Inflation Expectations and Readiness to Spend: Cross-Sectional Evidence

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October 19, 2011

Abstract

There have recently been numerous suggestions for monetary policy to engineer higher inflation expectations so as to stimulate spending. But what is the empirical relationship between inflation expectations and spending? We use the underlying micro data from the Michigan Survey of Consumers to test whether increased inflation expectations are indeed associated with greater reported readiness to spend. Cross-sectional data deliver the necessary variation to test whether the relationship between inflation expectations and spending changes in the recent zero lower bound regime compared to normal times, as suggested by many standard models. We find that the impact of inflation expectations on the reported readiness to spend on durable goods is small in absolute value when compared to other variables, such as household income or expected business conditions. Moreover, it appears that higher expected price changes have an adverse impact on the reported readiness to spend. A one percent increase in expected inflation reduces the probability that households have a positive attitude towards spending by 0.15 percentage points. At the zero lower bound this small adverse effect remains, and is, if anything, exacerbated. We also extend our analysis to the reported readiness to spend on cars and houses and obtain similar results. Altogether our results tell a cautionary tale for monetary (or fiscal) policy designed to engineer inflation expectations in order to generate greater readiness to spend.

JEL Codes: D12, E21, E31, E52.
Keywords: inflation expectations, durable goods, survey data, ordered probit, zero lower bound.

"But he could have paid the balance of 25 marks at any time and thus have made the teeth his own. If he did not do so, it was because he had heard from many people that the accession of the Nationalists to power would be followed by inflation of currency, [...]. And yet business was better than one might have expected during this rather quiet winter season. The talk of inflation induced many people to spend their money on household needs instead of putting it in the savings bank."

From: Lion Feuchtwangers "The Oppermanns" (in the translation by Ruth Gruber), about the business dealings of the furniture salesman Markus Oppermann with his dentist and his clients right after the rise to power of the Nazi party in January 1933.

1 Introduction

There have recently been suggestions by economists and policy-makers alike to engineer higher private sector inflation expectations with the goal of stimulating spending.[1] The German author Lion Feuchtwanger, in his celebrated portrayal of the late Weimar Republic and the early Nazi era, "The Oppermanns", describes rather intuitively why inflation might be good news for debtors and businesses. Basic economic theory echoes some of these ideas on how inflation expectations and spending relate. Increased inflation expectations might lower real interest rates and might thus boost interest-sensitive components of aggregate demand. Increased inflation expectations mean expected wealth gains for debtors. To the extent that debtors have on average higher propensities to spend out of wealth than creditors, increased inflation expectations again might lead to higher spending; especially in a balance sheet recession. On the other hand, inflation is also a tax on economic activity, so that higher inflation expectations may portend bad times ahead.

The purpose of this paper is to provide some econometric evidence on the nexus between inflation expectations and spending at the level of economic decision-makers, specifically households. To do so, we make use of the cross-sectional data on inflation expectations and readiness to spend from the Michigan Survey of Consumers. Using cross-sectional data helps us identify what this link is at the level of economic decision makers and whether it works differently at the zero lower bound compared to normal times, as many standards models suggest. Given that in U.S. post-war history zero lower bound regimes have been rare occurrences (they are in point of fact a singular event), it is difficult to investigate empirically with only aggregate data the relationship between inflation expectations and the readiness to spend at very low nominal interest rates.

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[1] Ken Rogoff (in Ydstie, 2011): "They need to be willing, in fact actively pursue, letting inflation rise a bit more. That would encourage consumption. It would encourage investment"; and Naryana Kocherlakota (in WSJ.com, 2010): "To a limited extent, this should be a good thing in some sense, to have more expected inflation"

The literature is split about the effectiveness and desirability of using inflation expectations as a means of stabilization policy. For the case of monetary policy this has been advocated by Krugman (1998), Eggertson and Woodford (2003), and Eggertson (2006). Eggertson (2010) and Christiano, Eichenbaum and Rebelo (2010) show in standard new Keynesian models that the fiscal multiplier may be large when the zero lower bound for nominal interest rates is binding due to the interaction between inflation expectations and real interest rates. Eggertson (2008) argues that it was a mix of fiscal and monetary policies designed to generate inflation expectations that led to the recovery from the Great Depression. On the other hand, economists like Edward Leamer (in Leamer, 2011) have polemicized against the role of deflation or inflation expectations as being important for stabilization policy. Paul Volcker (in Volcker, 2011) and John Taylor (in Ydstie, 2011) view the engineering of higher inflation expectations as dangerous and, ultimately, as a sign of desperation that portends bad times ahead. This paper attempts to shed some empirical light on these competing viewpoints.

