

NOTE FOR RECORD

From

THE IMPACT OF HOUSEHOLDS' EXPECTATIONS ON SPENDING: EVIDENCE FROM THE NMG SURVEY

Main message: Using data from the latest NMG survey, we find evidence that households' income expectations are important in determining their spending decisions. Expectations for the wider economy are less important, but there is some tentative evidence that lower short-term inflation expectations are associated with lower spending.

Key points

- This note uses the 2015 H1 NMG survey to investigate how expectations for different variables such as income, inflation, interest rates and the wider economic outlook affect households' spending decisions.
- Household income expectations are an important determinant of spending patterns. Households with positive income expectations are more likely to have raised spending over the past year and are more likely to plan to increase spending over the next year.
- Expectations for the state of the macroeconomy have less impact on households' spending decisions than expectations for their own household income and finances.
- There is some tentative evidence that households with lower near-term inflation expectations have more pessimistic spending intentions, although there is less of a relationship with longer term expectations and more time series variation in inflation expectations is required to be able to draw stronger conclusions.

Introduction

1. Last month, the note ['Who is driving the consumption recovery?'](#) presented some initial findings from the Spring 2015 NMG survey (which is a survey of households commissioned by the Bank) from new questions asking households how they had changed their spending over the past year and how they intend to change spending over the next year. That work looked at how spending intentions varied between different age and housing tenure groups. The most recent survey also included a larger set of questions on expectations than previous surveys. This note extends our analysis of the new spending questions by examining whether households' expectations for income, inflation, interest rates and the macroeconomy are important determinants of their consumption decisions. The latest NMG survey was conducted between 21 April and 6 May and covered 6000 households.

Results from the 2015 H1 NMG survey

2. A small positive net balance of households expected to increase their spending over the next twelve months – similar to the proportion who reported that they increased spending last year (Chart 1). However, the proportion of households expected to reduce spending on major purchases (eg a car, furniture or electrical goods) was slightly larger than the proportion planning to increase it. Whilst these questions do not explicitly refer to nominal or real spending, they may be more likely to capture nominal spending intentions.

3. A positive net balance of households expected their income to increase over the next year, although a slightly smaller proportion expected their overall financial situation to improve (Chart 2).¹ Over the past year, more households thought that their financial situation has deteriorated rather than improved, despite the average income

¹ The net balances for income expectations and financial situation shown in Chart 2 are not strictly comparable because the income expectations question asks about whether income is expected to increase/stay the same/decrease whereas the financial situation question (and the other expectations questions) ask whether things are expected to get a lot better/little better/stay the same/get a little worse/a lot worse and we give half weight to the little change responses. Giving equal weight to the little and large change balances, the expected change in financial situation balance rises from 1 to 3.

of respondent rising by 1% over that period. Many of the expectations questions added to the NMG survey are the same ones used in the Gfk consumer confidence survey. The balances from the NMG survey do not exactly replicate those from the Gfk survey, in most cases the differences are relatively modest, but we need to build up some time series on the NMG questions to make a fuller comparison.

4. The median level of inflation perceived over the past 12 months and expected over the next 12 months in the NMG survey was 1-2%; this rose to 2-3% at the 5 year horizon (**Chart 3**). Perceptions and year ahead expectations were slightly lower than in the corresponding question in the Bank/NOP survey, where the median response to both questions was 2-3%, but the median response at the 5 year horizon was the same in both surveys. Using households' inflation expectations and nominal interest rate expectations, we can calculate their implied expectations for real interest rates (**Chart 4**). The modal expectation at each horizon was around 0%, but the proportion of households expecting higher real rates rises at longer horizons.

