest the effort to use more complex predictor functions. Agents are rationally heterogeneous in the sense that each predictor choice is individually optimal.

Carroll (2003) focuses on the idea that agents use different data sets to form expectations. He proposes an epidemiology framework to study how households model inflation expectations. In the framework, household expectations are updated probabilistically towards the views of professional forecasters – i.e. people obtain macroeconomic news from the media, but that it takes time to dissipate. He finds differences between household expectations and the views of professional forecasters narrow when inflation is more significant, probably because of increased media coverage and household interest. His model is successful in capturing much of the variation in the Michigan survey measures of inflation expectations.

Models of learning allow us to abstract from the idea that agents have full information about the economy and the objectives of the central bank; instead individuals make statistical inferences about the unknown parameters governing the evolution of the economy. Pfajfar and

Santoro (2006) focus on learning and information stickiness as the roots of the heterogeneity in expectation formation between agents. Using data from the Michigan survey, they identify three regions of a distribution corresponding to different expectation formation processes, which display a heterogeneous response to the main macroeconomic indicators. On the left hand side of the distribution, a static or lightly autoregressive group, in the middle a nearly rational group, and on the right hand side a group of agents behaving according to adaptive learning and sticky information. The latter respond in too pessimistic a manner, overacting to macroeconomic fluctuations. Similar to Carroll (2003), they find that agents are more likely to update information sets regularly when inflation matters. Pfajfar and Santoro (2008) extend this approach to different demographic groups. They find that income, education and gender are important characteristics when forecasting inflation. Those with higher income, education and male agents tend to make smaller errors in their inflation forecasts.

Orphanides and Williams (2003) also look at the implications of learning. They find that the presence of learning increases the sensitivity of inflation expectations and the term structure of interest rates to economic shocks, in line with empirical evidence. They find that inflation expectations under learning are much less sensitive to inflation when the inflation target is assumed to be known by the public, indicating that the benefit of better anchored inflation expectations that is associated with successful communication of the central bank's inflation target can be significant. This is consistent with the experience of the UK following the adoption of inflation targeting.

4. Empirical evidence

We now turn to empirical evidence on the formation of inflation expectations among the UK population. Survey responses may be highly influenced by the structure and precise nature of

the questions asked. So we consider evidence from a range of surveys conducted in the UK where respondents provide quantitative, qualitative and point estimates for their inflation expectations. We find consistent characteristics such as age, education and relative income influence the formation of inflation expectations. Of course, inflation expectations should be highly influenced by monetary policy. We find that similar characteristics, as those that lead to lower inflation expectations, are also associated with confidence in the Bank of England to control inflation.

4.1. The Bank of England/NOP Inflation Attitudes Survey: Inflation Expectations

Since 1999 the Bank of England has conducted a regular survey of attitudes to inflation expectations. Each survey covers around 2000 individuals, with an additional 2000 taking part in an extended survey every February. The sample is designed and weighted to ensure that it is representative of the known population data on age, gender, social class and region. Aggregated data are available quarterly from November 1999[4]. We have obtained the micro data at the level of the individual from twenty seven of these quarterly surveys, beginning in February 2001 through to February 2009. These are not panels; the same people are not interviewed repeatedly, rather they are repeat cross-sections. We have pooled these surveys together. In total there are 64,334 responses. In each survey the following question is asked "*How much would you expect prices in the shops generally to change over the next 12 months?"* The full distribution of responses is presented in **Table 1**.

The median response has risen from a low of 1.7% in November 2001 to a high of 4.4% in August 2008, but has fallen back very sharply to 2.1% in the February 2009 survey. **Chart 5**

[4] Summaries of the aggregate responses in each survey are available on the Bank of England's website. On a yearly basis since 2001 the Bank of England has published an article in its Quarterly Bulletin discussing the results of the survey - the latest available is Benford and Driver (2008).

suggests that up to 2007 median inflation expectations had been largely backward-looking. Indeed, up to 2007 on average 49.9% of respondents indicated that their expectations for inflation were in the same range as their perceptions of current inflation. This may not be too surprising in a period when the Bank of England succeeded in maintaining inflation close to target. Given the costs of predicting inflation, imperfect information sets and capacity to form such projections a backward-looking rule of thumb may not have been irrational when consumer price inflation was relatively stable.

Since the beginning of 2007 median inflation expectations have diverged from perceptions (**Chart 5**) at the same time that consumer price inflation has become more volatile. Similarly, the distribution of survey responses has become more volatile since 2007 (**Charts 6** and **7**). We therefore consider which groups may be more or less backward-looking in forming their inflation expectations? This is clearly related to a second question in the Bank of England Inflation Attitudes survey which we also consider: *"Overall, how satisfied or dissatisfied are you with the way the Bank of England is doing its job to set interest rates in order to control inflation?"*

It is important to examine the distribution of non-responses because if it is non-random it may bias any results. **Table 2** illustrates the non-responses to the inflation expectations question. The equation estimated is a dprobit to calculate the probability that respondents will reply that they have 'no idea'.[5] If the respondent reported they had 'no idea' the dependent variable was set to one, zero otherwise. Worryingly the probability of a non-response is higher for females, the young, the less educated, those on lowest incomes, not in employment and those renting

[5] *Dprobit* in STATA fits maximum-likelihood probit models and is an alternative to probit. Rather than reporting the coefficients, dprobit reports the marginal effect, that is the change in the probability for an infinitesimal change in each independent, continuous variable and, by default, reports the discrete change in the probability for dummy variables.

accommodation[6]. The concern is that any results may be biased because of the relative exclusion of these groups. So we proceed with caution.

Table 3 moves on to model inflation expectations econometrically, using the micro data from the Inflation Attitudes survey from February 2001 through to February 2009[7]. The dependent variable is expected inflation twelve months ahead. All respondents reporting they had 'no idea' are dropped. Because there are open ends and intervals within the survey responses the procedure used here is interval regression. A positive coefficient means the individual expects higher prices and vice versa. The model is consistently estimated by a maximum likelihood procedure. We have micro data available on around 60,000 individuals from twenty seven sweeps of the survey extending from February 2001. There are approximately 2,500 left-censored observations, 10,000 right-censored observations and 47,000 interval observations.

In the first column of **Table 3** we simply include survey month dummies. A number of facts stand out: first, there is relatively little movement in the size of the coefficients on the month dummies up to the period 2007-2009. Second, there was a dramatic increase in the size of the coefficients as the impact of the oil shock hit from November 2007 to August 2008. Third, the rapid deterioration in the size of the coefficients in the last two surveys. February 2009 is insignificantly different from February 2001. Column 2 adds controls for age, gender, education, employment and housing status. It is striking that the time series patterns of the survey date dummies change little. Inflation expectations tend to rise with age up to 65. The least educated and those in rented accommodation also report higher expected inflation rates. There is no

[6] Unfortunately we do not have responses according to income for all of the surveys. In alternative specifications of the dprobit those on lower incomes have higher non-response rates. The tables for these exercises are available upon request.

[7] The February surveys are twice as large as the surveys in a particular year: the February surveys have approximately 4,000 respondents compared with approximately 2,000 in other months.

significant difference in the inflation expectations of workers and non-workers. Males tend to have higher inflation expectations, but we take this result with caution as it is not robust across different specifications of the equation, and subject to the caveat regarding the non-responses of females.

What can we say about the recent divergence in perceptions and expectations of inflation? Column 3 re-estimates the equation in column 2 but restricts itself to data taken from the most recent survey in February 2009.[8] The main difference between the coefficients on the control variables is the big increase in the absolute size of the coefficient for those individuals who have a mortgage who may have seen big declines in their mortgage interest payments following cuts in the Bank of England's policy rate.

The coefficients on education dummies are more negative in February 2009 than in the earlier period. This could suggest that those with higher education are less likely to base their inflation expectations on their perceptions of current inflation, especially at a time when inflation has fallen back sharply from a peak of 5.2% in late 2008. We discuss this in more detail below.

Column 4 tests for whether the differences observed between the coefficients in columns 2 and 3 are significant by including a set of interaction terms between the control variables and the February 2009 dummy. Experiments were done with interactions with other variables that were always insignificant and hence were omitted. The evidence is that mortgage holders, men and the more educated have significantly lower expectations in February 2009 than previously. Column 5 now adds the perceptions of inflation over the preceding twelve month period. Interestingly 49% of individuals gave exactly the same response to the question on perceptions as they did on their expectations on average over 2001-2009. This fell to 32% in February 2009.

[8] These data were unavailable to Blanchflower and Kelly (2008).

It is not surprising then that perceptions of past inflation are a major determinant of perceptions. However, even when controlling for inflation perceptions the impact of gender, age, education and employment and housing status identified in previous regressions are robust.