We start by exploiting the fact that the Michigan Survey of Consumers not only asks whether respondents think that now is a good or bad time to buy major household durables, cars and houses, but it also asks for reasons for a given answer. Using these simple descriptive statistics, we find that higher expected prices were never the major reason to buy household appliances, cars or houses now. The single most important reason to buy household appliances is "Good buys are available". For cars and houses, "Good buys are available" often switches the position of top reason with "Interest rates are low". Conversely, lower expected prices are cited only by a small fraction of respondents as a reason not to buy now, both for household appliances and cars as well as houses. What is more: the fraction of respondents that cite lower expected prices as a reason not to buy now has not significantly increased during the Great Recession and the zero lower bound episode. However, answer categories that are related to the overall economic or personal employment situation have become dominant, categories that play only a minor role during normal times. This means there is little prima facie evidence of a deflation-related waiting attitude in consumers' demand for durables.

The next step is to analyze the data more formally. Given the discrete and qualitative nature of respondents' answers to questions about whether now is a good time to buy large household items, we employ ordered probit models to investigate the relationship between expected inflation and reported readiness to spend. Controlling for both aggregate and idiosyncratic economic conditions and expectations, this empirical specification allows us to estimate the effect of increased inflation expectations on the probability of answering that now is a good time to spend. We allow for state-dependence of this relationship and investigate whether the link between inflation expectations and the reported readiness to spend is different at the zero lower bound compared to normal times. Ideally, we would like to examine the relationship between

inflation expectations and actual expenditure. Given that there is no information on actual expenditure in the survey (or any other survey that contains information on inflation expectations), we view the qualitative buying conditions questions as the best available proxy. Furthermore, at the aggregate level, we show in Section 2 that the responses to the buying condition question are strongly and significantly correlated with actual expenditure.

We find that the impact of inflation expectations on the reported readiness to spend on durables is small in absolute value when compared to other variables, such as household income or business conditions. Moreover, higher expected price changes have an adverse impact on spending. A one percent increase in expected inflation reduces the probability that households have a positive attitude towards spending by 0.15 percentage points. At the zero lower bound this adverse effect is the same or even more negative in comparison with normal times. We also extend our analysis to the buying conditions for cars and houses and obtain similar results. Moreover, the results appear robust across a variety of different model specifications. Altogether, and with some caveats that we will discuss below, our results tell a cautionary tale for monetary (or fiscal) policy designed to engineer inflation expectations in order to generate greater readiness to spend.

The remainder of this paper is organized as follows: Section 2 describes the micro data and our empirical strategy. Section 3 documents the results for durable goods, extends the analysis to cars and houses, and presents robustness checks. A final section concludes.

2 Empirical Setup

2.1 Data Sources

We use the underlying micro data from the Survey of Consumers conducted by the Survey Research Center at the University of Michigan. The data are available at a monthly frequency and cover (depending on the question, at most) the period 1984:01 to 2010:12.[2] Few papers have made use of the underlying micro data of this survey. Souleles (2004) uses these data to test the rationality of individual forecasts. Coibion and Gorodnichenko (2011) use the micro level inflation forecasts to examine how disagreement about inflation reacts to different shocks as a test of competing models of informational rigidities. Their line of research - informational frictions - also presents a theoretical justification of the existence and persistence of cross-sectional heterogeneity in inflation expectations, which we exploit in this paper. Each month, about 500 interviews are carried out and the samples are designed to be representative of all American households. We focus on the following two questions:[3]

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[2]In fact, part of the original data set goes back to 1978, but we focus on this particular subsample in order to account for a possible structural break in the conduct of monetary policy during the Volcker era.

[3]A18 and A12b, respectively, of the Survey of Consumers.

Q 1 *"About the big things people buy for their homes – such as furniture, a refrigerator, stove, television, and things like that. Generally speaking, do you think now is a good or a bad time for people to buy major household items?"*

Q 2 *"By about what percent do you expect future prices to go (up/down) on the average, during the <u>next</u> 12 months?"*

Responses to (Q1) take on three different qualitative categories: good, bad, and neutral, while the responses to (Q2) are quantitative and expressed in percentage points. The survey only asks about spending conditions for durables, not about nondurables and services. While durables (except for houses) are usually a relatively small part of the spending budget of households, they are also the most sensitive to both idiosyncratic and aggregate economic conditions. We thus do not view the 'limited' data availability in the survey as a problem.