Chart 1: Household spending intentions

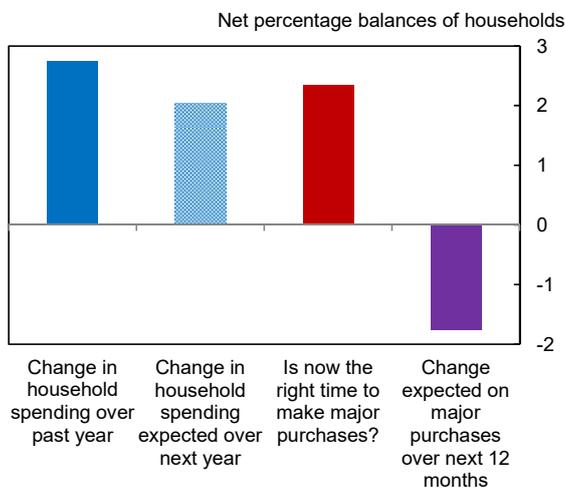


Chart 2: Household income and macroeconomic expectations

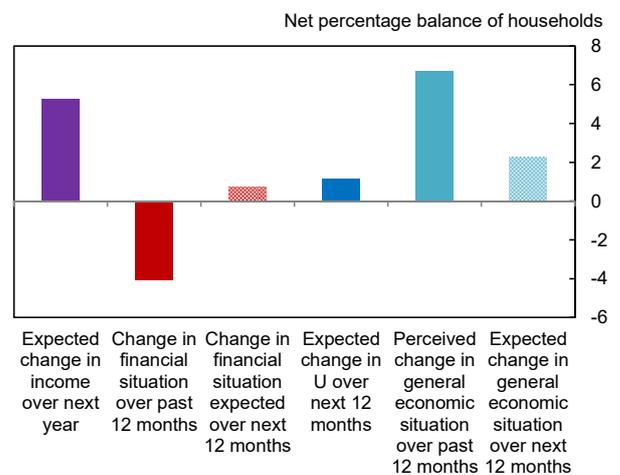


Chart 3: Distribution of household inflation expectations and perceptions

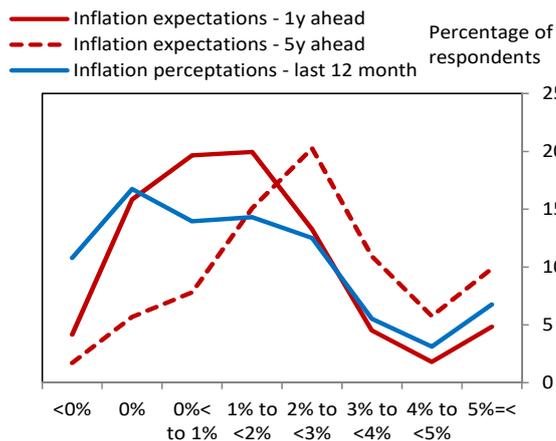
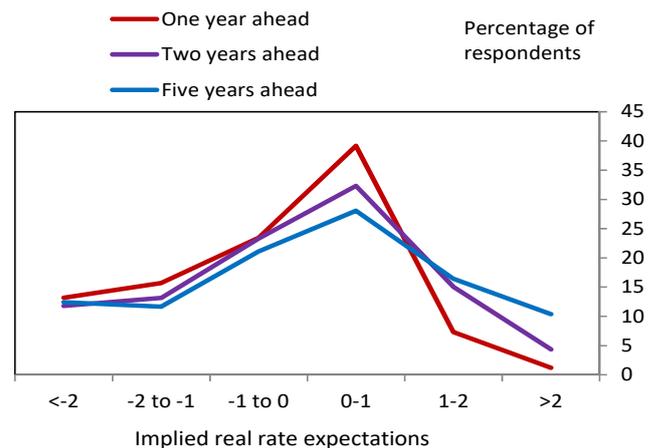


Chart 4: Distribution of household real interest rate expectations



How might households' expectations affect their consumption decisions?

5. Standard economic theory suggests that households' near-term **income or financial expectations** should be important determinants of their spending decisions. In the life-cycle model where households smooth spending over their life-cycle, households who expect future income to increase should be more likely to bring forward spending. That relates more to persistent increase in income, but households who expect their income to increase only

temporarily may also plan to increase spending, for example if they are credit constrained and are less able to smooth out their consumption than they would like.

6. Households' expectations for the **general economic situation** could also affect consumption. For example, households who expect higher unemployment may be more cautious about increasing spending, although in standard theory households should only care about wider developments to the extent they affect expectations for their own financial situation.

7. **Inflation expectations** may have a bearing on households' spending decisions. Generally, lower inflation expectations are thought to induce lower spending through the real interest rate channel. The conventional Euler equation relates consumption negatively to the real interest rate, since a higher real rate increases the real return to saving and the real cost of servicing nominal debt. And the Fisher equation states that the real rate is approximately equal to the nominal rate minus expected inflation: therefore lower inflation expectations increase the real interest rate and so reduce consumption.