Furthermore, the interaction terms for the February 2009 survey remain significant. This suggests that these groups lowered their expectations more quickly than other groups, perhaps because their expectations are less backward-looking. We investigate this hypothesis further by conducting similar regressions, where we restrict the observations to each category of educational attainment. **Table 4** illustrates that perceptions of current inflation have less of an influence on inflation expectations than for those with higher education. The coefficients in column 1 for inflation perceptions are significantly smaller than those in column 3 when the same regression is conducted on those with the highest educational attainment. Of course, using inflation perceptions as a rule of thumb in forming inflation expectations may be more rational when inflation is close to target, and there is confidence in the monetary authority to maintain inflation close to that target. However, over the recent past inflation has been volatile. So when inflation exceeds the target such a rule of thumb may be less successful in accurately forming inflation expectations. Columns 4-6 illustrate that over the recent past inflation expectations have had a much smaller influence on the inflation expectations of the most educated. Indeed, for this group inflation perceptions are not significant, or have only a marginal significance. This could suggest that those with higher educational attainment are less likely to be backward-looking in the formation of their inflation expectations. **Chart 9** helps illustrate this behavior by plotting median inflation expectations by educational attainment. In the very latest survey, February 2009, median inflation expectations for those with the highest educational attainment were 1.3pp

lower than those with the lowest educational attainment. Over the period 2001-2009 this gap had averaged just 0.4pp.

4.2 The GfK/NOP Consumer Confidence Barometer

Micro data on inflation expectations in the UK are also available from a further data source. The GfK/NOP Consumer Confidence Barometer (CCB) survey collects nationally representative data for those aged 16+ from a random sample of telephone owning households. Sample sizes are approximately 2000 per month. These data are collected monthly across each member state of the European Union, and for the UK are available since 1985.[9] We have only obtained access to the micro-data since 1996.

The main aim of the GfK CCB survey is to monitor the general public's confidence in the British economy; measuring consumer confidence in the present economic climate in the UK, and consumer expectations for the year ahead. We have obtained access to the micro data from the CCB survey taken monthly from January 1996 through October 2008, making 154 monthly surveys in all and a total of 312,599 observations. In the CCB survey respondents are asked a slightly different, qualitative, question on price expectations to the one used in the Bank of England's Inflation Attitudes survey: *"Q6. In comparison with the past 12 months, how do you expect consumer prices will develop in the next 12 months? They will…increase more rapidly; increase at the same rate: increase at a slower rate; stay about the same; fall or don't know."*

The distribution of the responses is reported in **Table 5**. It is evident that non-responses are much lower than in the Bank of England Inflation Attitudes survey, on average 5% report

[9] GfK has been conducting a monthly consumer survey called the Consumer Confidence Barometer (CCB) in the UK since June 1995. GfK carries out this survey on behalf of the European Commission, who sponsors the same consumer survey in all EU and EU candidate countries, as part of the Joint Harmonised EU Programme of Business and Consumer programme (known as the BCS programme). The BCS program was first launched by the European Commission in 1961 (although the programme did not extend to the consumer sector until 1972).

that they don't know. This is consistent with the well known problem in social science research - non-responses tend to be higher when quantitative responses are asked for – more accuracy is obtained at the price of lower response rates. As in the Inflation Attitudes Survey the CCB survey indicates inflation expectations rose sharply through 2007 up to August 2008 but then fell sharply. Columns 1 and 2 of **Table 6** describe the estimates from an ordered logit where 1 is set to equal a fall while 5 means 'increase more rapidly', so a positive coefficient implies a higher increase and vice versa for a negative coefficient. An ordered logit fits the responses to an ordinal or qualitative variable. The actual values taken on by the dependent variable are irrelevant, except that larger values are assumed to correspond to 'higher' outcomes.[10] The 'no ideas' respondents are excluded. The controls available from the survey are region, age, gender and work status. We include eleven year dummies and month dummies for 2008. In column 2 we also include controls for the respondents views on what had happened to prices over the preceding twelve months, including the 'no ideas'.[11]

Males believe that prices will rise more slowly than females as do the more highly educated compared to the less highly educated. This contrasts with the evidence from the Bank of England Inflation Attitudes Survey where males expect higher rates of increase. Consistent with the findings from the Inflation Attitudes survey, expectations are higher among older age groups, females and the least educated. We also find that expectations are higher among non-workers and in London. As in the Inflation Attitudes Survey individuals' perceptions of inflation are a highly significant determinant of their expectations (column 2).

[10] Use of ordered logits is commonplace in the analysis of happiness data which is similarly ordered - see Blanchflower and Oswald (2004).

[11] We also experimented with replacing the year and month dummies with the monthly CPI. In this case there are 154 separate monthly observations, but when the standard errors were clustered this variable was always insignificant whether or not there were year or month dummies included. Hence the variable was dropped.

Since 2003 the CCB has asked two additional questions where respondents provide point estimates of inflation expectations and perceptions: *"Estimate by how much consumer prices will rise by over next 12 months. Estimate up to 1dp?"* and *"estimate of how much consumer prices have risen by over past 12 months. Estimate up to 1dp".* Interestingly, 44.7% of respondents reported zero as their answer to the inflation expectations question, while 5.7% reported estimates between 20% and 100%. For the second question on inflation perceptions 42.2% of respondents reported zero as their answer. The concern here is that people believed they were reporting on changes in inflation rather than in prices. Column 3 estimates an Ordinary Least Squares (OLS) regression with the dependent variable the exact inflation rate expected. Column 4 includes the perception of the rate over the last twelve months. Column 5 excludes anyone who reported a zero to either question. Hence sample size is approximately halved. This exercise provides further evidence that inflation expectations are backward-looking and that the least educated, non-workers and males tend to have lower inflation expectations.

4.3: The Bank of England Inflation Attitudes Survey: Satisfaction with the Monetary Authority

The success of an inflation targeting regime is grounded in the credibility of the central bank, and the ability of the central bank to educate those whose expectations in turn impact monetary policy. The Bank of England Inflation Attitudes survey includes a question intended to capture confidence amongst the general public in the monetary authority to control inflation: "*how satisfied are you with how the Bank of England is doing its job to set interest rates to control inflation?"* Responses ranged from very dissatisfied; dissatisfied; neither; satisfied and very satisfied plus 'no idea'. Of course, the risk of analyzing survey responses to this question is that they may be confused by other factors such as the impact of monetary policy on changes on

mortgage interest payments, or the broader macroeconomic factors such as the unemployment rate.

Table 7 reports the views of respondents in the Bank of England's *Inflation Attitudes Surveys* to this question. Overall, a far greater proportion of respondents have been consistently satisfied, or very satisfied with the job the Bank of England has been doing than those saying they were not satisfied. But since the end of 2006 the proportion of respondents reporting dissatisfaction with the Bank of England has been rising sharply. This period coincides both with rising inflation but also with the adverse impact on the broader economy from the credit crunch.

As with the inflation expectations question, it is important to consider the non-response rates in case they may be biased. On average, thirteen percent of respondents said they had 'no idea' how well the Bank was doing in controlling inflation. Interestingly, this total fell to a low of just 9% in the most recent February 2009 survey. A comparison with **Table 2** illustrates that similar groups did not respond to the satisfaction question, as in the inflation expectations question: females, the young, the least educated and those in rented accommodation. **Table 8** uses the micro data pooled across the eight years 2001-2009 to estimate an ordered logit and includes controls for age, gender, schooling, housing tenure; working or not working, year dummies and region of residence. A positive coefficient thus implies an individual is more satisfied and a negative one implies less satisfied. Individuals who reported they had 'no idea' are excluded and hence sample size is now just over fifty-six thousand in column 1.

Column 1 of **Table 8** suggests that satisfaction with the Bank of England is lower among women, those in rented accommodation, the least educated and the young. Satisfaction rises with age. These results are stable across the various specifications. Interestingly, satisfaction with how the Bank is doing its job rises linearly with age, being highest with those aged 65 and over.

Satisfaction is higher among home owners and lower among renters. The time dummies suggest growing dissatisfaction with the Bank's performance over time, particularly in 2009 in the aftermath of the credit crisis. With the exception of age, it appears that those groups who expect lower inflation, even after taking account of their inflation perceptions, such as home owners and the more educated are also those groups that are more likely to believe the Bank of England is able to control inflation.

How do we interpret the recent deterioration in satisfaction with the Bank of England? The interaction terms indicate that satisfaction has fallen across all age groups, education is not significant and that mortgage holders are less dissatisfied with the Bank. This could be because the recent responses reflect broader macroeconomic developments such as the credit crisis and falling mortgage interest payments rather than a lack of confidence in the Bank to meet the inflation target.