As an alternative to household consumer durables, we also consider questions about the readiness to buy cars and houses, using the following survey questions:[4]

Q 3 *"Speaking now of the automobile market – do you think the next 12 months or so will be a good time or a bad time to buy a vehicle, such as a car, pickup, van or sport utility vehicle?"*

Q 4 *"Generally speaking, do you think that now is a good time or a bad time to buy a house?"*

While we believe that one-year ahead inflation expectations cover the right time horizon for smaller household consumer durables and are also more precisely answered by survey participants, we include, as a robustness check, specifications with five-year ahead inflation expectations that the survey started to ask about in 1990.

Q 5 *"By about what percent <u>per year</u> do you expect prices to go (up/ down) on the average, during the <u>next</u> 5 to 10 years?"*

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[4]See the Appendix for a complete overview of the survey questions used.

2.2 Summary Statistics

Before analyzing the data using ordered probit models, we present summary statistics on both the buying conditions and inflation expectations questions. Figure 1 plots the relative score for (Q1), defined as the fraction of respondents with a favorable outlook on current buying conditions minus those with an unfavorable outlook. The shaded gray regions are recessions, as defined by the NBER Business Cycle Dating Committee. This series is clearly procyclical, with a particularly large drop during the Great Recession episode.

We also investigate to what extent the reported readiness to spend on durable goods is correlated with aggregate consumer spending on durables. Given that we want to learn from the micro data whether increased inflation expectations are indeed associated with greater consumer spending, it is crucial that there exists a link between what people report in the Michigan survey about their readiness to spend and what actually shows up in the data. For this purpose, we compare the aforementioned aggregate index of spending readiness with detrended real aggregate consumer spending on durables. We apply an HP-filter (with smoothing parameter $\lambda = 129,600$) to the actual aggregate spending series in order to obtain a measure for the cyclical component of consumer spending.[5] Figure 2 shows a scatterplot of the two series. There is evidence for a positive correlation between the average reported readiness to spend on durables and aggregate durables consumption. The contemporaneous correlation among the series is 0.46. Figure 3 displays the dynamic correlogram between the reported readiness to spend in the survey and the actual aggregate spending series. It has a peak correlation of 0.51 at a lead of the readiness series of 3 months. Overall, we conclude that the reported readiness to spend on durables is a reasonable proxy (or predictor) for movements in aggregate durables consumption.

We plot the average of the one-year ahead expected inflation rate across individual responses at each point in time together with the actual inflation rate in Figure 4. The shaded gray regions represent +/- one standard deviation of the survey responses. The actual inflation rate is the corresponding 12 months ahead rate as measured by the headline CPI, and has thus been brought into sync with inflation expectations. Overall, it appears that the one-year inflation expectations from the Michigan Survey of Consumers track the actual inflation rate reasonably well. The graph also suggests that we have sufficient variation across households in inflation expectations to learn from a cross-sectional analysis of the data. Figure 5 plots the five-to-ten-year-ahead inflation expectations. Even for longer horizon inflation expectations we have a

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[5]We use the series on Real Personal Consumption Expenditures: Durables (PCEDGC96) from the Federal Reserve Economic database (FRED). Since the series starts only in 1995, we obtain the corresponding nominal series (PCEDGC) for the period prior to 1995 and deflate it with the linearly interpolated quarterly price index from the Bureau of Economic Analysis (Table 2.3.4). We link both series.

substantial amount of cross-sectional heterogeneity that should help us identify the link between long-term inflation expectations and spending.

2.3   Ordered Probits

Our benchmark regression specification takes the following form (we suppress time and household indices for better readability):

$$y^* = \beta_1 \pi^e + \beta_2 \pi^e \times D_{ZLB} + x\gamma + \epsilon,$$

where y^* denotes a continuous latent variable measuring willingness to spend on durables, π^e the inflation expectations of a household, D_{ZLB} a dummy variable for the zero lower bound period, which takes on unity from 2008:12 to 2010:12 (and zero otherwise). x is a vector of controls that includes D_{ZLB}.

