Online Appendix "Ambiguity Aversion and Heterogeneity in Households' Beliefs"

Section A discusses computational details. Section B contains additional empirical results.

A Model solution

Section A.1 discusses how we solve for the equilibrium of the model at $t > t_0$. Section A.2 solves the equilibrium beliefs of households at t_0 under uncertainty. Section A.3 solves for the equilibrium at t_0 under Knightian uncertainty $\theta = K$. Section A.4 solves for the equilibrium at t_0 under measurable risk $\theta = R$.

A.1 Equilibrium at $t > t_0$

We now solve for the equilibrium of the economy at $t \geq t_0 + 1$. At $t \geq t_0 + 1$, there is perfect foresight, the economy aggregates into a representative household economy and we solve for the equilibrium of the economy by log-linearizing a system of four equations in the four endogenous variables $(w_t, r_{t+1}D_t, \Pi_t)$. The analogous of (12) for the representative household implies that

$$w_t = \frac{w_{t+1}}{(\beta r_{t+1})^{\frac{1}{\sigma}}} + \frac{r_{t+1}A_{t+1} - A_{t+2}}{(1-\tau_w)(\beta r_{t+1})^{\frac{1}{\sigma}}} - \frac{r_t A_t - A_{t+1}}{(1-\tau_w)} + \frac{\Gamma_{t+1}}{(1-\tau_w)(\beta r_{t+1})^{\frac{1}{\sigma}}} - \frac{\Gamma_t}{(1-\tau_w)}. \quad (31)$$

After using (6) to substitute Γ_t and Γ_{t+1} in (31) we obtain

$$w_t = \frac{w_{t+1} + D_{t+1}}{(\beta r_{t+1})^{\frac{1}{\sigma}}} - D_t \quad (32)$$

After using (16), (19), and (20) we obtain that

$$D_t = \left[1 - \frac{\overline{\kappa}_0}{2}(\Pi_t - 1)^2\right] e^{\alpha z_t} \left(\frac{1-\alpha}{\alpha} w_t\right)^{1-\alpha} - \frac{1}{\alpha} w_t - f, \quad (33)$$

Aggregate inflation Π_t evolves according to (17) which after using (20) yields

$$1-\overline{\kappa}_0\,\Pi_t\,(\Pi_t-1)+\overline{\kappa}_0\left[\Pi_{t+1}\,(\Pi_{t+1}-1)\frac{e^{\alpha(z_{t+1}-z_t)}\left(\frac{w_{t+1}}{w_t}\right)^{1-\alpha}}{r_{t+1}}\right]=\nu\left[1-\frac{w_t^{\alpha}e^{-\alpha z_t}}{\alpha^{\alpha}(1-\alpha)^{1-\alpha}}\right], \tag{34}$$

The interest rate rule in (4) together with (18) implies that

$$r_{t+1}=\frac{\bar{R}\Pi_t^{\phi}}{\Pi_{t+1}e^{\phi m_t}} \tag{35}$$

The equations (32)-(35) represent a system of four equations in the four endogenous variables w_t, r_t, D_t, and Π_t which we solve taking as given the law of motions for the exogenous shocks z_t and m_t in (11). The log-linearized system is solved for any initial values z_{t_0+1} and m_{t_0+1} of the shocks. After solving the system, Y_t is determined using (20), and R_t using (4). This yields the following expressions for inflation, nominal interest rates, real interest rates, and real wages for all $n=t-t_0\geq 1$:

$$\begin{aligned}
\Pi_{t_0+n} &= 1+\overline{\pi}_{mn}\,m_{t_0+1}+\overline{\pi}_{zn}\,z_{t_0+1}, && (36)\\
\ln R_{t_0+n} &= -\ln\beta+\overline{R}_{mn}\,m_{t_0+1}+\overline{R}_{zn}\,z_{t_0+1}, && (37)\\
r_{t_0+n} &= -\ln\beta+\overline{r}_{mn}\,m_{t_0+1}+\overline{r}_{zn}\,z_{t_0+1}, && (38)\\
\ln w_{t_0+n} &= \ln\overline{w}+\overline{w}_{mn}\,m_{t_0+1}+\overline{w}_{zn}\,z_{t_0+1}. && (39)
\end{aligned}$$

With our calibration we have standard predictions for the responses of the variables: $\overline{w}_{mn}>0$, $\overline{w}_{zn}>0$, $\overline{\pi}_{mn}>0$, $\overline{\pi}_{zn}<0$, $\overline{R}_{mn}<0$, $\overline{R}_{zn}<0$, $\overline{r}_{mn}<0$ and $\overline{r}_{zn}<0$ for all n. This means that both an increase in productivity $z_{t_0+1}>0$ and an inflationary monetary shock $m_{t_0+1}>0$ reduce the real interest rate and increase wages (albeit with different intensity) which increase labor income to all households actively participating in the labor market.

A.2 Equilibrium beliefs at t_0 under uncertainty

We now solve for the equilibrium beliefs of household i at $t=t_0$ under uncertainty $\theta=K$. In solving her problem at t_0, household i takes the equilibrium outcomes at t_0+1 as given. The economy is initially in steady state at t_0. Then the uncertainty shock about the possible realizations of z_{t_0+1} and m_{t_0+1} materializes. We index the realizations at t_0+1 by $u\in\mathcal{U}_0\equiv\{m_l,m_h\}\times\{z_l,z_h\}$: a two-dimensional vector containing the possible realizations of of z_{t_0+1} and m_{t_0+1}. Conditional on the realization of the shocks $u\in\mathcal{U}$ at t_0+1, and after using (12) and the household budget constraint, we obtain that the consumption of

household i at t_0 is equal to

$$c^u_{it_0} = \mu^u_{t_0}\left(\tilde{y}^u_{it_0} + r^u_{t_0} a_{it_0}\right) \tag{40}$$

where $\mu^u_{t_0}$, is the marginal propensity to consume out of the presented discounted value of household i income at t_0, which is defined $\forall t \geq t_0$ as equal to

$$\mu^u_t = \frac{1}{\sum_{n=0}^{\infty}\left(q^u_{tt+n}\right)^{1-\frac{1}{\sigma}}\beta^{\frac{n}{\sigma}}} \tag{41}$$

where $q_{tt} = 1$ and $q^u_{tt+n} = \left(\prod_{i=1}^{n} r^u_{t+i}\right)^{-1}$ $\forall n > 1$ is the household discount factor under beliefs u and $\tilde{y}^u_{it_0}$ is the present value of household i income from wages and transfers under beliefs u

$$\tilde{y}^u_{it_0} \equiv \sum_{n=0}^{\infty} q^u_{t_0 t_0+n} y^u_{it_0+n} \tag{42}$$

where

$$y^u_{it} = (1-\tau_w)\, w^u_t s_i + \tau^u_{it} \tag{43}$$

denotes household i income due to labor and transfers at $t \geq t_0$ under beliefs u. The values of w^u_t, τ^u_{it} and r^u_t are obtained from the previously discussed solution of the model at $t \geq t_0 + 1$, and are independent of the distribution of household beliefs at t_0 since at $t \geq t_0 + 1$ the economy aggregates into a representative household economy. At $t = t_0$ the distribution of wealth matters and w_{t_0} is determined endogenously. Using (12) at t_0 conditional on agent i having degenerate beliefs u, we obtain that

$$c^u_{it_0+1} = \left(\beta r^u_{t_0+1}\right)^{\frac{1}{\sigma}} c^u_{it_0} \tag{44}$$

and more generally for $\forall n \geq 1$ we have that

$$c^u_{it_0+n} = \beta^{\frac{n}{\sigma}}\left(q^u_{t_0 t_0+n}\right)^{-\frac{1}{\sigma}} c^u_{it_0}. \tag{45}$$