4.4 Accuracy in reporting current inflation and predicting inflation

In this section we examine the degree of individuals' knowledge of the 'official' inflation rate using retrospective data from the Eurobarometer Survey #67.2: European Union Enlargement, Personal Data Privacy, the National Economy, and Scientific Research, April-May 2007. This survey was conducted across all EU countries but we restrict ourselves to the approximately 1300 observations on UK residents. Given that inflation perceptions play a large role in the formation of inflation expectations, to the extent those perceptions capture the true inflation rate will be important. We then use data from the February 2005, 2006 and 2007 *Bank of England Inflation Attitude Surveys* to determine the accuracy of respondent's predictions of what will happen to prices over the following twelve months compared to the actual observed outcomes.

a) Inflation in 2006

In the *Eurobarometer* survey respondents were asked the following question - "What was the official inflation rate, the rate of which consumer prices increased or decreased, in 2006? I can tell you that the exact figure is between -1% and 20%?". It is possible to compare the responses to this question with the actual inflation rates, although it is uncertain precisely which rate is being referred to. In 2006 the CPI averaged 2.3% while the RPI averaged 3.2%. To allow some margin of error we assume a response was 'correct' and set to zero if the response was in the interval of 1.3% to 4.2%, zero otherwise. Individuals who did not know were also set to zero. According to this criterion 25.9% of respondents reported correctly. In column 1 of **Table 9** we report a dprobit modeling the probability of an individual reporting the correct answer. The probability of doing so is higher the higher the level of education, among men, and is higher among workers especially among employed professionals and managers. The probability rises in an inverted U-shape in age maximizing at age 59 and declining thereafter.

b) Inflation in 2006 compared with inflation in 2005.

Respondents were also asked a further question on inflation – "Do you think that the inflation rate in 2006 was higher, lower or equal to the one in 2005?" Given that both the CPI and the RPI were lower in 2005 (2.1% and 2.8% respectively), in column 2 of **Table 9** we model the probability of an individual reporting that inflation in 2006 was higher than it had been in 2005 using the Eurobarometer data once again. Analogously to the reports on the level of inflation, males, the more highly educated workers and especially managers were more likely to be 'correct'.

c) Predicting inflation twelve months ahead

In **Table 10** we examine the probability that an individual in the Bank of England survey 'correctly' forecasts what inflation will be twelve months ahead. We do this using the February surveys of 2005, 2006, 2007 and 2008 and then compare these responses with the percentage change in prices that occurred over the next twelve months. A 'correct' response is taken to be within a 1% interval of the CPI on the low side (CPI was 2.0% in February 2006, 2.8% in February 2007 and 2.5% in February 2008) and a 1% interval on the high side for the RPI (2.4%; 4.6% and 4.1% respectively). Columns 1 through 3 are for February 2005 through 2007 respectively while column 4 pools the three years and adds two year dummies. As was found above, the probability of being 'correct' is higher among males, home owners, workers, the more educated, richer individuals, those aged 55-64 and residents of the South East.

5. Conclusions

What are the conclusions from our findings? First, there is evidence that significant numbers of individuals do not know what the inflation rate is, how it has changed and are unable to predict how it might change in the future. This is consistent with recent evidence from the United States suggesting very low levels of financial literacy. Second, there are high non-response rates to those surveys on how satisfied respondents are with the Bank of England in its role in controlling inflation. Non-responses are especially high among the least educated, females, the poorest individuals and the young. So at least for some groups their inflation expectations, either implicit or explicit, are unlikely to be anchored to the inflation target in the sense that they might expect the central bank to manipulate monetary policy to keep inflation close to the target.

We find that age, gender, income, housing status and education are important characteristics in forming inflation expectations[12]. The more highly educated and those with higher incomes are more optimistic about the path of prices, believing they will rise at a slower pace than younger, less educated and less affluent individuals.

We find that *price* expectations are backward-looking. Perceptions of current inflation are highly significant determinant of inflation expectations. However, perceptions of inflation are a less important consideration for the more highly educated. Similarly, the most educated are more likely to be satisfied that the Bank of England in its role in controlling inflation. This could help explain both their lower inflation expectations and why perceptions of inflation are less important in determining their inflation expectations.

These results are similar to those of Pfajfar and Santoro (2008) with respect to demographic factors that influence inflation expectations as measured by the University of Michigan survey for the U.S who found that males, the more highly educated and those with higher incomes are more likely to accurately report the current level of, and predict inflation.

Furthermore, our results indicate that the formation of inflation expectations may vary over time. For example, inflation perceptions appear to have been relatively less important, particularly for some groups such as the most educated, during the recent period in which CPI inflation exceeded the target than over the entire sample period. This could be consistent with the evidence from Carroll (2003) that the inflation expectations depends upon whether inflation matters, which he proxies by coverage in the media.

The main explanations for heterogeneity in the formation of inflation expectations that have been proposed in the literature are that agents rely on different models, may have different

[12] Unfortunately we do not have responses according to income for all of the surveys. In alternative specifications of the interval regressions those on lower incomes tend to have higher inflation expectations, and those on higher incomes lower inflation expectations. The tables for these exercises are available upon request.

information sets, or have different capacities for processing information. The results presented in this paper provide some justification for this approach. First, perceptions of current inflation for the most highly educated are less important for in their forecasts for inflatio. Second, intuitively we would expect this group can employ more sophisticated models in forming their expectations, and may have a greater capacity to process information. Hence, this paper provides empirical support for models of heterogeneity in inflation expectations formation.

Table 1: Responses to Bank of England Inflation Attitudes Survey, 1999-2009.

Q. 2: How much would you expect prices in the shops generally to change over the next 12 months?

	Nov-99	Feb-00	May-00	Aug-00	Nov-00	Feb-01	May-01	Aug-01	Nov-01	Feb-02	May-02	Aug-02	Nov-02
Go down	10	7	4	6	4	5	5	4	5	3	2	4	4
Not change	14	8	9	9	9	11	11	9	13	9	9	9	10
Up by 1% or less	10	7	7	10	8	9	9	10	10	10	10	10	8
Up by 1% but < 2%	16	15	14	15	16	16	17	16	18	17	16	20	17
Up by 2% but < 3%	17	21	21	19	21	20	20	21	20	22	22	22	20
Up by 3% but < 4%	6	12	10	12	12	11	9	11	9	11	11	11	10
Up by 4% but < 5%	3	7	7	6	6	5	7	6	5	6	8	6	5
Up by 5% or more	8	10	11	9	11	10	9	9	7	9	9	9	10
No idea	16	13	16	13	12	13	13	13	13	12	13	10	16
Median	1.5	2.2	2.4	2.2	2.3	2.1	2.1	2.2	1.9	2.2	2.3	2.1	2.1

	Feb-03	May-03	Aug-03	Nov-03	Feb-04	May-04	Aug-04	Nov-04	Feb-05	May-05	Aug-05	Nov-05	Feb-06
Go down	3	3	4	2	2	2	2	2	3	3	5	4	2
Not change	7	10	11	5	7	6	8	8	8	9	8	9	7
Up by 1% or less	7	8	9	8	8	9	9	9	9	12	9	9	6
Up by 1% but < 2%	15	18	15	16	17	17	18	18	17	20	18	18	13
Up by 2% but < 3%	20	21	20	20	22	21	23	22	20	20	20	21	21
Up by 3% but < 4%	12	11	11	15	11	12	12	10	12	9	12	10	14
Up by 4% but < 5%	8	6	6	7	7	6	7	7	6	6	6	7	8
Up by 5% or more	13	8	9	11	11	12	8	11	8	7	8	10	16
No idea	15	15	14	17	14	14	12	14	16	13	15	12	13
Median	2.5	2.2	2.2	2.6	2.4	2.4	2.3	2.4	2.2	2	2.2	2.2	2.7

	May-06	Aug-06	Nov-06	Feb-07	May-07	Aug-07	Nov-07	Feb-08	May-08	Aug-08	Nov-08	Feb-09	May-09
Go down	2	2	2	2	2	1	2	2	1	3	17	14	10
Not change	7	6	6	6	6	5	3	4	3	3	9	13	15
Up by 1% or less	8	9	8	6	8	6	5	4	2	2	3	5	5
Up by 1% but < 2%	15	15	14	14	14	14	13	9	7	4	7	9	10
Up by 2% but < 3%	22	21	21	20	19	22	22	17	16	12	11	12	15
Up by 3% but < 4%	13	13	13	16	17	15	16	14	13	14	11	9	11
Up by 4% but < 5%	7	8	9	9	9	9	10	10	11	15	11	8	11
Up by 5% or more	14	14	16	14	13	14	19	21	37	36	21	16	13
No idea	13	12	11	12	12	13	11	20	11	11	10	14	9
Median	2.5	2.5	2.7	2.7	2.7	2.7	3	3.3	4.3	4.4	2.8	2.1	2.4

Source: Bank of England Inflation Attitudes Surveys.