8. The positive relationship between inflation expectations and consumption may not always hold, however. If households are credit constrained, the nominal interest rate – acting through the cash flow effect – may be more important. In addition, higher inflation can create uncertainty about the future which may cause consumers to revise down their real income expectations and so reduce current consumption (see [Springer \(1977\)](#)). Lower expected inflation may also have positive wealth effects: it will increase the value of cash and other liquid assets (relative to a higher-inflation environment) and raise wages in the presence of nominal wage rigidity. Falls in inflation which stem from energy or other import prices could also raise spending.²

Empirical evidence for the link between expectations and household spending

9. A number of recent studies have used microdata to estimate the link between expected inflation and household spending. Recently, [Bachmann, Berg and Sims \(2015\)](#) used the Michigan Survey of Consumers to find that an increase in expected inflation *reduces* households' probability of having a positive attitude towards spending when the zero lower bound is in operation but no significant effect on spending in "normal times". [Burke and Ozdagli \(2013\)](#) use the American Life Panel to investigate the same question, and find that consumers are more likely to buy a car as their short run inflation expectations rise, and in some specifications, non-durables spending increases. They suggest that the latter of these is small and driven by homeowners without a mortgage. [D'Acunto, Hoang and Weber \(2015\)](#) use the unexpected increase in VAT in Germany to estimate the impact of German households' inflation expectations on spending. They find that households that expect an increase in inflation are 8% more likely to have a positive spending attitude.

10. The studies mentioned above also control for the other types of household expectations. *Bachmann et al* find significant coefficients for households' expected financial situation and household income – ie a better financial situation is associated with greater readiness to spending on durables – and also for macroeconomic expectations. For example, higher expected unemployment is associated with lower readiness to spend. In contrast, *Buke and Ozdagli* struggle to find significant coefficients for many of these variables after controlling for current income.

Descriptive evidence from the NMG survey

11. We use the household microdata from the 2015 H1 NMG survey to investigate the link between household spending and expectations. Microdata has several advantages over aggregate data: it allows us to assess the link between expectations and spending of the same individuals, and it is less likely than aggregate data to suffer from simultaneity bias whereby inflation and aggregate spending are determined simultaneously. One disadvantage with

² At the moment for example, falls in energy prices (which reduce CPI inflation) are expected to boost household consumption.

the NMG data, however, is that only one cross section is available to date on the spending variables and many of the expectation variables. This means that we are unable to perform any time series analysis and means that we must rely on variation between households to identify links between household expectations and spending.

12. Evidence from the NMG survey suggests that households' expectations for the change in their income and financial situation over the next 12 months are important in explaining the change in their spending over both the past year and the next year (**Chart 5**). Households with positive income expectations for the next year are more likely to have increased spending over the past year (shown by the green bars in Chart 5), while those who expect income to fall next year are more likely to have already reduced spending (the blue bars in Chart 5). Developments in households' personal financial situation over the last year also, unsurprisingly, appear important in explaining whether households have changed spending over that period.

13. The households expecting income to increase over the past year are much more likely to plan to increase spending over the next year whilst those expecting a fall in income are more likely to plan to spend less (**Chart 6**). A similar correlation exists for personal financial situation expectations for the next year and spending intentions, albeit less pronounced. That relationship is weaker again for general macro expectations and there appears no relationship at all between spending intentions and unemployment/house prices expectations.