Using (40) and (45) we obtain that household i expected utility at t_0 conditional on having (degenerate) beliefs u is equal to

$$V^u_{it_0} = \sum_{n=0}^{\infty}\beta^n\left[\frac{(c^u_{it_0+n})^{1-\sigma}-1}{1-\sigma} - \zeta^u_{it_0+n}\right] = \frac{\left(\mu^u_{t_0}\right)^{-\sigma}\left(\tilde{y}^u_{it_0} + \frac{a_{it_0}}{\beta}\right)^{1-\sigma} - 1}{1-\sigma} - \sum_{n=1}^{\infty}\beta^n\zeta^u_{it_0+n} \tag{46}$$

where we used the fact that by assumption $r_{t_0} = 1/\beta$ and $\zeta_{it_0} = 0$. Given $V^u_{it_0}$, $\forall u \in \mathcal{U}$, for each household $i \in [0,1]$, we calculate the (worst case) beliefs of household i as equal to

$$u^*_i = \arg\min_{u \in \mathcal{U}} V^u_{it_0}. \tag{47}$$

To solve for the equilibrium beliefs u^*_i, we calculate the total differential of $V^u_{it_0}$ in (46) around its steady state value V_i which yields

$$dV^u_{it_0} = -V_i \frac{\sigma}{1-\beta} d\mu^u_{t_0} + \frac{V_i (1-\sigma)}{\tilde{y}_i + \frac{a_{it_0}}{\beta}} d\tilde{y}^u_{it_0} - \sum_{n=1}^{\infty} \beta^n d\zeta^u_{it_0+n} \tag{48}$$

where V_i, and $\tilde{y}_i$ are the corresponding steady state values for household i. For $\sigma > 1$ (which implies $V^u_i < 0$), $dV^u_{it_0}$ in (48) can be written as

$$\frac{dV^u_{it_0}}{|V_i|} = \frac{\sigma}{1-\beta} d\mu^u_{t_0} + \frac{\sigma - 1}{\tilde{y}_i + \frac{a_{it_0}}{\beta}} d\tilde{y}^u_{it_0} - \sum_{n=1}^{\infty} \beta^n d\zeta^u_{it_0+n}. \tag{49}$$

Using (42), we obtain that the total differential of $\tilde{y}^u_{it_0}$ around its steady state value is

$$d\tilde{y}^u_{it_0} = \sum_{n=0}^{\infty} \beta^n dy^u_{it_0+n} - \tilde{y}_i \beta^2 \sum_{n=0}^{\infty} \beta^n dr^u_{t_0+1+n}. \tag{50}$$

Using (41), we obtain that the total differential of μ^u_t around its steady state value is

$$d\mu^u_{t_0} = \beta^2 (1-\beta) \left(1 - \frac{1}{\sigma}\right) \sum_{n=0}^{\infty} \beta^n dr^u_{t_0+1+n}. \tag{51}$$

By substituting (50) and (51) into (49), and after taking a first order Taylor expansion of $V^u_{it_0}$ in (46) we obtain that up to a first order

$$V^u_{it_0} = V_i + \widetilde{V}_i \left[\sum_{n=0}^{\infty} \beta^n \left(y^u_{it_0+n} - y_i \right) + a_{it_0} \sum_{n=0}^{\infty} \beta^n \left(\beta r^u_{t_0+1+n} - 1 \right) \right] - \sum_{n=1}^{\infty} \beta^n \zeta^u_{it_0+n} \tag{52}$$

where

$$\widetilde{V}_i = |V_i| \times \frac{\sigma - 1}{\tilde{y}_i + \frac{a_{it_0}}{\beta}} \tag{53}$$

is a positive constant under $\sigma > 1$. After using (43) to replace $y^u_{it_0+n} - y_i$ in (52) we obtain that

$$V^u_{it_0} = V_i + \widetilde{V}_i \sum_{n=0}^{\infty} \beta^n \left[(1-\tau_w) s_i \left(w^u_{it_0+n} - w \right) + \lambda^u_{it_0+n} + a_{it_0} \left(\beta r^u_{t_0+1+n} - 1 \right) \right] \tag{54}$$

where

$$\lambda^u_{it} = \overline{\tau}_i \left(\Gamma^u_t - \Gamma \right) - \frac{\zeta^u_{it}}{\widetilde{V}_i}$$

denotes transfers to household i net of adjustment costs. The expression in (54) corresponds to (23) in the main text. We now use (54) to compare household i welfare for two alternative scenarios denoted by h and l, respectively. Since at $t = t_0$, labor income and transfers do not vary across the two scenarios (they are the equilibrium outcome at t_0), the difference in household-i welfare between scenario h and scenario l can be written as equal to

$$\frac{V^h_{it_0} - V^l_{it_0}}{\widetilde{V}_i} = (1-\tau_w) s_i \sum_{n=1}^{\infty} \beta^n (w^h_{it_0+n} - w^l_{it_0+n}) + \sum_{n=1}^{\infty} \beta^n (\lambda^h_{it_0+n} - \lambda^l_{it_0+n}) + a_{it_0} \sum_{n=1}^{\infty} \beta^n (r^h_{t_0+n} - r^l_{t_0+n}), \tag{55}$$

which we use to compare household i welfare for alternative realization of shocks when solving (47).

A.3 Equilibrium output at t_0 under uncertainty

The beliefs of all households $i \in [0,1]$ are determined using (47) and (55). We partition households according to whether their equilibrium beliefs are u_1, u_2, u_3 or $u_4 \in \mathcal{U}$. We denote by $\Upsilon^u \subset [0,1]$ the set of households with equilibrium belief $u \in \mathcal{U}$. Given the equilibrium beliefs of household i, equal to u^*_i, consumption at t_0 is given by (40). The equilibrium marginal propensity to consume of household i at t_0 under uncertainty $\theta = K$ is equal to $\mu^u_{t_0}$ in (41) evaluated at the household i equilibrium beliefs u^*_i. We denote this equilibrium marginal propensity to consume by

$$\mu^K_{it_0} \equiv \mu^{u^*_i}_{t_0} \in (0,1). \tag{56}$$

At t_0, the marginal propensity to consume of households differs across households because households have different beliefs. At t_0 firms have already set their price, so $\Pi_{t_0} = 1$, implying $r_{t_0} = 1/\beta$ and $R_{t_0} = 1/\beta$. Given the definition of aggregate consumption in (7)

and (40) we obtain that

$$C_{t_0} = \sum_{u \in \mathcal{U}} \int_{\Upsilon^u} \mu^K_{it_0} \left(\tilde{y}^u_{it_0} + \frac{a_{it_0}}{\beta} \right) di \tag{57}$$

which after using (42) and (43) can be written as

$$C_{t_0} = \sum_{u \in \mathcal{U}} \int_{\Upsilon^u} \mu^K_{it_0} \left[(1 - \tau_w) \, w_{t_0} s_i + \bar{\tau}_i \Gamma \left(w_{t_0} \right) + \frac{a_{it_0}}{\beta} + \sum_{n=1}^{\infty} q^u_{t_0 t_0+n} y^u_{it_0+n} \right] di \tag{58}$$

where the function $\Gamma \left(w_{t_0} \right) = \Gamma_{t_0}$ is obtained by combining (6), (16), (19), and (20) to yield

$$\Gamma \left(w_{t_0} \right) \equiv \left(\frac{1-\alpha}{\alpha} w_{t_0} \right)^{1-\alpha} - \left[(1 - \tau_w) + \frac{1-\alpha}{\alpha} \right] w_{t_0} - f - \left(\frac{1}{\beta} - 1 \right) A. \tag{59}$$

Around the steady state, (58) defines consumption as an increasing function of the wage at t_0, w_{t_0}. Moreover combining (8), (16) and (20) evaluated at t_0 we obtain that consumption at t_0 should also satisfy the relation

$$C_{t_0} = \left(\frac{1-\alpha}{\alpha} w_{t_0} \right)^{1-\alpha} - \frac{1-\alpha}{\alpha} w_{t_0} - f \tag{60}$$

whose right hand side is again an increasing function of w_{t_0} but with a greater slope than the one in the relation implied by (58), which follows from the fact that the marginal propensity of consumption out of permanent income in (56) is strictly between zero and one. We use the system (58) and (60) to solve for aggregate consumption C_{t_0} and wages w_{t_0} at t_0 under uncertainty $\theta = K$. We denote the equilibrium value of aggregate consumption and wages under uncertainty at t_0 by $C^K_{t_0}$ and $w^K_{t_0}$, respectively.