Table 2. The probability of non-response (dprobits), Bank/NOP February 2001-May 2009

	Satisfaction with Bank of England	Price changes next 12 months
Male	-0.067 (28.904)	-0.040 (15.824)
May 2009	-0.041 (5.161)	-0.036 (4.588)
February 2009	-0.009 (1.289)	0.017 (2.095)
November 2008	0.015 (1.685)	-0.024 (2.858)
August 2008	0.017 (1.983)	-0.023 (2.855)
May 2008	0.023 (2.62)	-0.021 (2.47)
February 2008	0.05 (6.471)	0.066 (7.048)
November 2007	0.018 (2.047)	-0.018 (2.125)
August 2007	0.031 (3.368)	-0.005 (0.571)
May 2007	0.015 (1.699)	-0.001 (0.152)
February 2007	0.018 (2.444)	-0.007 (0.88)
November 2006	0.003 (0.382)	-0.012 (1.313)
August 2006	0.013 (1.453)	-0.009 (0.987)
May 2006	0.033 (3.58)	0.001 (0.08)
February 2006	0.012 (1.68)	0.002 (0.203)
November 2005	0.015 (1.648)	-0.007 (0.752)
August 2005	0.044 (4.784)	0.024 (2.379)
May 2005	0.021 (2.31)	0.009 (0.894)
February 2005	0.013 (1.693)	0.03 (3.461)
November 2004	0.061 (6.379)	0.007 (0.756)
August 2004	0.011 (1.29)	-0.011 (1.264)
May 2004	0.031 (3.311)	0.011 (1.139)
February 2004	0.005 (0.632)	0.001 (0.175)
November 2003	0.03 (3.253)	0.034 (3.211)
August 2003	0.05 (5.308)	0.002 (0.205)
May 2003	0.031 (3.318)	0.018 (1.77)
February 2003	-0.007 (0.988)	0.012 (1.477)
February 2002	-0.003 (0.48)	-0.01 (1.416)
Age 25-34	-0.039 (10.662)	-0.029 (6.676)
Age 35-44	-0.058 (16.244)	-0.045 (11.153)
Age 45-54	-0.066 (18.179)	-0.056 (14.194)
Age 55-64	-0.082 (22.328)	-0.056 (13.371)
Age >=65	-0.076 (19.135)	-0.02 (3.897)
Not Working	0.032 (11.315)	0.026 (8.225)
A-Level	-0.041 (13.897)	-0.029 (8.874)
Degree+	-0.058 (17.589)	-0.041 (11.882)
Mortgage	-0.015 (4.375)	-0.013 (3.509)
Council Rent	0.077 (18.433)	0.037 (8.181)
Private Rent	0.061 (14.528)	0.032 (6.89)
N	71068	71068
Pseudo R^2	.0778	.0334

Source: *Bank of England Inflation Attitudes Surveys*: Notes: excluded categories; 16-24; own home outright; February 2001. T-statistics.

Table 3: Interval regressions of Inflation Expectations from Bank of England Inflation Attitudes Survey, 2001-2009

	(1) 2001-2009	(2) 2001-2009	(3) 2009	(4) 2001-2009	(5) 2001-2009
Age 25-34		-0.125 (3.61)	-0.065 (0.42)	-0.124 (3.59)	-0.108 (3.86)
Age 35-44		0.029 (0.85)	-0.07 (0.46)	0.031 (0.9)	-0.06 (2.17)
Age 45-54		0.307 (8.69)	0.173 (1.11)	0.31 (8.79)	0.065 (2.26)
Age 55-64		0.353 (9.31)	0.286 (1.68)	0.357 (9.43)	0.09 (2.9)
Age >=65		0.266 (6.66)	0.255 (1.43)	0.272 (6.82)	0.038 (1.17)
Worker		0.011 (0.52)	0.03 (0.3)	0.012 (0.58)	-0.002 (0.12)
Male		0.08 (4.73)	-0.192 (2.37)	0.103 (5.81)	0.036 (2.48)
A-Level		-0.062 (2.76)	-0.229 (2.06)	-0.05 (2.16)	-0.022 (1.15)
Degree +		-0.272 (10.16)	-0.734 (5.65)	-0.236 (8.52)	-0.125 (5.54)
Mortgage holder		-0.107 (4.28)	-0.362 (2.99)	-0.084 (3.3)	-0.053 (2.53)
Council Rent		0.266 (9.12)	0.62 (4.19)	0.245 (8.18)	0.136 (5.57)
Private Rent		0.066 (2.27)	0.12 (0.9)	0.065 (2.24)	0.072 (3.05)
A-Level*2009				-0.13 (1.67)	-0.14 (2.22)
Degree +*2009				-0.391 (4.29)	-0.314 (4.25)
Mortgage holder*2009				-0.273 (4.11)	-0.329 (6.11)
Council renter*2009				0.309 (3.24)	0.281 (3.63)
Male*2009				-0.271 (4.49)	-0.04 (0.81)
May 2009	0.169 (2.83)	0.199 (3.32)		0.56 (6.1)	-0.471 (6.3)
February 2009	0.046 (0.9)	0.064 (1.25)		0.42 (4.9)	-0.62 (8.88)
November 2008	0.339 (5.6)	0.366 (5.98)		0.363 (5.95)	-0.965 (19.25)
August 2008	2.133 (34.73)	2.164 (34.94)		2.161 (34.92)	0.524 (10.25)
May 2008	2.11 (33.72)	2.144 (33.95)		2.141 (33.93)	0.787 (15.09)
February 2008	1.357 (26.32)	1.367 (26.19)		1.365 (26.18)	0.395 (9.21)
November 2007	1.125 (18.59)	1.161 (18.67)		1.159 (18.65)	0.505 (9.94)
August 2007	0.794 (13.11)	0.835 (13.46)		0.831 (13.4)	0.412 (8.14)
May 2007	0.632 (10.36)	0.648 (10.38)		0.645 (10.34)	0.109 (2.14)
February 2007	0.736 (14.7)	0.772 (15.03)		0.77 (15.01)	0.264 (6.31)
November 2006	0.829 (13.82)	0.872 (14.18)		0.87 (14.15)	0.39 (7.77)
August 2006	0.588 (9.82)	0.617 (10.06)		0.614 (10.02)	0.212 (4.24)
May 2006	0.594 (9.66)	0.625 (9.92)		0.622 (9.88)	0.253 (4.93)
February 2006	0.772 (15.33)	0.795 (15.41)		0.793 (15.39)	0.385 (9.15)
November 2005	0.157 (2.63)	0.182 (2.99)		0.179 (2.95)	0.139 (2.81)
August 2005	0.052 (0.85)	0.063 (1.01)		0.06 (0.97)	0.002 (0.04)
May 2005	-0.006 (0.09)	0.034 (0.54)		0.033 (0.52)	0.087 (1.71)
February 2005	0.16 (3.15)	0.152 (2.94)		0.151 (2.91)	0.121 (2.88)
November 2004	0.307 (5.04)	0.321 (5.16)		0.321 (5.15)	0.217 (4.29)
August 2004	0.268 (4.55)	0.285 (4.71)		0.283 (4.68)	0.187 (3.8)
May 2004	0.458 (7.43)	0.476 (7.49)		0.475 (7.48)	0.366 (7.08)
February 2004	0.412 (8.23)	0.437 (8.5)		0.435 (8.46)	0.299 (7.15)
November 2003	0.562 (8.99)	0.579 (9.05)		0.579 (9.06)	0.413 (7.94)
August 2003	0.124 (2.05)	0.137 (2.21)		0.136 (2.19)	0.114 (2.25)
May 2003	0.141 (2.28)	0.141 (2.22)		0.142 (2.24)	0.129 (2.51)
February 2003	0.568 (11.31)	0.599 (11.59)		0.598 (11.58)	0.469 (11.14)
February 2002	0.132 (2.65)	0.147 (2.88)		0.146 (2.86)	0.237 (5.7)
Gone down					-1.769 (38.63)
No change					-1.155 (30.83)
>0% & ≤1%					-1.083 (25.83)
>1% & ≤2%					-0.548 (15.08)
>2% & ≤3%					0.167 (4.88)
>3% & ≤4%					0.974 (27.53)
>4% & ≤5%					1.583 (41.96)
≥5%					2.311 (65.45)
Constant	2.183 (61.44)	2.069 (37.23)	2.037 (36.52)		2.109 (39.27)

lnsigma	0.7051 (210.30)	0.7016 (204.25)	1.0287 (78.91)	0.7007 (204.00)	0.4830 (140.64)
sigma	2.0241	2.0169	2.7974	2.0152	1..6209
LR chi^2	3883.88	4794.60	158.23	4891.97	29486.21
N	64,374	61,605	5,243	61,605	61,605

Notes: excluded categories; age <25; own outright: GCSE, Feb01 and 'no idea'. T-statistics in parentheses.
Source: *Bank of England Inflation Attitudes Survey*, February 2001-May 2009. Notes: excluded categories February 2001; private renter and ALS <16. Q2 "How much would you expect prices in the shops generally to change over the next 12 months?".