The latent variable y^* is not observable, but the discrete survey responses, y, are. The survey responses are coded in such a way that three outcomes are possible: '1' indicating that now is a good time to buy household consumer durables, '-1' meaning that now is bad time to buy, and '0' saying that now is neither a good nor a bad time to buy. We model the relationship between y^* and y as:

$$y = \begin{cases} -1 & \text{if } y^* \leq \alpha_1 \\ 0 & \text{if } \alpha_1 < y^* \leq \alpha_2 \\ +1 & \text{if } \alpha_2 < y^* \end{cases}$$

with threshold values α_1 and α_2. We estimate this model as an ordered probit, using the observations on y to estimate $(\beta_1, \beta_2, \gamma)$ as well as α_1 and α_2.[6]

This specification allows us to estimate the marginal effects of increased inflation expectations on the probability that a household finds buying conditions favorable, both inside and outside the zero lower bound regime. β_1 measures the partial effect of an increase in expected inflation on willingness to buy during normal times, while $\beta_1 + \beta_2$ measures the partial effect at the zero lower bound.

γ denotes the coefficient vector for the controls. We start by including (qualitative) *idiosyncratic expectations* about the *idiosyncratic situation* of the household: its expected change in financial situation (Q6) and the expected trajectory of its real income (Q7). Like the buying attitudes question, these responses are coded in one of three discrete categories: up, down, or

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[6]We experimented with ordered logits and found very similar results.

"about the same". Next, we include *idiosyncratic expectations* about the *aggregate economic situation*: the expected (qualitative) changes in the nominal interest rate (Q8) and the expected (qualitative) aggregate business conditions in a year (Q9). These responses are also encoded into one of three discrete categories. Finally, we include the current real income of the household.[7] As aggregate controls we use Q9 to construct an index of *aggregate expectations* about the *aggregate economic situation*: the index measures the share of respondents saying that the U.S. as a whole will have good business conditions during the next 12 months minus the share of those respondents answering that the country will have bad business conditions. We also construct an index for aggregate economic uncertainty by calculating the fraction of respondents saying that now is a bad time to buy major household items because the future economic situation is too uncertain (as a fraction of everybody saying that now is a bad time to buy).

The next set of controls concerns current aggregate conditions. We include the federal funds rate, the civilian unemployment rate (in percentage points) and the current inflation rate (percentage year over year change in the consumer price index).[8] As an alternative to the specification with aggregate controls, we also consider a specification where we control for aggregate effects using a set of year dummies. We drop all aggregate variables in this specification.[9]

The final set of controls concerns demographic factors. We include a dummy which takes on unity for female respondents and zero for males ('Sex') as well as dummies for each race, except for non-hispanic Caucasians, i.e. 'African American', 'Hispanic American', 'Native American', and 'Asian American'. Finally, we add polynomials of the age of the respondent ('Age', 'Age^2', and 'Age^3') to account for possible changes in the life-cycle behavior of consumption.

3 Results

3.1 Reasons for Buying and Not Buying

The Michigan Survey not only asks whether now is a good or bad time to buy major household durables, cars and houses, but also asks for reasons for a given answer. For both categories, good and bad, we show the frequency of the five most important reasons related to buying conditions for major household durables in Figures 6 and 7, respectively. The shares of these

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[7]We use the survey question on the current nominal household income (in U.S. dollars) and deflate it with the consumer price index (CPIAUCSL) from the St. Louis Federal Reserve Bank data base FRED.

[8]The series are from the St. Louis Federal Reserve Bank data base FRED. We use FEDFUNDS, UNRATE and CPIAUCSL.

[9]We also experimented with month dummies, but found their coefficients to be mostly insignificant. In any event, our main parameters of interest hardly changed, when we included such seasonal dummies. We also experimented with full time dummies instead of year dummies, but again found many of them insignificant. The computational burden would be much higher without any changes to our results.

top answers typically sum to a number around 70%. Figures 8 and 9 present the corresponding graphs for cars and Figures 10 and 11 for houses.

The answer "Prices are going up" was never the major reason to buy durables, cars or houses. In fact, it ranks mostly third or fourth amongst the reasons for buying these items. The single most important reason for a favorable outlook on buying conditions for major household items is "Good buys available".[10] During the recent zero lower bound period the share of "Good buys available" is exceptionally large. Perhaps surprisingly, the answer "Interest rates are low" does not play any role during this period. For cars and houses, "Good buys are available" often switches the position of top reason with "Interest rates are low".