Chart 5: Spending over the past year and households' expectations

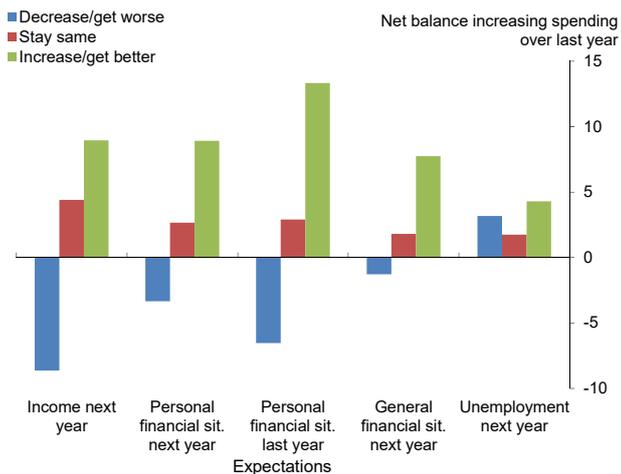


Chart 6: Spending intentions for the next year and households' expectations

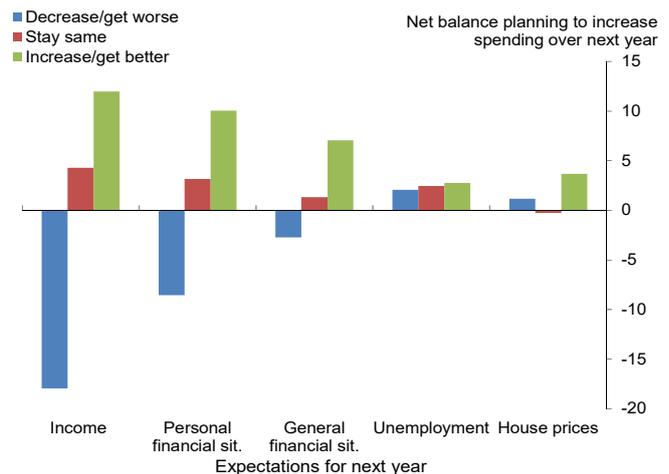


Chart 7: Spending intentions for major purchases over the next year and households' expectations

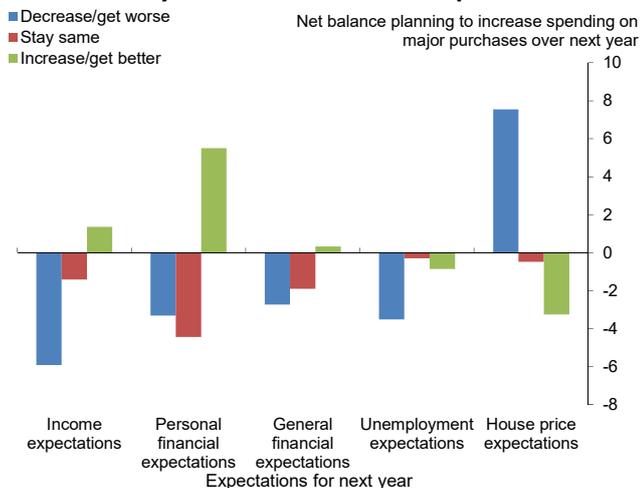
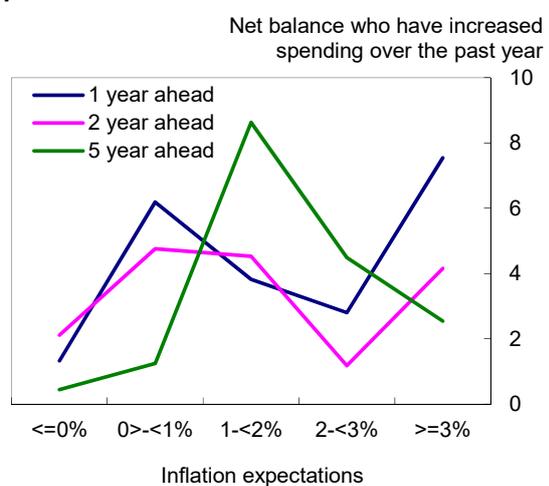


Chart 8: Spending over the past year and inflation expectations



14. **Chart 7** shows that the correlation between household expectations and the amount they plan to spend on major purchases (eg a car, furniture or electrical goods) over the next 12 months is less clear than for overall spending intentions. But spending on durable goods tends to be lumpy – for example, households who recently purchases durables may not do so again next year even if they have very positive financial expectations – and so it may be difficult to uncover a strong relationship without more years of data.

15. **Charts 8 and 9** suggests that there is some evidence of a positive correlation between one year ahead inflation expectations and changes in household spending both over the last year and with the expected change over the next year, but there is much less of a correlation with longer term inflation expectations. **Chart 10** similarly suggests there is some negative relationship between real interest rate expectations over the next year and household spending over the past year. A broadly similar pattern holds between real rate expectations and spending intentions over the next year, although the correlation is a little less clear.