Table 4: Bank NOP Inflation Attitudes Survey: Inflation Expectations by Educational Attainment

	2001-2009			**2007-2009**		
	GCSE	A-Level	Degree+	GCSE	A-Level	Degree+
Age 25-34	-0.036 (0.36)	-0.101 (2.87)	-0.122 (2.24)	-0.178 (0.91)	-0.171 (2.24)	-0.079 (0.66)
Age 35-44	-0.118 (1.24)	-0.064 (1.9)	-0.02 (0.36)	-0.282 (1.54)	-0.061 (0.84)	0.042 (0.34)
Age 45-54	0.110 (1.28)	0.036 (0.98)	0.119 (2.02)	0.042 (0.24)	0.011 (0.14)	0.017 (0.13)
Age 55-64	0.112 (1.33)	0.078 (1.84)	0.127 (1.96)	0.131 (0.79)	0.093 (1.04)	0.19 (1.32)
Age >=65	0.062 (0.74)	0.001 (0.03)	0.178 (2.41)	0.182 (1.1)	-0.012 (0.12)	0.149 (0.91)
Worker	0.020 (0.53)	-0.032 (1.33)	0.07 (1.95)	0.017 (0.2)	-0.035 (0.68)	0.059 (0.77)
Male	0.003 (0.09)	0.043 (2.14)	0.057 (2.12)	-0.003 (0.05)	-0.024 (0.54)	0.036 (0.61)
Mortgage holder	-0.092 (2.22)	-0.099 (3.22)	-0.052 (1.32)	-0.043 (0.45)	-0.212 (3.15)	-0.077 (0.9)
Council Rent	0.148 (3.99)	0.161 (4.4)	0.085 (1.25)	0.394 (4.6)	0.281 (3.41)	0.289 (1.85)
Private Rent	0.131 (2.97)	0.068 (1.9)	0.022 (0.46)	0.235 (2.55)	0.133 (1.75)	0.131 (1.3)
Gone down	-1.86 (20.45)	-1.783 (27.61)	-1.642 (17.77)	-2.187 (9.16)	-1.986 (11.66)	-2.247 (9.59)
No change	-1.204 (16.08)	-1.112 (20.83)	-1.192 (16.23)	-1.28 (6.46)	-1.015 (7)	-1.343 (6.99)
>0% & ≤1%	-1.132 (13.09)	-1.054 (17.59)	-1.099 (13.85)	-1.149 (5.22)	-0.934 (5.98)	-1.231 (5.98)
>1% & ≤2%	-0.599 (8.15)	-0.526 (10.2)	-0.539 (7.61)	-0.648 (3.58)	-0.543 (4.24)	-0.712 (4.07)
>2% & ≤3%	0.093 (1.36)	0.2 (4.11)	0.166 (2.48)	-0.077 (0.47)	0.205 (1.73)	0.023 (0.15)
>3% & ≤4%	0.951 (13.55)	1.021 (20.26)	0.89 (12.71)	0.803 (4.9)	0.884 (7.5)	0.653 (4.02)
>4% & ≤5%	1.601 (21.8)	1.637 (30.36)	1.433 (18.86)	1.334 (8.1)	1.476 (12.19)	1.081 (6.47)
≥5%	2.582 (37.13)	2.359 (46.91)	1.833 (25.94)	2.303 (14.85)	2.107 (18.67)	1.588 (10.15)
May 2009	-0.715 (6.99)	-0.721 (10.33)	-0.723 (7.68)			
February 2009	-0.689 (8.12)	-0.886 (14.7)	-0.973 (11.6)			
November 2008	-0.768 (7.51)	-0.973 (13.7)	-1.042 (10.56)			
August 2008	0.471 (4.48)	0.431 (5.92)	0.868 (8.76)			
May 2008	0.653 (6.22)	0.827 (10.98)	0.89 (8.93)			
February 2008	0.355 (4.16)	0.39 (6.41)	0.486 (5.62)			
November 2007	0.508 (5.05)	0.498 (6.74)	0.542 (5.56)			
August 2007	0.369 (3.73)	0.463 (6.28)	0.406 (4.16)			
May 2007	-0.022 (0.22)	0.091 (1.24)	0.304 (3.1)			
February 2007	0.184 (2.33)	0.273 (4.44)	0.377 (4.55)			
November 2006	0.331 (3.35)	0.346 (4.82)	0.566 (5.65)			
August 2006	0.305 (3.1)	0.173 (2.4)	0.217 (2.24)			
May 2006	0.248 (2.47)	0.267 (3.59)	0.254 (2.53)			
February 2006	0.402 (4.98)	0.373 (6.13)	0.405 (4.82)			
November 2005	0.077 (0.8)	0.148 (2.07)	0.195 (2)			

August 2005	-0.123 (1.24)	0.067 (0.9)	0.021 (0.21)			
May 2005	-0.035 (0.36)	0.11 (1.5)	0.226 (2.12)			
February 2005	0.014 (0.17)	0.187 (3.05)	0.121 (1.43)			
November 2004	0.2 (2.12)	0.21 (2.83)	0.257 (2.53)			
August 2004	0.181 (1.96)	0.162 (2.24)	0.267 (2.75)			
May 2004	0.29 (3.01)	0.366 (4.85)	0.483 (4.62)			
February 2004	0.184 (2.3)	0.354 (5.84)	0.336 (4)			
November 2003	0.309 (3.09)	0.405 (5.46)	0.571 (5.3)			
August 2003	0.089 (0.89)	0.091 (1.27)	0.195 (1.89)			
May 2003	0.074 (0.77)	0.146 (1.97)	0.149 (1.36)			
February 2003	0.425 (5.33)	0.541 (8.89)	0.383 (4.49)			
February 2002	0.181 (2.33)	0.225 (3.74)	0.345 (4.05)			
Constant	2.131 (18.27)	2.09 (29.09)	1.921 (18.33)	2.338 (10.72)	2.341 (17.7)	2.238 (11.11)
lnsigma	0.5115 (75.66)	0.4996 (103.4)	0.4055 (57.93)	0.7596 (59.89)	0.7866 (91.12)	0.7006 (58.19)
sigma	1.6679	1.6481	1.5000	2.1375	2.1959	2.0150
LR chi^2	8525.36	14503.22	6263.50	1637.73	2673.04.94	1196.74
N	16,644	31,113	13,848	5514	11,465	5329

Notes: excluded categories; age <25; own outright,Feb01 and 'no idea'. T-statistics in parentheses.
Source: *Bank of England Inflation Attitudes Survey*, February 2001-February 2009. Notes: excluded categories February 2001; private renter; and ALS <16. Q2 "How much would you expect prices in the shops generally to change over the next 12 months?".

Table 5: GfK Consumer Confidence Barometer (CCB): Distribution of Responses to Q6:

In comparison with the past 12 months, how do you expect consumer prices will change? Will they:
(weighted % of respondents)

	1996	*1997*	*1998*	*1999*	*2000*	*2001*
Risen a lot	8	6	6	8	11	7
Risen moderately	25	21	18	22	27	21
Risen slightly	44	48	50	39	34	33
Stayed about the same	20	23	23	26	22	31
Fallen	2	1	1	4	4	6
Don't know	1	2	1	2	2	3

	2003	*2004*	*2005*	*2006*	*2007*	*2008**
Risen a lot	8	11	11	17	18	45
Risen moderately	21	24	23	23	24	24
Risen slightly	34	30	28	28	29	18
Stayed about the same	28	25	24	23	21	10
Fallen	7	9	12	7	4	3
Don't know	2	2	2	3	3	N/A

*Jan-Oct inclusive

Table 6. Ordered logits of GFK/CCB expectations 12 months ahead on prices.