A.4 Equilibrium at t_0 under risk

We now solve for the equilibrium of the economy at $t = t_0$ under measurable risk $\theta = R$. All households attribute the same probability to each possible realization of $u \in \mathcal{U}$ at t_0+1. Equilibrium consumption of household i at t_0 satisfies a conventional Euler equation

$$c_{it_0} = \left[\frac{1}{4} \sum_{u \in \mathcal{U}} \beta r^u_{t_0+1} \left(c^u_{it_0+1} \right)^{-\sigma} \right]^{-\frac{1}{\sigma}} \tag{61}$$

where, from combining (40) with (13), we obtain that $\forall u \in \mathcal{U}$

$$c^u_{it_0+1} = \mu^u_{t_0+1}\left\{\tilde{y}^u_{it_0+1} + r^u_{t_0+1}\left[\frac{a_{it_0}}{\beta} + (1-\tau_w)w_{t_0}s_i + \bar{\tau}_i\Gamma\left(w_{t_0}\right) - c_{it_0}\right]\right\} \tag{62}$$

where the function $\Gamma\left(w_{t_0}\right) = \Gamma_{t_0}$ is the same as in (59) and $\mu^u_{t_0}$ is given in (41). By combining (61) with (62) we can solve for c_{it_0} $\forall i \in [0,1]$ for a given value of w_{t_0}.[19] Denote this value by $\widetilde{c}_i(w_{t_0})$. Aggregate consumption at t_0 under risk is equal to

$$C_{t_0} = \int_0^1 \widetilde{c}_i(w_{t_0})di \tag{63}$$

We use the system (60) and (63) to solve for aggregate consumption C_{t_0} and wages w_{t_0} at t_0 under risk. We denote the equilibrium value of aggregate consumption and wages under risk at t_0 by $C^R_{t_0}$ and $w^R_{t_0}$, respectively.

We define the expected permanent income of household i under risk at t_0 as equal to

$$\tilde{y}^R_{it_0} \equiv (1-\tau_w)\, w_{t_0}s_i + \bar{\tau}_i\Gamma\left(w_{t_0}\right) + \frac{1}{4}\sum_{u\in\mathcal{U}}\sum_{n=1}^{\infty} q^u_{t_0t_0+n}y^u_{it_0+n} \tag{64}$$

We define the marginal propensity to consume of household i at t_0 under risk as equal to

$$\mu^R_{it_0} \equiv \frac{\widetilde{c}_i(w^R_{t_0})}{\tilde{y}^R_{it_0} + \frac{a_{it_0}}{\beta}} \tag{65}$$

where the function $\widetilde{c}_i(w_{t_0})$ is obtained by solving for c_{it_0} for given w_{t_0} using (61) and (62) and evaluated at the equilibrium wage at t_0 under risk equal to $w^R_{t_0}$.

B Additional empirical results

Section B.1 further describes the data and the UK economy over the period. Section B.2 characterizes the 32 groups of households used for the calibration. Section B.3 further analyzes the determinants of household wishes for monetary policy and interest rates using micro data from BEIAS and multivariate regressions on the 32 groups of households used in the calibration. Section B.4 discusses the properties of the calibrated adjustment costs elasticities. Section B.5 studies the effects of expected inflation on choices and whether these effects change for the component of expected inflation due to household wishes. Section

[19] Recall that $\tilde{y}^u_{it_0+1}, \mu^u_{it_0+1}$ and $r^u_{it_0+1}$ are only dependent on the realization of the state $u \in \mathcal{U}$ at t_0+1 and not on the decisions taken at t_0. Therefore, they are independent of whether decisions are taken under risk or under ambiguity.

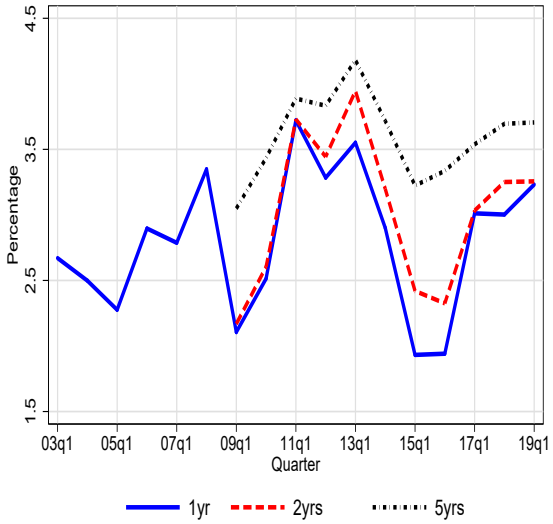
B.6 further characterizes the relation between household wishes and household expected inflation. Section B.7 tries to addresses the self-selection bias. Section B.8 further studies the time profile of the wish dummies coefficients for inflation β_{mt} and interest rates β_{rt}.

B.1 Data

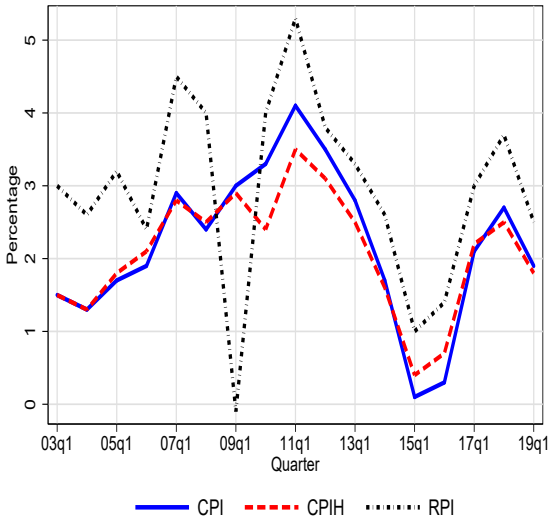
The time profile of expected inflation in BEIAS is plotted in panel (a) of Figure O1. Panel (b) of Figure O1 shows the evolution of three measures of realized inflation: the blue solid line corresponds to CPI inflation; the red dashed line includes owner occupiers' housing costs (CPIH); the black dotted line measures inflation using the Retail Price Index (RPI), which used to be the principal official measure of inflation in the UK until very recent years. We notice that RPI inflation is always higher than CPI inflation, with the exception of 2009. On average, expected inflation in BEIAS tends to slightly overpredict future realized inflation, but the wedge is small and reverts sign when looking at RPI inflation (see also Table O1). Panel (c) of Figure O1 shows logged GDP per capita, normalized to zero at the beginning of the sample period, (left scale of the y-axis) and employment rate as a dashed red line (right scale of the y-axis). The Great Recession materializes in 2008 and GDP and employment comoves closely. Between 2008:I and 2009:I, GDP falls by more than 7 percentage points, while the fall for the employment rate is by more than 2 percentage points. Panel (d) of Figure O1 characterizes monetary policy by the Bank of England in terms of prices and quantities over the period: the blue solid line on the left y-axis is the official rate set by the Bank of England, the red dashed line on the right y-axis is the level of assets held by the Bank. Quantitative easing started in March 2009.

Tables O1 and O2 provide descriptive statistics for the key variables used in the analysis analysis. The majority of households dislike inflation, while the shares of households reporting to wishes a higher or a lower interest rates are similar. Average perceived inflation by households has been 3.08% in the sample, not statistically different from all measures of realized inflation, with the point estimate closer to RPI inflation. BEIAS also asks households if they agree with the statement that "a rise in interest rates makes prices in the high street rise more slowly in the short term (say a month or two)"; and if they agree with the statement that "a rise in interest rates makes prices rise more slowly in the medium term (say a year or two)". We construct two dummies for whether the households report to agree or strongly agree with each of the two statements: the dummies measure households understanding of the monetary policy trade-off between interest rates and inflation. As we will show below, households reporting to agree with the statements are more likely to report their wishes and expected inflation. The idea is that households who understand better the

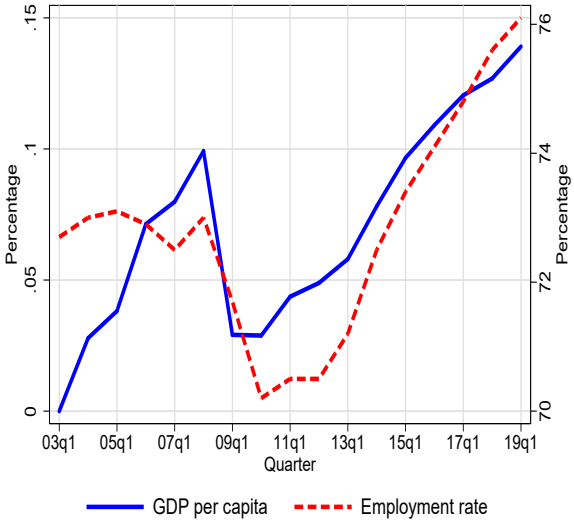
Figure O1: The UK economy



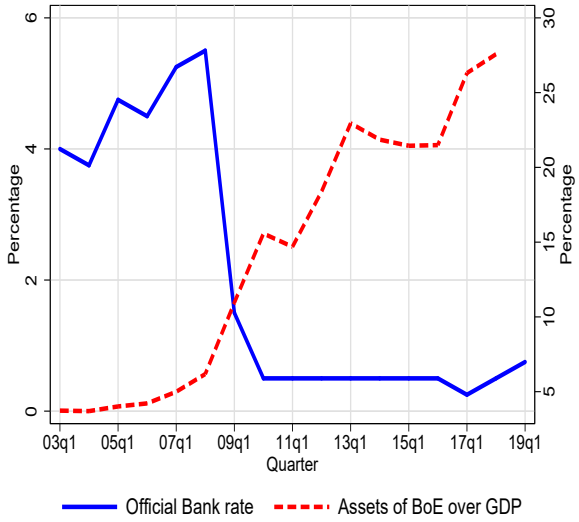
(a) Expected inflation



(b) Inflation



(c) GDP and employment



(d) Monetary policy

Panel (a) plots average expected inflation in BEIAS at 1, 2 and 5 years horizon. Panel (b) plots three measures of consumer price inflation. Panel (c) plots GDP per capita and the employment rate. Panel (d) plots the official central bank short term interest rate and a measure of the size of the Bank of England assets.

trade-off between interest rates and inflation are more likely to accurately understand the question on household wishes and expected inflation and thereby are more likely to answer the questions. BEIAS contains information on whether the household has a mortgage and assigns the household to one of 4 economic class variables constructed using the National

Readership Survey (NRS) social grade classification. Table O1 provides descriptive statistics about these dummies. We define a household inactive in BEIAS if the household head is unemployed and older than 45 years of age. Finally, we construct a dummy for whether annual income is above 25,000 pounds per year.