Regarding the reasons why now is a bad time to buy major household items, cars or houses, the answer "Prices will fall later" is never the top answer, in particular not during the zero lower bound period. The fraction of respondents who give expected price decreases as the reason for not buying now is generally very much below 10 percent. A noticeable exception is the readiness to buy a house in the zero lower bound period. Also, in the very recent period of exceptionally low interest rates, the shares of the five most important answers across the whole sample period sum to a rather small number of around 15%. It turns out that the zero lower bound period seems to be different from the periods before in that answer categories such as "People can't afford to buy now; low levels of employment; times are bad; don't have money to spend; recession; inflation" or "People should save money; uncertainty of future, bad times ahead, employment too uncertain" became dominant. Those catogeries play a minor role during normal times and have played a much smaller role during previous recessions.

3.2 Specification with One-Year Inflation Expectations

We report the estimation results for our baseline specification with the one-year inflation expectations in Table 1. The table shows the estimated coefficients as well as marginal effects evaluated at the zero lower bound (ZLB=1) and for the case that interest rates are away from it (ZLB=0).[11] When calculating marginal effects, we set the remaining variables to their means conditional on ZLB=1 and ZLB=0, respectively. In each case we document the point estimates

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[10]There is some ambiguity about what "Good buys are available" exactly means. We interpret it as essentially meaning that households know of sales available for durables.

[11]We report the marginal effects for the probability of the highest outcome, i.e. $p_1 = P(y = 1|z)$ with $z = (\pi^e, \pi^e \times D_{ZLB}, x)$, and thus for the case that households find buying conditions favorable. Let $\phi(\cdot)$ denote the first derivative of the normal density function $\Phi(\cdot)$ and $\delta = (\beta_1, \beta_2, \gamma)$. The marginal effect for inflation expectations at $ZLB = 1$ is calculated as $\partial p_1(z)/\partial \pi^e = (\beta_1 + \beta_2)\phi(\alpha_2 - \bar{z}_{|ZLB=1}\delta)$, where $\bar{z}_{|ZLB=1}$ denotes the mean of z within the zero lower bound regime. Accordingly, $\partial p_1(z)/\partial \pi^e = \beta_1\phi(\alpha_2 - \bar{z}_{|ZLB=0}\delta)$ is the corresponding marginal effect at $ZLB = 0$. The marginal effect with respect to a control variable x_k is $\partial p_1(z)/\partial x_k = \gamma_k\phi(\alpha_2 - \bar{z}_{|ZLB=1}\delta)$ within the zero lower bound regime and $\partial p_1(z)/\partial x_k = \gamma_k\phi(\alpha_2 - \bar{z}_{|ZLB=0}\delta)$ when interest rates are away from it. See also Wooldridge (2002), Chapter 15.

together with standard errors in brackets below the point estimates, and denote significance at the 1 percent, 5 percent, and 10 percent level by '***', '**', and '*', respectively. The corresponding estimates for the demographic controls are shown in Table 2. They show that young, male, non-hispanic Caucasians are the biggest spenders on durable household items.

With respect to the coefficients of the control variables, we obtain plausible and significant estimates, except for the current inflation rate and the federal funds rate, for which we obtain insignificant estimates. As one would expect, the expected financial situation of the household and its real income, the expected business conditions (idiosyncratic and aggregate), and the current real household income all have positive effects on the reported spending readiness. Moreover, an expected increase in *future* nominal interest rates makes people want to spend more *today*, while higher uncertainty and unemployment rates decrease the probability that people find buying conditions favorable. Interestingly, the coefficient on the zero lower bound intercept dummy is positive (though not significantly so). It is important to keep in mind, though, that this is the impact of the zero lower bound episode after controlling for other aggregate variables.

For the expected one-year inflation rate, we obtain a significantly negative coefficient ($\beta_1 = -0.0051$), which is even more negative when the economy is at the zero lower bound for nominal interest rates ($\beta_2 = -0.0089$). Moreover, the marginal effect of expected inflation on spending is significantly different from zero and equal to -0.0015 for positive interest rates, meaning that a 1 percentage point increase in expected inflation approximately lowers the probability that households have a positive attitude towards spending by 0.15 percentage points. This result could be consistent with a forward-looking Taylor rule operating during normal times: households with high inflation expectations may assume that the monetary policy maker adjusts nominal interest rates and by more than one-for-one to counteract increased inflation expectations, thus resulting in higher real interest rates. We control for nominal interest rate expectations, but due to the construction of the survey data we can do so only in a qualitative and thus imperfect way. This negative result is also consistent with the view of inflation being a tax on decentralized economic activity, an effect which has recently been found to be large in U.S. data by Aruoba and Schorfheide (2011). It is, finally, in line with the aforementioned Volcker-view of inflation as a sign of economic distress.