	(1)	(2)	(3)	(4)	(5)
	1996-2008	**1996-2008**	**2003-2008**	**2003-2008**	**2003-2008**
30-49	-.1181 (13.09)	-.0424 (4.65)	-1.0768 (13.66)	-.7520 (11.89)	-.7572 (8.23)
50-64	.0566 (5.60)	.0982 (9.63)	-1.1190 (13.10)	-.6877 (10.04)	-.8151 (8.29)
65+	.0586 (5.17)	.0523 (4.57)	-1.7093 (18.00)	-1.0461 (13.73)	-1.0463 (9.30)
Male	-.193 (28.29)	-.1167 (16.93)	-1.2563 (22.14)	-.4064 (8.91)	-.9383 (14.05)
ALS = 16	-.0787 (8.00)	-.0505 (5.10)	-.4935 (5.47)	-.2147 (2.97)	-.6188 (5.61)
ALS >16	-.1103 (10.92)	-.0339 (3.32)	-1.3914 (15.47)	-.5310 (7.35)	-1.2355 (11.29)
North West	.0024 (0.14)	.0081 (0.45)	.1171 (0.79)	.0329 (0.28)	.1636 (0.94)
Yorks/Humber	.0361 (1.99)	.0317 (1.73)	-.0899 (0.58)	-.0997 (0.81)	.0638 (0.35)
East Midlands	.0211 (1.11)	.0124 (0.65)	.1494 (0.93)	.1098 (0.86)	.1053 (0.56)
West Midlands	.0824 (4.54)	.0391 (2.14)	.3962 (2.59)	.1493 (1.22)	.2239 (1.25)
East Anglia	.0419 (1.91)	.0236 (1.07)	-.1744 (0.95)	-.1588 (1.08)	.0848 (0.39)
South East	.0501 (3.06)	.0217 (1.32)	-.0870 (0.63)	.0227 (0.21)	.0538 (0.33)
London	.1199 (6.92)	.0758 (4.34)	.5193 (3.56)	.3250 (2.78)	.2875 (1.69)
South West	.0304 (1.66)	.0031 (0.17)	.0651 (0.42)	.0282 (0.23)	-.0477 (0.26)
Scotland	.0460 (2.54)	.0447 (2.44)	-.1922 (1.26)	-.0315 (0.26)	.0637 (0.35)
Wales	.0491 (2.39)	.0035 (0.17)	.3372 (1.96)	.0717 (0.52)	.2793 (1.37)
Northern Ireland	.2698 (11.24)	.1519 (6.27)	.6555 (3.25)	.3921 (2.42)	.2024 (0.87)
Self-employed	-.0424 (4.20)	.0029 (0.29)	-.8858 (10.53)	-.3720 (5.51)	-.5747 (5.92)
Self – farmer	-.0742 (1.54)	-.1165 (2.39)	.1085 (0.30)	.0751 (0.26)	-.2626 (0.66)
Clerical & sales	-.0768 (7.32)	-.0404 (3.82)	-.8907 (10.08)	-.3968 (5.60)	-.6242 (6.15)
Skilled manual	-.0576 (4.89)	-.0534 (4.49)	-.1664 (1.67)	-.1663 (2.08)	-.3640 (3.16)
Other manual	-.0237 (1.93)	-.0355 (2.87)	.3130 (2.95)	.1816 (2.13)	.2397 (1.90)
1997	.1611 (9.66)	.2152 (12.70)			
1998	.1289 (7.76)	.1954 (11.59)			
1999	-.1778 (10.62)	-.0880 (5.20)			
2000	.0294 (1.78)	.0449 (2.69)			
2001	-.0493 (2.97)	.1246 (7.41)			
2002	-.1571 (9.38)	.0766 (4.50)			
2003	-.2322 (13.82)	-.0910 (5.35)			
2004	-.3227 (19.14)	-.2175 (12.75)	1.7595 (18.54)	.6679 (8.76)	.1610 (1.29)
2005	-.5081 (30.04)	-.3659 (21.34)	1.6605 (17.51)	.5336 (7.01)	.1507 (1.19)
2006	-.2755 (16.30)	-.2686 (15.68)	3.4911 (36.81)	1.1885 (15.54)	.3938 (3.15)

2007	-.1542 (9.14)	-.2258 (13.21)	2.9997 (31.61)	1.3091 (17.15)	.4813 (3.88)
Jan 2008	.0205 (0.47)	-.1808 (4.12)	6.6793 (26.07)	3.4916 (16.76)	.6788 (2.66)
Feb 2008	.1275 (2.92)	-.1279 (2.91)	4.0147 (16.63)	1.5597 (8.05)	.6120 (2.39)
Mar 2008	.3182 (7.30)	-.0433 (0.99)	4.9212 (20.41)	1.7085 (8.82)	.2187 (0.88)
Apr 2008	.3856 (8.83)	.0043 (0.10)	5.5820 (23.14)	1.8208 (9.39)	.1971 (0.80)
May 2008	.3384 (7.74)	-.1608 (3.60)	5.9646 (24.73)	1.5036 (7.75)	.3629 (1.49)
Jun 2008	.5181 (11.58)	.0084 (0.19)	7.8047 (32.33)	2.3323 (11.99)	1.1115 (4.50)
Jul 2008	.5739 (13.10)	.0255 (0.57)	9.2402 (38.28)	3.1099 (15.97)	1.3845 (5.89)
Aug 2008	.1501 (3.45)	-.4212 (9.39)	8.4436 (34.98)	1.7658 (9.05)	.0360 (0.15)
Sep 2008	.2164 (5.07)	-.3685 (8.39)	8.5359 (35.41)	2.1520 (11.06)	.2008 (0.86)
Oct 2008	-.3275 (7.52)	-.8747 (19.44)	7.4822 (31.01)	.8293 (4.25)	-1.0948 (4.51)
Inflation perceptions rate				.5215 (277.86)	.6832 (289.59)
Stayed about the same*		.9947 (56.73)			
Risen slightly*		1.8603 (107.13)			
Risen moderately*		2.2753 (126.61)			
Risen a lot*		2.8600 (143.78)			
Don't know*		1.5692 (42.46)			
Cut1	3.5792	-1.9059	5.5527	2.3539	4.2969
Cut2	1.4291	.3942			
Cut3	-.4548	1.4738			
Cut4	1.3350	3.3978			
N	293,378	293,378	139,451	139,405	61,588
Pseudo R^2	.0072	.0509	.0491	.3880	.6073

Source: *GFK survey.* Notes: excluded categories 1996 (columns 1 & 2) and 2003 (columns 3 & 4); North; <30; ALS<16; prices fall. * refers to how prices changed over preceding 12 months. Columns 1 & 2 ordered logits and columns 3 & 4 OLS. Column 5 is where exact perceptions and expectations>0

Table 7: Distribution of Responses to Q. 14 "Overall, how satisfied or dissatisfied are you with the way the Bank of England is doing its job to set interest rates in order to control inflation?":

	Very Dissatisfied	Fairly Dissatisfied	Neither	Fairly Satisfied	Very Satisfied	No Idea
November 1999	4	7	26	41	7	16
February 2000	5	12	28	37	4	14
May 2000	4	9	27	38	5	17
August 2000	4	9	25	45	6	12
November 2000	3	8	26	48	7	9
February 2001	3	7	25	47	8	11
May 2001	2	6	23	49	9	12
August 2001	2	6	23	45	10	14
November 2001	2	6	19	51	11	11
February 2002	2	6	20	50	11	11
May 2002	2	6	23	49	10	11
August 2002	3	7	22	46	11	11
November 2002	3	7	23	42	11	14
February 2003	3	7	24	47	8	11
May 2003	2	7	22	46	9	14
August 2003	2	6	22	40	12	17
November 2003	2	6	22	45	10	15
February 2004	3	7	24	46	8	12
May 2004	2	9	23	43	9	14
August 2004	3	10	24	43	8	12
November 2004	3	7	21	44	8	17
February 2005	2	7	23	45	11	12
May 2005	2	6	21	46	13	12
August 2005	2	6	22	45	11	15
November 2005	2	5	21	49	11	12
February 2006	2	6	23	47	10	12
May 2006	3	7	23	44	10	13
August 2006	3	8	25	44	9	11
November 2006	3	8	25	45	9	11
February 2007	4	9	25	41	9	12
May 2007	4	10	26	43	7	11
August 2007	4	12	23	40	8	13
November 2007	5	12	23	41	7	12
February 2008	4	10	26	37	7	15
May 2008	6	14	26	36	6	13
August 2008	7	15	25	36	4	12
November 2008	8	15	23	37	5	12
February 2009	12	16	25	33	5	9
May 2009	11	16	24	37	7	6

Source: Bank of England Inflation Attitudes Survey.