Table O1: Descriptive statistics

VARIABLES	(1) mean	(2) sd	(3) N	(4) min	(5) max
Year	2,011.12	4.94	68,425.00	2,003.00	2,019.00
Expect. Π over next 12 months	2.82	1.86	47,273.00	-1.00	5.50
2-years ahead Π^e (extended)	3.09	2.65	31,774.00	-5.50	10.50
5-years ahead Π^e (extended)	3.64	2.93	28,172.00	-5.50	10.50
HH dislikes Π	0.61	0.49	68,425.00	0.00	1.00
HH prefers i up or equal	0.44	0.50	68,425.00	0.00	1.00
Reported Π over last 12 months	3.08	1.93	58,862.00	-1.00	5.50
1-year ahead realized Π, % (CPI)	2.23	1.06	64,093.00	0.10	4.10
1-year ahead realized Π, % (CPIH)	2.13	0.81	64,093.00	0.40	3.50
1-year ahead realized Π, % (RPI)	2.95	1.32	64,093.00	-0.10	5.30
HH does not know Π^e	0.15	0.36	68,425.00	0.00	1.00
HH does not know past Π	0.14	0.35	68,425.00	0.00	1.00
i affects Π in 1-2 months	0.34	0.47	68,425.00	0.00	1.00
i affects Π in 1-2 yrs	0.38	0.49	68,425.00	0.00	1.00
Income above 25000 pounds	0.51	0.50	68,425.00	0.00	1.00
HH inactive	0.35	0.48	68,425.00	0.00	1.00
Household with mortgage	0.29	0.46	68,425.00	0.00	1.00
NRS Social class AB	0.19	0.39	68,425.00	0.00	1.00
NRS Social class C1	0.27	0.44	68,425.00	0.00	1.00
NRS Social class C2	0.20	0.40	68,425.00	0.00	1.00
NRS Social class DE	0.34	0.47	68,425.00	0.00	1.00

Table O2: Descriptive statistics: Additional variables

VARIABLES	(1) mean	(2) sd	(3) N	(4) min	(5) max
Dummy for male	0.47	0.50	68,425.00	0.00	1.00
Less than high school	0.25	0.43	68,425.00	0.00	1.00
High school degree	0.49	0.50	68,425.00	0.00	1.00
College degree or more	0.24	0.43	68,425.00	0.00	1.00
Dummy for age 15-24	0.13	0.33	68,425.00	0.00	1.00
Dummy for age 25-34	0.17	0.38	68,425.00	0.00	1.00
Dummy for age 35-44	0.17	0.37	68,425.00	0.00	1.00
Dummy for age 45-54	0.16	0.36	68,425.00	0.00	1.00
Dummy for age 55-64	0.14	0.35	68,425.00	0.00	1.00
Dummy for age 65+	0.24	0.43	68,425.00	0.00	1.00
Π^e brings forw. a major purchase	0.05	0.22	25,090.00	0.00	1.00
Π^e makes HH spend less	0.37	0.48	26,023.00	0.00	1.00
Π^e makes HH shop around more	0.48	0.50	26,259.00	0.00	1.00
Π^e makes HH push for pay increase	0.07	0.25	25,101.00	0.00	1.00
Π^e makes HH search for more inc.	0.13	0.34	25,383.00	0.00	1.00
Π^e makes HH save more in assets	0.09	0.29	25,205.00	0.00	1.00
Π^e makes HH do something else	0.30	0.46	24,973.00	0.00	1.00
Π^e makes HH takes no action	0.09	0.29	21,112.00	0.00	1.00
UK econ. needs high Π	0.08	0.27	68,425.00	0.00	1.00
UK econ. is indifferent on Π	0.21	0.41	68,425.00	0.00	1.00
UK econ. needs low Π	0.56	0.50	68,425.00	0.00	1.00
Dk whether UK needs Π	0.16	0.36	68,425.00	0.00	1.00
UK i should go up	0.18	0.38	68,425.00	0.00	1.00
UK i should go down	0.19	0.39	68,425.00	0.00	1.00
UK i should remain unchanged	0.36	0.48	68,425.00	0.00	1.00
UK i does no make anty difference	0.10	0.30	68,425.00	0.00	1.00
Dk whether UK needs change in i	0.18	0.38	68,425.00	0.00	1.00
BoE is independent	0.54	0.50	68,425.00	0.00	1.00
BoE sets i	0.67	0.47	68,425.00	0.00	1.00
HH knows Monetary Cmte.	0.33	0.47	68,425.00	0.00	1.00
Leaving in Northern Ireland	0.27	0.44	68,425.00	0.00	1.00
Leaving in Midlands	0.19	0.40	68,425.00	0.00	1.00
Leaving in Scotland	0.08	0.28	68,425.00	0.00	1.00
Leaving in Wales	0.13	0.34	68,425.00	0.00	1.00
Leaving in South England	0.32	0.47	68,425.00	0.00	1.00

B.2 Groups of households

Table O3 shows the characteristics of the 32 groups of households obtained by merging information of WAS with BEIAS used to calibrate the model. The groups of households are constructed by partitioning households depending on whether (i) the household belongs to one of the 4 economic class variables in the National Readership Survey (NRS) social grade classification (related to household wealth and income), (ii) the household has or not a mortgage, (iii) the household head is actively participating in the labor market or is inactive and (iv) the household annual income from labor and transfers is above or below 25,000 pounds per year. Average household income from labor and transfers, transfers and wealth in the group is expressed as a fraction of average annual gross total income from labor and transfers in the economy. Labor income is the sum of gross employee income and self-employed income. Total benefits is the sum of all income transferred by the government or local councils in the form of state retirement pensions, income support, tax credits, benefits and allowances. Household wealth is the sum of the value of all household properties excluding the main residence plus total financial assets net of all outstanding household liabilities including mortgages for the main residence. Income, transfers and wealth are from the Wealth and Assets Survey (waves 2 and 3). The fraction of households who dislike inflation and like technology are from BEIAS. The fraction of households who likes technology is the fraction of households who do not like high interest rates among the households who dislike inflation. Wealth in quintiles is the average value of wealth of households in the corresponding quintile of wealth.