Chart 9: Spending intentions for the next year and inflation expectations

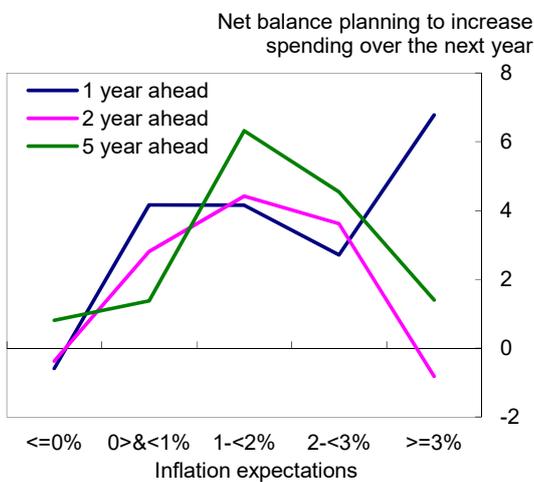
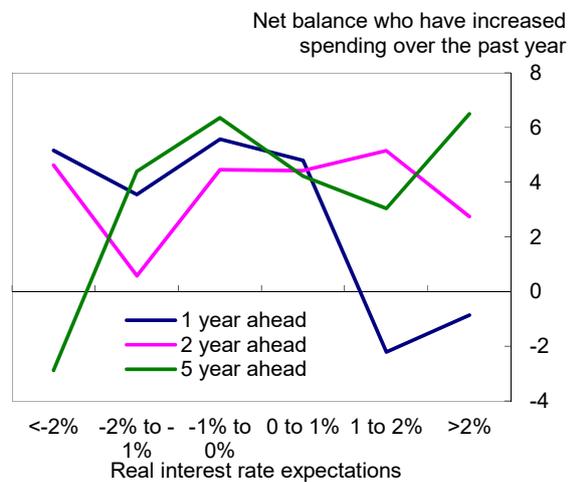


Chart 10: Spending over the past year and real interest rate expectations



Econometric analysis

16. In order to formally test the cross sectional relationship between household expectations and their spending intentions it is important to control for all the factors which may affect spending and the fact expectations for different variables may be correlated. We follow the methodology in [Bachmann, Berg and Sims](#) and estimate ordered probit regressions for the impact of household expectations on spending. We assume that the change in household spending over the past 12 months can be denoted:

$$C_i^* = \alpha_i + \beta_1 Y_i^e + \beta_2 PF_i^e + \beta_3 PF_i + \beta_4 \pi_i^e + \beta_5 i_i^e + X_i \gamma + \varepsilon_i$$

where C_i^* takes the value 2 if households increased their spending over the past year, 1 if spending didn't change, and 0 if spending fell. We also investigate the determinants of households' spending expectations for the year ahead and spending on major purchases in place of the change in spending over the past year. Our explanatory variables include: households' income expectations for the next 12 months (Y_i^e); households' expected and past personal financial situation (PF_i^e and PF_i); π_i^e denotes inflation expectations (at the 1 or 5 year horizon) and i_i^e denotes expectations for the nominal interest rate. X_i is a vector of other control variables, which includes households' expectations for the macroeconomy as well as other factors such as age and education.

17. **Table 1** shows the marginal effects obtained from the ordered probit regressions for households' spending expectations using 3 different spending definitions. The marginal effects on the probability of increasing and decreasing spending for a given explanatory variable are evaluated separately. The most important factor affecting

whether households had increased/decreased spending over the past year was developments in households own personal financial situation, although income expectations for the year ahead and expectations for the wider economy were also statistically significant, but with smaller marginal effects (columns 1 and 2).

18. The most important factor determining whether households plan to increase spending over the next year is whether they have increased spending over the past year: households who plan to raise spending this year are more likely to have also raised it last year and vice versa for expected falls in spending (columns 3 and 4 in Table 1). Among households' expectations, only income expectations for the year ahead have a statistically significant relationship with spending intentions, with a larger marginal effect than was the case for the probability of changing spending over the last year. That suggests that expectations about households' broader financial situation and about the general economic situation are probably largely captured within their income expectations, although the lack of other significant variables could also reflect the small sample size

19. One-year-ahead inflation expectations are positively associated with changes in household spending over both the past year (columns 1 and 2) and the next year (columns 3 and 4), and those coefficients are statistically significant. These findings are consistent with those of Bachmann *et al* and some of the other literature mentioned above. Our results are also consistent with those in the 2015 Q2 [Inflation expectations QB article](#), which presented some cross country evidence from aggregate data on the impact of inflation expectations and nominal interest rates on households' willingness to make major purchases.