Table 8. Ordered logits modeling satisfaction with the performance of the Bank of England, 2001-2009

	(1) 2001-2009	(2) 2001-2009	(3) 2009	(4) 2001-2009
Age 25-34		0.140 (4.59)	0.039 (-0.42)	0.160 (4.96)
Age 35-44		0.398 (13.15)	0.225 (-2.43)	0.421 (13.20)
Age 45-54		0.514 (16.23)	0.184 (-1.94)	0.553 (16.53)
Age 55-64		0.696 (20.42)	0.166 (-1.61)	0.756 (21.03)
Age >=65		0.870 (24.23)	0.362 (-3.34)	0.925 (24.42)
Worker		0.011 (0.592)	-0.005 (-0.08)	0.016 (0.78)
Male		0.541 (34.95)	0.386 (-7.78)	0.551 (33.96)
A-Level		0.190 (9.30)	0.200 (-2.94)	0.196 (9.2)
Degree+		0.516 (21.16)	0.503 (-6.28)	0.519 (20.37)
Mortgage holder		0.095 (4.19)	0.495 (-6.62)	0.052 (2.21)
Council Rent		-0.420 (16.06)	0.076 (-0.84)	-0.446 (16.38)
Private Rent		-0.261 (9.95)	0.175 (-2.17)	-0.311 (11.29)
Age 25-34*2009				-0.122 (1.19)
Age 35-44*2009				-0.156 (1.53)
Age 45-54*2009				-0.332 (3.19)
Age 55-64*2009				-0.562 (4.94)
Age >=65*2009				-0.492 (4.10)
Worker*2009				-0.027 (0.41)
A-Level*2009				0.038 (0.50)
Degree+*2009				0.068 (0.77)
Mortgage holder*2009				0.534 (6.54)
Council Rent*2009				0.353 (3.58)
Private Rent*2009				0.527 (5.91)
Male*2009				-0.102 (1.88)
May 2009	-0.713 (13.4)	-0.761 (14.05)		-0.824 (5.89)
February 2009	-0.952 (21.34)	-1.013 (22.17)		-1.067 (7.80)
November 2008	-0.674 (12.50)	-0.737 (13.40)		-0.736 (13.36)
August 2008	-0.711 (13.36)	-0.743 (13.74)		-0.739 (13.67)
May 2008	-0.592 (10.94)	-0.637 (11.55)		-0.634 (11.49)
February 2008	-0.332 (7.42)	-0.382 (8.37)		-0.381 (8.33)
November 2007	-0.266 (4.92)	-0.318 (5.66)		-0.316 (5.63)
August 2007	-0.277 (5.11)	-0.341 (6.09)		-0.339 (6.05)
May 2007	-0.211 (3.91)	-0.268 (4.81)		-0.268 (4.80)
February 2007	-0.141 (3.15)	-0.168 (3.64)		-0.168 (3.63)
November 2006	-0.045 (0.84)	-0.063 (1.15)		-0.060 (1.01)
August 2006	0.036 (0.66)	-0.030 (0.55)		-0.031 (0.55)
May 2006	0.067 (1.21)	0.033 (0.57)		0.034 (0.59)
February 2006	0.157 (3.51)	0.100 (2.18)		0.100 (2.16)
November 2005	0.309 (5.75)	0.266 (4.82)		0.267 (4.84)
August 2005	0.230 (4.18)	0.179 (3.17)		0.148 (3.19)
May 2005	0.333 (5.97)	0.277 (4.83)		0.051 (0.87)
February 2005	0.192 (4.25)	0.149 (3.22)		-0.087 (1.60)
November 2004	0.093 (1.68)	0.052 (0.92)		-0.026 (0.45)
August 2004	-0.042 (0.79)	-0.086 (1.58)		-0.004 (0.10)
May 2004	0.003 (0.06)	-0.026 (0.45)		0.146 (2.55)
February 2004	0.021 (0.47)	-0.005 (0.11)		0.182 (3.19)

November 2003	0.141 (2.54)	0.145 (2.54)		0.142 (2.47)
August 2003	0.173 (3.14)	0.18 (3.14)		0.064 (1.40)
May 2003	0.119 (2.15)	0.141 (2.45)		0.325 (7.07)
February 2003	0.041 (0.93)	0.061 (1.34)		-0.122 (1.19)
February 2002	0.297 (6.69)	0.321 (6.99)		-0.156 (1.53)
cut1	-3.176	-2.402	-1.1241	-2.389
cut2	-1.884	-1.100	-0.0466	-1.090
cut3	-0.449	0.368	1.0808	0.386
cut4	2.162	3.094	3.6107	3.118
Pseudo R^2	0.0128	0.0366	0.0137	0.0378
N	65,359	62,699	5498	62699

Notes: excluded categories; age <25; own outright: GCSE and Feb01. T-statistics in parentheses.
Source: *Bank of England Inflation Attitudes Surveys*, February 2001-May 2009.
Notes: excluded categories February 2001; private renter and ALS <16. T-statistics in parentheses.

Table 9. Probability of correctly reporting the level/changes in the official inflation rate, 2005/2006 (dprobits).

	Level	*Change 2006 over 2005*
Age	.0199 (4.82)	.0110 (2.47)
Age^2	-.00017 (4.27)	-.00013 (2.97)
Male	.2196 (8.29)	.1039 (3.45)
ALS 16-19	.1058 (3.17)	-.0548 (1.47)
ALS ≥20	.2124 (4.63)	.0856 (1.75)
Still studying	.2862 (2.54)	.0752 (0.82)
Home worker	.0862 (1.06)	.1371 (1.88)
Unemployed	.0466 (0.56)	.0078 (0.10)
Retired	.1928 (2.79)	.1155 (1.71)
Professional lawyer	.3318 (2.69)	.0465 (0.39)
Shop owner	.0651 (0.54)	-.1374 (1.07)
Business proprietor	.3755 (2.44)	.0992 (0.65)
Employed professional	.4668 (4.71)	.2491 (2.73)
General management	.5564 (3.76)	.2791 (2.00)
Middle management	.2411 (2.84)	.0814 (1.03)
Employed at desk	.2455 (2.83)	.2168 (2.80)
Employed traveling	.2950 (1.95)	-.0842 (0.54)
Employed in a service	.1352 (1.48)	.2394 (2.91)
Supervisor	.2871 (1.99)	.1286 (0.91)
Skilled manual	.0926 (1.18)	.1126 (1.47)
N	1303	1300
Pseudo R^2	.1633	.0612

Source: Eurobarometer #67.2: European Union Enlargement, Personal Data Privacy, the National Economy, and Scientific Research, April-May 2007. Notes: Excluded categories: unskilled manual: ALS <16. Inflation rates were as follows 2005 CPI 2.1% RPI 2.8% 2006 CPI 2.3% RPI 3.2%. We take a 'correct' answer in the interval of 1.3% to 4.2%. Non answers were taken as an incorrect answer. Column 1 relates to whether the respondent reported the 2006 rate correctly (±1%) while columns 2 relates to whether the respondent was able to report correctly that inflation was higher in 2006 than in 2005. T-statistics in parentheses.

Table 10. Probability of correctly reporting the inflation rate 12 months ahead, February, 2005-2008 (dprobits)

	CPI	***RPI***	***CPI & RPI***
25-34	.0254 (1.49)	-.0350 (2.17)	.0153 (0.95)
35-44	.0604 (3.61)	.0015 (0.09)	.0528 (3.36)
45-54	.0772 (4.43)	.0221 (1.31)	.0671 (4.12)
55-64	.1071 (5.82)	.0377 (2.10)	.0918 (5.38)
≥65	.0718 (3.77)	-.0032 (0.18)	.0516 (2.89)
Male	.0300 (3.63)	.0417 (5.26)	.0404 (5.02)
Not working	-.0275 (2.65)	-.0058 (0.59)	-.0318 (3.14)
Mortgage	.0088 (0.72)	.0032 (0.28)	.0196 (1.63)
Council renting	-.0501 (3.64)	.0038 (0.29)	-.0229 (1.70)
Private renters	-.0452 (3.30)	-.0157 (1.19)	-.0267 (1.99)
A-level	.0628 (5.86)	.0130 (1.27)	.0489 (4.72)
Degree+	.1158 (8.92)	.0065 (0.53)	.0842 (6.83)
Feb 2008 dummy	-.0786 (6.89)	-.3688 (37.68)	.0923 (8.70)
Feb 2007 dummy	-.0483 (4.18)	-.0829 (8.26)	.2225 (21.25)
Feb 2006 dummy	-.0242 (2.10)	-.0940 (9.41)	.2077 (19.82)
N	15,125	15,125	15,125
Pseudo R^2	.0145	.0969	.0415

Source: Bank of England Inflation Attitudes Surveys, February, 2005-8

Notes: excluded age <25; own outright: GCSE, Feb05. CPI in February 2006 2.0%; February 2007 2.8%, February 2008 2.5% and February 2009 3.2%. RPI in February 2006 2.4%; February 2007 4.6%, February 2008 4.1% and February 2009 0%. Responses are assumed 'correct' if they are with 1 percentage point of the outturn. Hence in the final column a correct answer is within 1 percentage point either side of the CPI and the RPI. Hence scored as correct in 2005 if inflation in range >=1% and <5%. Scored as correct in 2006 as 1% to between 3% and 4%. Scored as correct in 2007 if inflation in range 1% to over 5%. Scored as correct in February 2009 if inflation expectations in range >=-1% and <5%. T-statistics in parentheses.