Table O3: Table Calibration

NRS class × income × mortgage × inactivity	Inactive	Income (HH avg.)	Transfer (HH avg.)	Total Wealth (HH avg.)	1st Quint. Wealth (avg.)	2nd Quint. Wealth (avg.)	3rd Quint. Wealth (avg.)	4th Quint. Wealth (avg.)	5th Quint. Wealth (avg.)	% who dislikes inflation	% who likes techn.	Mass of HHs
AB inc. <25 NO ACT	0	0.488	0.148	1.751	-0.248	0.005	0.123	0.978	8.225	0.734	0.368	0.020
AB inc. <25 NO INA	1	0.289	0.273	4.071	0.020	0.376	1.292	3.550	15.468	0.782	0.173	0.062
AB inc. <25 YES ACT	0	0.501	0.084	-0.322	-3.783	-2.040	-1.263	-0.474	6.109	0.575	0.544	0.014
AB inc. <25 YES INA	1	0.277	0.239	2.740	-2.100	-0.632	0.303	2.758	13.856	0.685	0.390	0.006
AB inc. 25+ NO ACT	0	1.945	0.088	4.172	-0.277	0.134	0.901	3.129	17.405	0.655	0.448	0.044
AB inc. 25+ NO INA	1	1.362	0.350	12.290	-0.216	0.180	1.235	4.749	58.187	0.724	0.186	0.005
AB inc. 25+ YES ACT	0	2.067	0.053	-1.096	-6.210	-3.272	-1.929	-0.422	6.318	0.600	0.500	0.106
AB inc. 25+ YES INA	1	1.447	0.225	0.011	-2.410	-0.950	-0.119	0.429	4.067	0.544	0.362	0.001
C1 inc. <25 NO ACT	0	0.482	0.162	1.376	-0.293	-0.004	0.072	0.848	6.394	0.693	0.523	0.028
C1 inc. <25 NO INA	1	0.312	0.293	2.276	-0.035	0.182	0.725	2.003	8.731	0.766	0.237	0.097
C1 inc. <25 YES ACT	0	0.512	0.070	-0.257	-3.745	-2.040	-1.363	-0.454	6.352	0.569	0.550	0.014
C1 inc. <25 YES INA	1	0.305	0.252	0.816	-2.898	-0.748	-0.196	1.004	7.075	0.610	0.510	0.009
C1 inc. 25+ NO ACT	0	1.395	0.098	2.212	-0.406	-0.007	0.310	1.572	9.847	0.618	0.519	0.058
C1 inc. 25+ NO INA	1	1.166	0.476	2.249	-0.230	0.090	0.359	1.220	10.326	0.668	0.236	0.008
C1 inc. 25+ YES ACT	0	1.750	0.051	-1.195	-5.657	-3.107	-1.857	-0.525	5.103	0.545	0.563	0.143
C1 inc. 25+ YES INA	1	1.269	0.247	-0.653	-2.706	-1.037	-0.413	-0.020	3.838	0.585	0.406	0.001
C2 inc. <25 NO ACT	0	0.449	0.210	1.279	-0.271	-0.012	0.017	0.214	6.609	0.638	0.564	0.044
C2 inc. <25 NO INA	1	0.326	0.306	1.360	-0.045	0.033	0.187	0.625	6.126	0.738	0.323	0.080
C2 inc. <25 YES ACT	0	0.492	0.117	-0.076	-3.853	-2.098	-1.309	-0.510	7.482	0.554	0.550	0.019
C2 inc. <25 YES INA	1	0.320	0.285	-0.080	-3.430	-0.930	-0.444	-0.096	4.864	0.599	0.535	0.006
C2 inc. 25+ NO ACT	0	1.220	0.213	1.904	-0.294	0.001	0.146	0.910	8.998	0.572	0.557	0.034
C2 inc. 25+ NO INA	1	1.125	0.465	0.849	-0.073	0.002	0.137	0.566	3.798	0.654	0.324	0.008
C2 inc. 25+ YES ACT	0	1.367	0.091	-0.994	-4.906	-2.782	-1.572	-0.382	4.652	0.497	0.560	0.039
C2 inc. 25+ YES INA	1	1.066	0.303	1.347	-4.034	-1.797	-0.329	0.622	14.688	0.526	0.540	0.002
DE inc. <25 NO ACT	0	0.428	0.244	0.211	-0.183	-0.021	0.002	0.027	1.323	0.600	0.703	0.033
DE inc. <25 NO INA	1	0.355	0.339	0.592	-0.223	0.007	0.062	0.283	2.905	0.646	0.543	0.067
DE inc. <25 YES ACT	0	0.502	0.141	0.133	-2.881	-1.407	-0.932	-0.047	6.628	0.535	0.598	0.005
DE inc. <25 YES INA	1	0.356	0.261	-1.090	-4.173	-1.524	-0.684	-0.269	1.251	0.564	0.497	0.004
DE inc. 25+ NO ACT	0	1.148	0.226	0.536	-0.254	-0.031	0.021	0.290	2.770	0.512	0.671	0.017
DE inc. 25+ NO INA	1	1.092	0.483	0.515	-0.306	-0.020	0.058	0.321	2.744	0.541	0.474	0.007
DE inc. 25+ YES ACT	0	1.235	0.095	-1.280	-3.993	-2.194	-1.249	-0.388	1.390	0.466	0.570	0.016
DE inc. 25+ YES INA	1	0.977	0.428	-0.080	-1.290	-0.985	-0.640	1.128	1.845	0.523	0.538	0.001

Average household income, transfers and wealth in the group is as a fraction of average annual gross total income from labor and transfers in the economy. Labor income is the sum of gross employee income and self-employed income. Total benefits is the sum of all income transferred by the government or local councils in the form of state retirement pensions, income support, tax credits, benefits and allowances. Household wealth is the sum of the value of all household properties excluding the main residence plus total financial assets net of all outstanding household liabilities including mortgages for the main residence. Income, transfers and wealth are from the Wealth and Assets Survey (waves 2 and 3). The fraction of households who dislike inflation and like technology are from BEIAS. The fraction of households who likes technology is the fraction of households who do not like high interest rates among the households who dislike inflation.

B.3 Determinants of household wishes

We study more formally the determinants of household wishes for monetary policy and technology by runnning multivariate regressions and estimating multinomial logit models. Table O4 show the results by running a multivariate regression on our sample of 32 groups of households used for calibrating the model. In columns 1 and 2 the dependent variable is the fraction of households who dislike inflation; in columns 3 and 4 is the fraction of households who like technology. Regressions are weighted by the size of each group. The regression results show that labor market participation have independent explanatory power in wishes for inflation. Conditional on wealth and labor market participation status difference in income explain little of the residual variation in wishes for inflation and technology across the 32 groups of households used in the calibration.

Table O4: Determinants of wishes for inflation and technology

	(1)	(2)
VARIABLES	Dislike Π	Like technology
HH Wealth	0.01***	-2.67***
	(0.00)	(0.42)
One minus Participation rate	0.05*	-14.58***
	(0.03)	(4.41)
HH Income	-0.00	-7.65***
	(0.02)	(2.61)
Observations	32	32
Method	OLS	OLS
Weighted	YES	YES
R^2	0.77	0.80

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.10

The table reports the results from running a weighted OLS regression on our sample of 32 groups of households obtained by merging WAS with BEIAS. Wealth excludes value of main residence. Values are calculated as a ratio of average annual income from labor and transfers in the economy. Data on wealth and income refer to the period 2008-2012.

We also estimate a multinomial logit model for whether the household likes, dislikes or has no idea about her wishes for inflation, which are mutually exclusive category. The controls are the same as in Table O5 plus the dummies used to construct the 32 groups of households used to calibrate the model. This means that we control for a full set of time dummies, 5 geographical dummies (for leaving in Scotland, Wales, Northern Ireland, Midlands or South of England), 6 age dummies, a dummy for gender, 3 educational dummies

(for less than high school, high school degree and for having a college degree or more), and all dummies used to construct the 32 groups of households used to calibrate the model—the dummy for being inactive, the dummy for having more than 25000 pounds of yearly income, the 4 dummies corresponding to the 4 NRS categories, and the dummy for having a mortgage. Table O5 reports the resulting average marginal effects on the probability for the dummies used to construct the 32 groups of households used to calibrate the model. Households with a mortgage have a 10 percent higher probability to like inflation than a household without a mortgage. A household in the top NRS category has a 5 percent higher probability to dislike inflation than a household in the lowest NRS category. Skilled households with income above 25000 pounds are less likely to dislike inflation by 5 percentage points. Households who are out of the labor force have a two percentage points higher probability to dislike inflation than a household who actively participates in the labor market.

Table O5: Determinants of wishes for inflation

	(1)	(2)	(3)
VARIABLES	HH_dislikes_infl_	HH_likes_infl_	HH_does_not_know
Household with mortgage	-0.10***	0.10***	-0.01
	(0.00)	(0.00)	(0.00)
NRS Social class AB	0.05***	0.00	-0.06***
	(0.01)	(0.00)	(0.00)
NRS Social class C1	0.04***	-0.00	-0.04***
	(0.01)	(0.00)	(0.00)
NRS Social class C2	0.02***	0.00	-0.03***
	(0.01)	(0.00)	(0.00)
Income above 25000 pounds	-0.05***	-0.02***	0.07***
	(0.00)	(0.00)	(0.00)
HH inactive	0.02**	-0.03***	0.01**
	(0.01)	(0.01)	(0.01)
Observations	68,425	68,425	68,425

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.10

Results from estimating a multinomial logit model. The table reports the average marginal effects on probabilities for all dummies used to construct the 32 groups of households used to calibrate the model. In addition to the controls reported in the table, the multinomial logit model contains also the controls of Table 3.