20. However, there are a number of caveats to our result that lower inflation expectations are associated with lower spending intentions which may mean we do not want to draw too strong a signal from it. First, the coefficients are relatively small, a 1pp rise in inflation expectations increases the probability of raising spending over the next year (relative to no change) by 0.02pp, compared to 0.08% for expecting an increase in income rather than no change. Second, inflation expectations beyond one year are not significant, even if one year expectations are excluded from the regression. Third, there is no time series variation in inflation expectations, which would be needed to draw stronger conclusions, only cross sectional variation. Fourth, inflation expectation are not significant in regressions for expected changes in spending on major purchases over the next year (columns 5 and 6), despite the fact households could be expected to hold back more on this type of discretionary spending if they expect very low inflation (although it is also the case that responses to the durable spending question seem much hard to explain in general).

21. Nominal interest rate expectations are also estimated to have a significant effect on spending over the past year: higher nominal rates are associated with a reduction in spending (columns 1 and 2). The five year ahead expectations are generally insignificant, perhaps suggesting that households do not look that far ahead when making economic decisions. And nominal rate expectations did not significantly affect future spending intentions. When nominal interest rate and inflation expectations are replaced by implied real interest rate expectations, these also appear to affect household spending over the past year in the direction suggestion by the Fisher relationship (of higher real interest rates reducing spending) at the one year horizon although no coefficients are significant at the five year horizon and they are not significant when looking at spending over the next year.

Possible extensions

22. Due to the lack of time series data, we are unable to use variation in expectations over time to identify an impact on consumption intentions – we rely only on variation between individuals. This is a significant drawback, but it can be addressed in future work if we retain the questions in future surveys and start to build up that time series. Using the longitudinal element of the NMG should also allow assess how changes in expectations affect spending decisions and will allow us to better control for individual characteristics via the inclusion of fixed effects.

RECOMMENDED READING

Table 1: Impact of household expectations on household spending: marginal effects from ordered probit regressions^{(a)(b)(c)(d)}

	(1) Spending over past 12 months <i>Decrease</i>	(2) Spending over past 12 months <i>Increase</i>	(3) Spending over next 12 months <i>Decrease</i>	(4) Spending over next 12 months <i>Increase</i>	(5) Spending on durables over next 12 months <i>Decrease</i>	(6) Spending on durables over next 12 months <i>Increase</i>
Change in spending last year			-0.18***	0.28***	-0.02	0.02
Income expectations for next year	-0.02*	0.03*	-0.05***	0.08***	0.01	-0.02
Personal financial situation expectations for next year	0.01	-0.02	-0.01	0.02	-0.02	0.02
Personal financial situation change last year	-0.07***	0.09***	-0.00	0.00	-0.04***	0.04***
General financial situation expectations for next year	-0.02**	0.03**	0.00	-0.01	0.01	-0.01
General financial situation change last year	0.02*	-0.03*	0.00	-0.00	-0.01	0.01
Nominal interest rate expectations (1 year ahead)	0.03**	-0.04**	-0.00	0.00	0.00	-0.01
Nominal interest rate expectations (5 years ahead)	-0.01	0.01	-0.01	0.01	0.01	-0.01
Inflation expectations (1 year ahead)	-0.01*	0.01*	-0.01**	0.02**	-0.00	0.00
Inflation expectations (5 years ahead)	0.01	-0.01	0.00	-0.00	0.01	-0.01
Inflation perceptions last year	-0.01***	0.01***	0.00	-0.00	0.00	-0.00
Number of observations	2,127	2,127	2,123	2,123	2,046	2,046

*** p<0.01, ** p<0.05, * p<0.1

(a) Coefficients are the marginal effects from ordered probit regressions.

(b) The 'decrease' and 'increase' columns refer to the marginal effects evaluated for a decrease and increase in the dependent variable respectively.

(c) All expectations variables and the change in spending over the last year have 3 categories: down/no change/up. The marginal effects represent the impact on the probability of increasing/decreasing spending from moving between those categories. Movements from down to no change and no change to up have the same marginal effect by assumption (we have also estimated alternative specifications which relax this assumption, but the overall conclusions are little changed and so we report the simpler results)

(d) A variety of individual characteristics are also controlled for (eg age, education) but are not shown here.