Chart 1: Surveys of Household Inflation Expectations

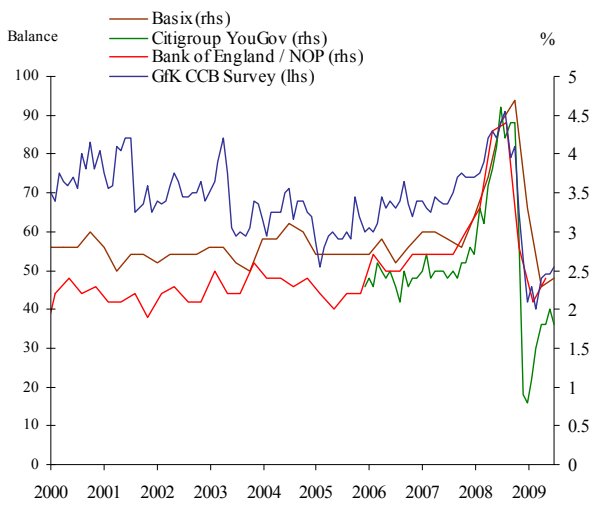


Chart 2: Bank/NOP Median Inflation Expectations and CPI Inflation

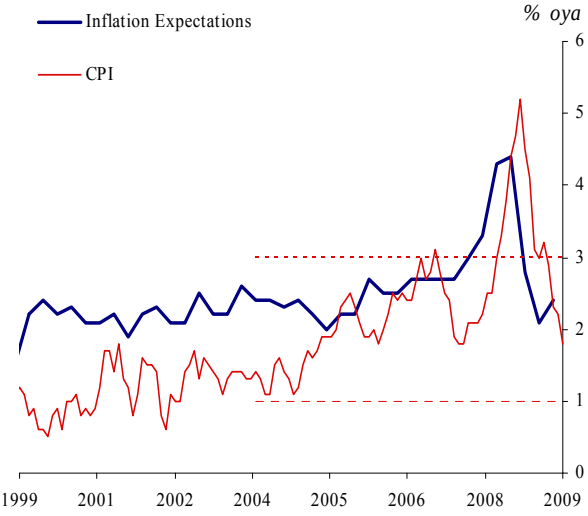


Chart 3: Bank/NOP Median Inflation Expectations and RPIX Inflation

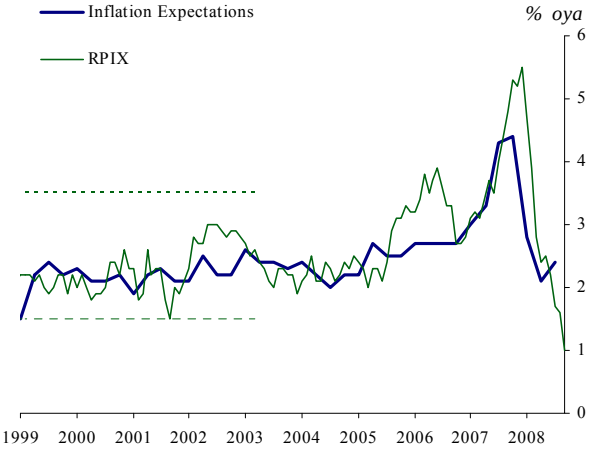


Chart 4: RPI, RPIX and CPI Inflatio

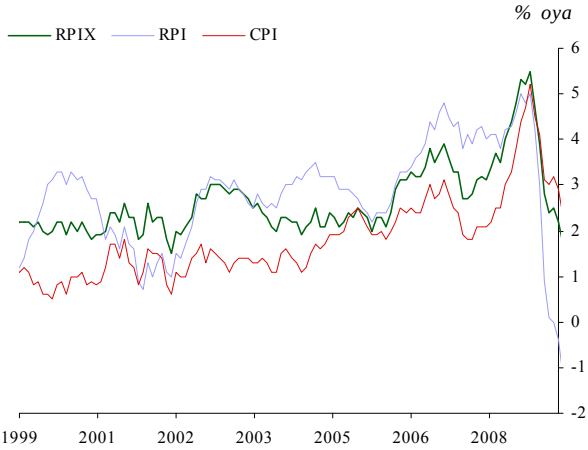


Chart 5: Bank/NOP Median Inflation Perceptions and Expectations

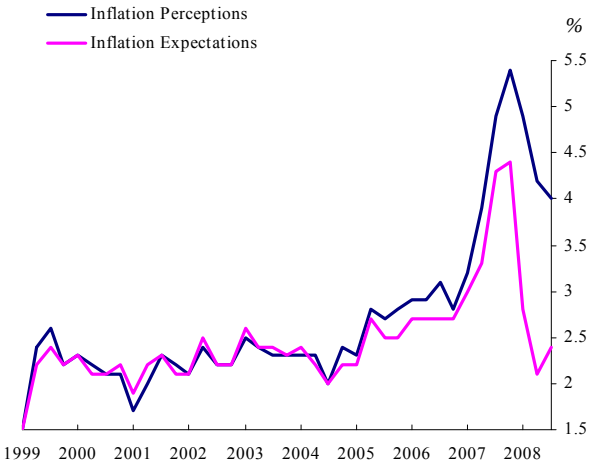


Chart 6: Swathe of Survey Reponses to Bank/NOP Survey 2001-2006

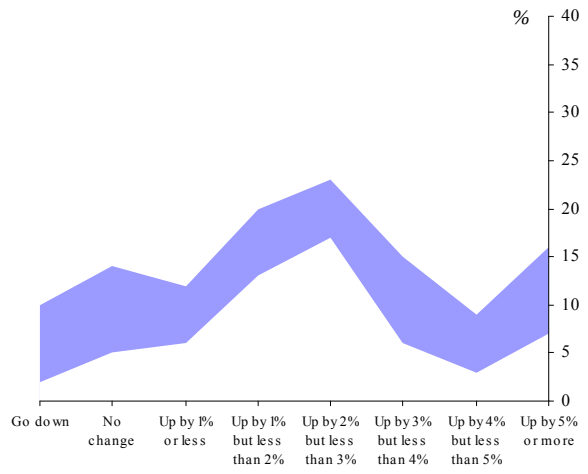


Chart 7: Swathe of Survey Reponses to Bank/NOP Survey 2007-2009

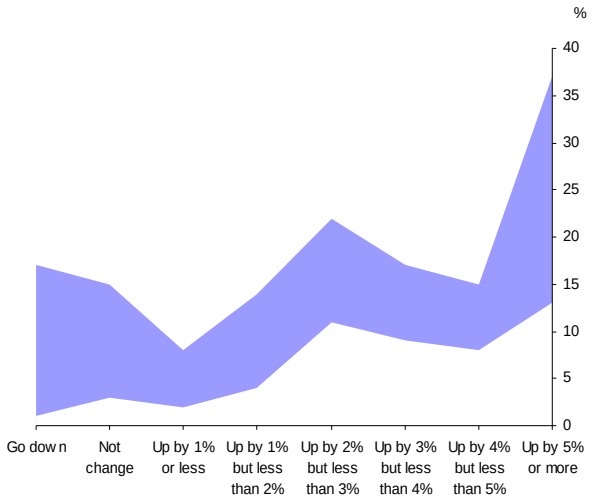


Chart 8: Average Earnings Growth, AEI Measure

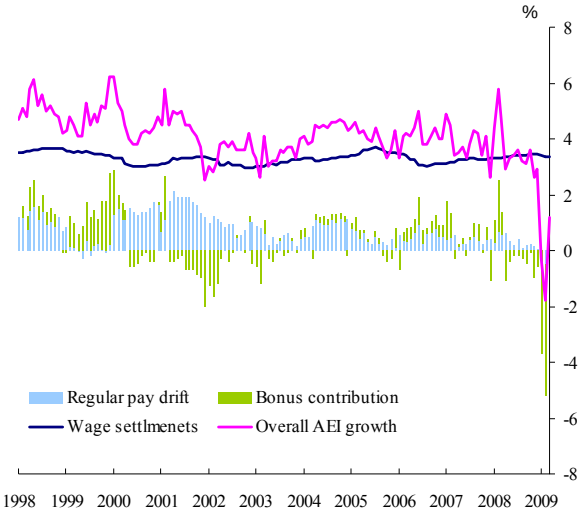
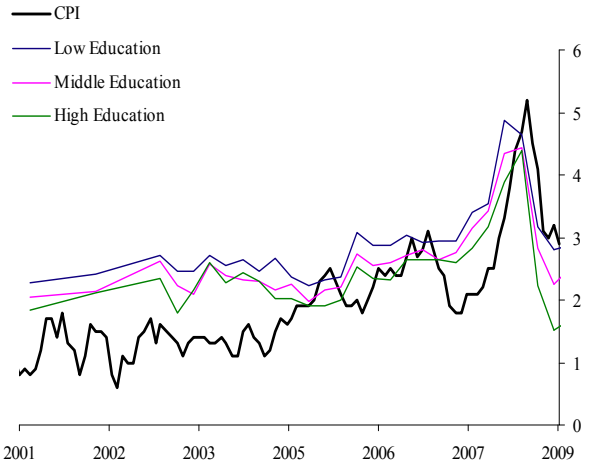


Chart 9: CPI Inflation and Median Inflation Expectations by Educational Attainment



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