Given household wishes for monetary policy, in Table O6 we also study the determinants for whether the household prefers interest rates to go up, down, remain the same, whether the household has no idea or she does not know. We again estimate a multinomial logit

model over these five categorical variables. The controls are the same as in Table O5 plus the dummies used to construct the 32 groups of households used to calibrate the model (a dummy for being inactive (unemployed and older than 45 years of age), a dummy for having more than 25000 pounds of yearly income, 4 dummies corresponding to the 4 NRS categories, and a dummy for having a mortgage). We also include the dummy for household wishes for inflation. A household who dislikes a monetary policy loosening has a 13 percent higher probability to prefer interest rates to go up. A household with mortgages have a 22 percent higher probability to prefer interest rate to remain the same or to go down than a household without a mortgage. A household in the top NRS category has a 15 percent higher probability to prefer interest rates to go up than a household in the bottom NRS category. An inactive household has a 2 percent higher probability to prefer interest rate to go up.

Table O6: Determinants of wishes for interest rate changes

VARIABLES	(1) Go_up	(2) Go_down	(3) Same	(4) Indifferent	(5) Not_know
HH dislikes Π	0.13***	-0.03***	-0.03***	0.03***	-0.10***
	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
HH prefers high Π	-0.01	0.08***	0.04***	-0.06***	-0.05***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)
Household with mortgage	-0.13***	0.12***	0.10***	-0.07***	-0.02***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
NRS Social class AB	0.15***	-0.05***	-0.03***	-0.06***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)
NRS Social class C1	0.11***	-0.04***	-0.01**	-0.05***	-0.01***
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
NRS Social class C2	0.08***	-0.03***	0.00	-0.05***	-0.01***
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
Income above 25000 pounds	0.02***	-0.02***	-0.01**	-0.01***	0.02***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
HH inactive	0.02***	-0.02***	-0.04***	0.03***	0.01**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)
Observations	68,425	68,425	68,425	68,425	68,425

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.10

The table reports the average marginal effects from estimating a multinomial logit model on the probability of the five categorical variables for wishes for interest changes: whether the household would like interest rate to go up, go down, or stay where they are, whether interest rates make no difference to the household or whether the household has no idea about her wishes for interest rates. The table reports the average marginal effects on probabilities for the dummy for household wishes for monetary policy and all dummies used to construct the 32 groups of households used to calibrate the model. In addition to the controls reported in the table, the multinomial logit model contains also the controls of Table 3.

B.4 Adjustment cost elasticities and household characteristics

We use our sample of 32 groups of households to run multivariate regressions of the adjustment costs elasticities $\overline{\zeta}_{im}$ and $\overline{\zeta}_{iz}$ on household wealth, labor income, transfers and labor market participation. Table O7 shows the results for $\overline{\zeta}_{im}$; Table O8 for $\overline{\zeta}_{iz}$. Overall the evidence indicates that $\overline{\zeta}_{im}$ and $\overline{\zeta}_{iz}$ are little correlated with household wealth, a_i, skill s_i, transfers τ_i and labor market participation status, $s_i > 0$. There is just some indication that inactive households have a higher adjustment cost to monetary policy shocks (higher $\overline{\zeta}_{im}$) than other households. This broadly confirms that adjustment cost elasticities account for any residual determinants of household wishes in the data left unexplained by household heterogeneity in capital, labor, and government transfer income.

Table O7: Properties of adjustment cost elasticities to monetary shocks, $\overline{\zeta}_{im}$

VARIABLES	(1) m-Elast.	(2) m-Elast.	(3) m-Elast.	(4) m-Elast.	(5) m-Elast.
Inactivity rate	3.66***	3.26***	0.42	1.58***	3.31***
	(0.51)	(0.41)	(1.05)	(0.41)	(0.69)
Unemployment rate		26.32***			
		(5.71)			
HH Income				-2.19***	
				(0.29)	
HH Transfers			4.37***		
			(1.29)		
HH Wealth					0.06
					(0.09)
Observations	32	32	32	32	32
Method	OLS	OLS	OLS	OLS	OLS
Weighted	YES	YES	YES	YES	YES
R^2	0.63	0.63	0.63	0.63	0.63

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.10

The table reports the results from running a weighted OLS regression on our sample of 32 groups of households obtained by merging WAS with BEIAS. Wealth excludes value of main residence. Values are calculated as a ratio of average income from labor and transfers in the economy.

Table O8: Properties of adjustment cost elasticities to technology shocks, $\overline{\zeta}_{iz}$

VARIABLES	(1) z-Elast.	(2) z-Elast.	(3) z-Elast.	(4) z-Elast.	(5) z-Elast.
Inactivity rate	-0.01	-0.01	-0.14***	-0.06***	-0.03
	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)
Unemployment rate		0.22			
		(0.21)			
HH Income				-0.06***	
				(0.01)	
HH Transfers			0.18***		
			(0.03)		
HH Wealth					0.00**
					(0.00)
Observations	32	32	32	32	32
Method	OLS	OLS	OLS	OLS	OLS
Weighted	YES	YES	YES	YES	YES
R^2	0.00	0.00	0.00	0.00	0.00

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.10

The table reports the results from running a weighted OLS regression on our sample of 32 groups of households obtained by merging WAS with BEIAS. Wealth excludes value of main residence. Values are calculated as a ratio of average income from labor and transfers in the economy.

B.5 Effects of expected inflation on choices

In Tables O9 and O10, we show the results of estimating a linear probability model where the dependent variable is a dummy for whether in light of household expected inflation over the next twelve months the household "brings forward major purchases" (columns 1 and 2 of Table O9), "spends less" (columns 3 and 4 of Table O9), "shops around more" (columns 5 and 6 of Table O9), "pushes for a pay increase" (columns 7 and 8 of Table O9), "searches for more income" (columns 1 and 2 of Table O10), "saves more in financial assets" (column 3 and 4 of Table O10), "does something else" (column 5 and 6 of Table O10), and "takes no action" (columns 7 and 8 of Table O10). We report the estimated coefficients on expected inflation which measures how changes in expected inflation affect household choices. The odd columns of each Table correspond to the OLS estimates, the even columns to the IV estimates obtained by instrumenting household expected inflation with their wishes for higher or lower inflation and higher or lower interest rate changes, as measured by the previously discussed dummies for household wishes as in Table 3—i.e. using the two dummies d_{im} and d_{ir}.

Table O9: Effects of Expected Inflation on choices I

VARIABLES	(1) Major	(2) Major	(3) Cut Spend.	(4) Cut Spend.	(5) Search	(6) Search	(7) Pay	(8) Pay
Expected infl.	0.00	-0.04	0.02***	0.31***	0.01***	0.43***	0.00**	-0.03
	(0.00)	(0.03)	(0.00)	(0.10)	(0.00)	(0.12)	(0.00)	(0.04)
Observations	17,400	17,400	18,086	18,086	18,298	18,298	17,395	17,395
Method	OLS	IV	OLS	IV	OLS	IV	OLS	IV
R^2	0.12	0.03	0.14		0.12		0.11	
Durbin		0.21		0.00		0.00		0.43
Wu-Hausman		0.21		0.00		0.00		0.43

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.10

The Table reports the OLS and the IV coefficient on expected inflation in a regression where the dependent variable is a dummy for whether, in the light of household expected inflation, the household "brings forward a major purchase" (columns 1 and 2), "spends less" (columns 3 and 4), "shops around more" (columns 5 and 6), or "pushes for pay increase" (columns 7 and 8). The two rows at the bottom of each even column report the Durbin and the Wu-Hausman tests for the null hypothesis that the effects of inflation expectations on choices is the same in the OLS and the IV specification. In the IV specification, expected inflation is instrumented using household wishes for inflation and interest rate changes (the two dummies d_{im} and d_{ir}). The other controls are the same as in Table 3.

Table O10: Effects of Expected Inflation on choices II

VARIABLES	(1) Income	(2) Income	(3) Save	(4) Save	(5) Other	(6) Other	(7) No act.	(8) No act.
Expected infl.	0.01***	0.16**	-0.00	-0.18***	-0.02***	-0.20**	-0.00	-0.05
	(0.00)	(0.06)	(0.00)	(0.07)	(0.00)	(0.08)	(0.00)	(0.03)
Observations	17,620	17,620	17,496	17,496	17,294	17,294	14,804	14,804
Method	OLS	IV	OLS	IV	OLS	IV	OLS	IV
R^2	0.18		0.13		0.11		0.17	
Durbin		0.00		0.00		0.00		0.12
Wu-Hausman		0.00		0.00		0.00		0.12

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.10

The Table reports the OLS and the IV coefficient on expected inflation in a regression where the dependent variable is a dummy for whether, in the light of household expectations of price changes over the next twelve months, the household "searches for more income" (columns 1 and 2), "saves more in financial assets" (column 3 and 4), "does something else" (column 5 and 6), "takes no action" (columns 7 and 8). The two rows at the bottom of each even column report the Durbin and the Wu-Hausman tests for the null hypothesis that the effects of inflation expectations on choices is the same in the OLS and the IV specification. In the IV specification, expected inflation is instrumented using household wishes for inflation and interest rate changes (the two dummies d_{im} and d_{ir}). The other controls are the same as in Table 3.

The IV estimates measure the effects on choices of the components of expected inflation due to household wishes (say the effects of the distortion of beliefs due to Knightian uncertainty). The two rows at the bottom of each even column in the tables report the test by Durbin (1954) and the one by Hausman (1978) for the null hypothesis that the effects of expected inflation on choices are the same in the OLS and in the IV specifications. In calculating the Durbin and the Hausman tests we use a robust variance covariance matrix, which modifies the traditional sandwich formula of the variance covariance matrix by allowing for heteroskedastic errors (option vce(robust) in the STATA command ivregress). Generally expected inflation increases the probability that the household cuts spending, shops around more, searches for more income, and does something else, which suggests that changes in household expected inflation make the household change her actions. The estimates in Tables O9-O10 also indicate that changes in inflation expectations due to wishes change the saving, consumption, and financial portfolio behavior of households in a way that is quantitatively similar to (and generally larger than) the component of expected inflation unrelated to wishes. This provides support to the hypothesis, that household wishes not only distort household beliefs but also household actions.

B.6 Household wishes and household expectations: further evidence

Table O11 reports the estimated coefficients for all the controls included in the regression (27) corresponding to the results reported in Table 3. The coefficients for the wish dummies are reported in Table 3.

Table O12 shows that household wishes also affect household expected future interest rates. We estimate an ordered logit model using as dependent variable the categorical variables constructed using the following question in BEIAS: "How do you expect interest rates to change over the next twelve months?". The qualitative answers to the question allows us to construct the three following categorical variables: (i) interest rates will rise, (ii) interest rates will stay about the same, and (iii) interest rates will fall. On average, 47 percent of UK households believe that interest rates will rise, see Table O1. We then estimate an ordered logit model including household wishes for future changes in interest rates as controls. In the model we also include the same set of controls as in Table 3. The model is estimated on the sample of households who report the expected future evolution of interest rates as well their personal wishes for nominal interest rate changes. The results in Table O12 indicate that a household who personally prefers interest rate to go down has a 7 percentage point higher probability to believe that interest rates will go up than a household who would prefer interest rates to remain unchanged. This difference increases to 10 percent when the comparison is made with an household who would prefer interest rates to go up.

Table O11: Effects of wishes on expected inflation: coefficients on controls

VARIABLES	(1) Π^e	(2) Π^e
Dummy for male	0.06***	0.06***
	(0.02)	(0.02)
Less than high school	0.20***	0.20***
	(0.07)	(0.07)
High school degree	0.13*	0.12*
	(0.06)	(0.06)
College degree or more	0.03	0.03
	(0.07)	(0.07)
Dummy for age 25-34	-0.05	-0.05*
	(0.03)	(0.03)
Dummy for age 35-44	0.18***	0.18***
	(0.03)	(0.03)
Dummy for age 45-54	0.32***	0.33***
	(0.03)	(0.03)
Dummy for age 55-64	0.39***	0.42***
	(0.03)	(0.03)
Dummy for age 65+	0.28***	0.31***
	(0.03)	(0.03)
Leaving in Northern Ireland	-0.03	-0.03
	(0.02)	(0.02)
Leaving in Midlands	-0.00	-0.00
	(0.02)	(0.02)
Leaving in Scotland	-0.13***	-0.13***
	(0.03)	(0.03)
Leaving in Wales	-0.08***	-0.08***
	(0.03)	(0.03)
BoE sets i	-0.14***	-0.13***
	(0.02)	(0.02)
HH knows Monetary Cmte.	-0.05***	-0.05**
	(0.02)	(0.02)
BoE is independent	-0.11***	-0.11***
	(0.02)	(0.02)
UK econ. needs high Π	-0.42***	-0.42***
	(0.03)	(0.03)
UK econ. is indifferent on Π	-0.33***	-0.33***
	(0.02)	(0.02)
Dk whether UK needs Π	-0.31***	-0.31***
	(0.03)	(0.03)
Observations	47,273	47,273
Method	OLS	OLS
R^2	0.10	0.10

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.10

B.7 Self-Selection bias

Since households choose whether to report their expected inflation and their wishes for inflation and interest rates, it is possible that the regressions in Table 3 are plagued by

Table O12: Effects of wishes on expected interest rates, Ordered Logit

	(1)	(2)	(3)
VARIABLES	ie_down	ie_equal	ie_up
HH prefers i up	0.01***	0.02***	-0.03***
	(0.00)	(0.00)	(0.01)
HH prefers i down	-0.02***	-0.05***	0.07***
	(0.00)	(0.00)	(0.01)
Observations	44,284	44,284	44,284
Method	Ordered Logit	Ordered Logit	Ordered Logit
Variables	Yes Controls	Yes Controls	Yes Controls
Wald test	0.00	0.00	0.00

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.10

The table reports the average marginal effects on the probability of future changes in interest rates, using an ordered logit model. The last row reports the p-value for the null hypothesis that all wish-dummy coefficients are all equal to zero. The controls are the same as in Table 3.

a selection bias. We try to deal with this issue, by considering a selection model based on the idea that households with higher economics literacy are more likely to understand the question on expected inflation and household wishes for inflation and thereby are more likely to answer the questions eliciting household expected inflation and household wishes. With this logic in mind we construct the following three dummies: one for whether the household does not provide any estimate for "how prices have changed over the last twelve months"; one for whether the household agrees or strongly agrees with the statement that "a rise in interest rates makes prices in the high street rise more slowly in the short term (say a month or two)"; and finally one for whether the household agrees or strongly agrees with the statement that "a rise in interest rates makes prices rise more slowly in the medium term (say a year or two)". The first dummy exploits the fact that households are more likely to report their beliefs about future inflation and their wishes for inflation and interest rates if they provide an estimate for today inflation. The other two dummies require the household to understand and agree with the monetary policy trade-off between higher interest rates and higher inflation which lies at the core of the policy question in BEIAS that we use to elicit household wishes for inflation. Overall we interpret the three dummies as a measure of economics literacy. Column 1 of Table O13 reports the average marginal effects of a Probit regression for observing future inflation and wishes for inflation and interest rates, corresponding to the first stage regression used by Heckman (1979) to control for a selection bias. Column 2 reports the average marginal effects on the analogous probabilities using

Table O13: Probit or Logit of observing expected inflation, first stage

VARIABLES	(1) Observing Π^e and U	(2) Observing Π^e and U
HH does not know past Π	-0.42***	-0.44***
	(0.01)	(0.01)
i affects Π in 1-2 months	0.06***	0.07***
	(0.01)	(0.01)
i affects Π in 1-2 yrs	0.10***	0.10***
	(0.01)	(0.01)
HH likes inflation, d_{im}	0.29***	0.30***
	(0.01)	(0.01)
HH prefers interest rates up, d_{ir}	0.44***	0.46***
	(0.00)	(0.00)
Observations	68,425	68,425
Method	Heckman-Probit	Lee-Logit
Wald test	0.00	0.00

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.10

Column (1) reports the average marginal effects for observing future inflation and household wishes for inflation and interest rate changes using a Probit model. Column (2) reports the analogous average marginal effects using a logit model. The controls are the same as in Table 3. The instruments for selection are obtained constructing the following three dummies: one for whether the household does not provide an estimate for how prices have changed over the last 12 months and one for whether she agrees or strongly agrees with the statement that "a rise in interest rates would make prices in the high street rise more slowly in the short term (say a month or two)" and a third one for whether she agrees on the statement that"a rise in interest rates would make prices in the high street rise more slowly in the medium term (say a year or two).

a logit model rather than a probit model, which is the first stage regression used by Lee (1979, 1983) to control for the existence of a selection bias. ∼

Columns 1 and 2 of Table O14 report the coefficients of a regression where we deal with the selection bias by adding the inverse Mills ratio as obtained by estimating a Probit model (as in column 1 of Table O13) or a logit model (as in column 2 of Table O13) to the set of regressors present in the specification of Table 3. A negative coefficients on

Table O14: Effects of wishes on expected inflation, selection

	(1)	(2)
VARIABLES	Π^e	Π^e
HH likes inflation, d_{im}	-0.20***	-0.20***
	(0.03)	(0.03)
HH prefers interest rates up, d_{ir}	-0.22***	-0.22***
	(0.04)	(0.04)
Inverse Mill's ratio, probit	-0.20***	
	(0.05)	
Inverse Mill's ratio, logit		-0.19***
		(0.05)
Observations	37,031	37,031
Selection	Heckman-Probit	Lee-Logit
2nd stage	OLS	OLS
Wald test	0.00	0.00

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.10

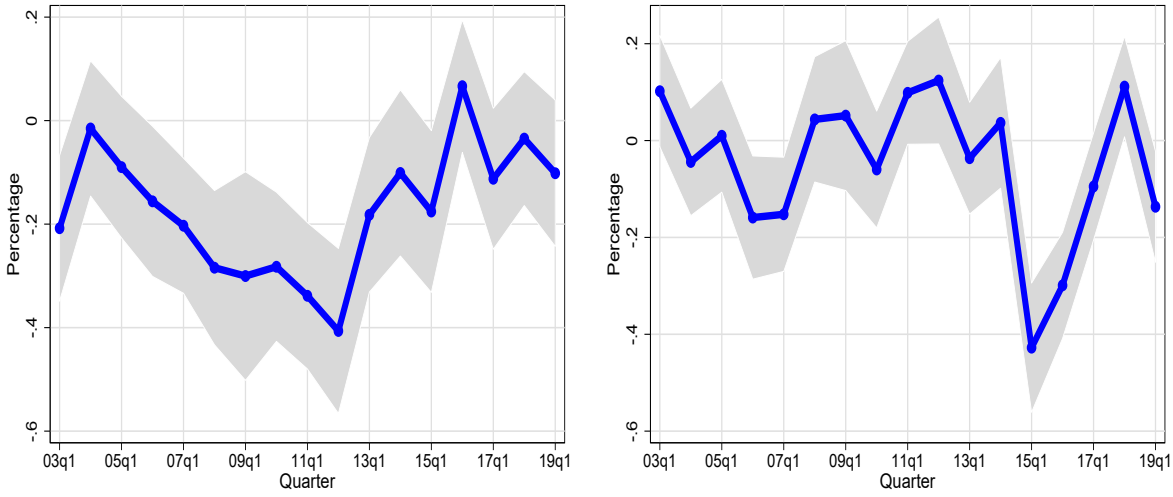
The table reports the coefficients of a regression where dependent variable is 1 year expected inflation and the regressors are the same as in Table 3. The last row reports the p-value for the null hypothesis that all wish-dummies coefficients are equal to zero. Column 1 deals with selection into reporting expectations and wishes by using a Probit model as in Heckman (1979). Columns 2 deals with selection using a logit model as in Lee (1979, 1983). The controls are the same as in Table 3.

the inverse Mills ratio indicates a negative correlation between the error in the structural equation (for the effects of wishes on expected inflation) and the error in the selection equation (for reporting expected inflation and wishes). The last row reports the p-value for the null hypothesis that all wish-dummies coefficients are equal to zero. Overall, controlling for selection into reporting expectations and wishes (using measures of economics literacy) increases the magnitude of the coefficients on the household wish dummies: by around 4 basis points when considering household wishes for higher inflation and by more than 10 basis points when considering household wishes for higher (or equal) interest rates.

B.8 Additional results for the time profile of wish dummies

Panel (a) of Figure O2 plots the difference in 1-year ahead expected inflation between households who like inflation and households who dislike it, with the grey area representing 95 percent confidence intervals. There is a statistically significant difference in expected inflation: households who like inflation have lower expected inflation than households who dislike it. The difference peaks to around 40 basis points in 2012:I, while it is not statistically different from zero in 2004:I and 2016:I. Panel (b) reports the difference in the (average) one-year expected inflation of households who prefers interest rates to go up and the expected inflation of households who prefer interest rates to go down. Again there is a statistically significant difference in expected inflation. The difference peaks to more than 40 basis in 2015 and is high also in 2006, 2007, and 2016. This shows that the effects of wishes on expected inflation are little affected by the controls included in the regression in (27).

Figure O2: Time series profile of wish-dummies: raw data

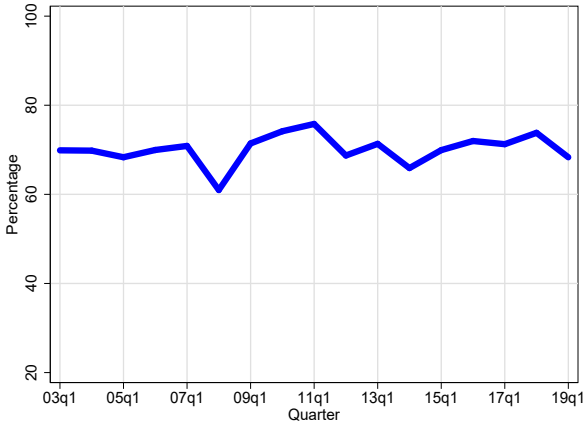


(a) Diff. in Π^e: wish for inflation **(b) Diff. in Π^e: wish for interest rates**

Panel (a) reports the difference in the (average) one-year expected inflation of households who like and dislike inflation. Panel (b) reports the difference in the (average) one-year expected inflation of households who like interest rates to go up and the expected inflation of households who prefer interest rates to go down. The controls are the same as Table 3.

Figure O3 plots the fraction of households who report their wishes for inflation and interest rates as well as their beliefs about future inflation. There are some fluctuations over time, but the peak and through appears in years different from those where the coefficients β_{mt} and β_{rt} of Figure 4 spike.

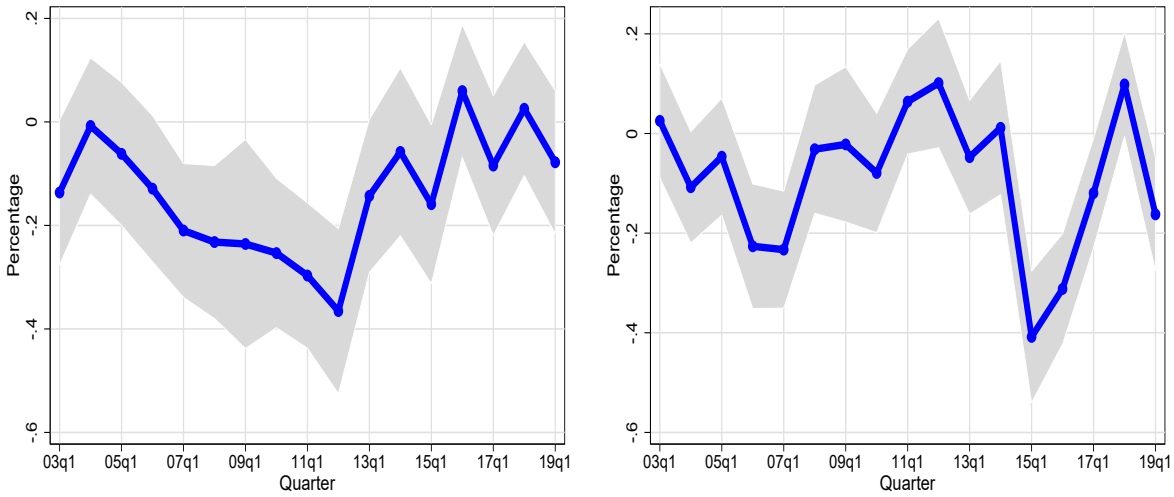
Figure O3: Fraction of households reporting



The figure plots the fraction of households who report their wishes for inflation and interest rates as well as their beliefs about future inflation.

To analyze this point more formally, Panels (a) and (b) of Figure O4 report the time series profile of the wish-dummy coefficients β_{mt} and β_{rt} corresponding to the regression in (27), once the coefficients for the wish dummies are allowed to vary over time and we control for selection using a probit model as in column 1 of Table O14. The controls are the same as in Table 3. The time profile of β_{mt} and β_{rt} is very similar to the profile described in Figure 4. This suggests that the self-selection does not drive the time profile of our wish dummies coefficients β_{mt} and β_{rt}.

Figure O4: Time series profile of wish-dummies: selection bias



(a) Preference for inflation, β_{mt} **(b) Preference for interest rates, β_{rt}**

Panels (a) and (b) report the time series profile of the wish-dummy coefficients β_{mt} and β_{rt} corresponding to the regression in (27), once the coefficients in the regression are allowed to vary over time and we control for selection. The controls are the same as Table 3.