The adverse effect of inflation expectations and willingness to spend is even larger when evaluated at the zero lower bound (-0.34 percentage points). However, whether the zero lower bound binds or not, the impact of inflation expectations on desired spending is small in absolute value when compared to the impact of other variables. For example, a 1 percentage point decline in the current unemployment rate increases the probability that households report that now is a good time to buy major household items by more than 1 percentage point.

If the household reports that its financial situation is expected to improve the probability of a positive attitude towards spending increases by approximately 3 percentage points.

The coefficient estimates and marginal effects for the specification with year dummies instead of economically motivated aggregate controls are documented in Table 3. Consistent with our previous results we obtain highly significant and plausible estimates for both the coefficients and marginal effects of the control variables. The impact of expected inflation on the household's attitude towards spending is again negative and small in absolute value in comparison with the impact of the current or expected idiosyncratic economic situation of the household. Again we obtain different marginal effects across the two monetary policy regimes. The estimated marginal effect during the zero lower bound period is negative and twice as large in absolute terms than that during normal times.

3.3   Specification with Five-to-Ten-Year Inflation Expectations

We show the estimation results for the specification with the five-to-ten-year inflation expectations and economically-motivated aggregate controls in Table 4. We do not report the results for the demographic controls from now on because there is little to no variation across the different specifications. There is a possibility that longer-term inflation expectations conform better with the average time horizon for the buying decision on some consumer durables. Regarding the control variables, we conclude that replacing the one-year inflation expectations by the five-to-ten-year inflation expectations has neither an impact on the sign nor on the magnitude of the coefficients and marginal effects. Moreover, the statistical significance of the estimates is similar across specifications. With respect to the impact of five-to-ten-year inflation expectations on the reported readiness to spend, we again obtain negative estimates for the marginal effects (-0.09 percentage points at both $D_{ZLB} = 0$ and $D_{ZLB} = 1$, though not significantly different from zero for the latter), while the impact is also small in absolute value.

Table 5 reports the estimation outcome for the specification with year dummies. The coefficient estimates as well as the estimated marginal effects for the controls remain significant and plausible. In line with our previous findings we estimate economically negligible marginal effects for the expected five-to-ten year inflation rate on the reported readiness to spend on durables for both the zero lower bound period and normal times. Moreover, the effects are negative for both monetary policy regimes, if insignificant for the zero lower bound episode.

3.4 Robustness Checks and Extensions

3.4.1 Subjective Probabilities for Real Income Gains and Job Losses

We investigate whether our results are robust to the inclusion of additional controls for idiosyncratic expectations about idiosyncratic economic situations. We add the subjective probabilities for real income gains (Q11) and job loss (Q12) to both the aggregate controls and the year dummy specification. The question on the probability of a job loss during the next 5 years is particularly interesting since we have not included a measure for the individual job situation (as opposed to the overall unemployment rate) so far. However, both questions are only available from 1998:01 onwards which limits our sample period. We thus consider them for robustness only.

The estimation results for the augmented models are reported in Tables 6 and 7. Overall, our previous findings are not altered by including these two additional controls. Moreover, for both controls we obtain plausible and significant coefficient estimates and marginal effects throughout all specifications. The probability that households report a positive attitude towards spending increases with the probability of real income gains and decreases with the probability of a job loss.

3.4.2 Buying Conditions for Cars

The Michigan Survey of Consumers not only asks for buying conditions for major household durables but also whether the next 12 months or so will be a good or a bad time to buy a car (Q3). Using (Q3) we extend our study to the reported readiness to spend on cars. To this end we need to ensure that inflation expectations lie strictly in the future relative to the purchasing horizon. We thus account for the fact that the question asks not whether *now* is a good time to buy but instead refers to the *next 12 months or so* by restricting our analysis to the five-to-ten-years inflation expectations. Moreover, we include the expected change in gasoline prices over the next 5 years in cents per gallon (Q13) and an aggregate measure of the car loan rate as additional controls.[12]

We show the results for cars in Tables 8 and 9, respectively. The results are similar to those for durable household items. Increased five-to-ten-years inflation expectations reduce the probability that households report a positive attitude towards spending on cars. The effect is even more negative at the zero lower bound but still small in absolute value. For both additional controls, we obtain significant and plausible coefficient estimates and marginal effects. An increase in expected gasoline prices reduces the probability that households find buying condi-

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[12]We obtain the car loan rate series from the Federal Reserve Board of the Governors. The table there is labeled "Terms of Credit at Commercial Banks and Finance Companies - New car loans at auto finance companies".

tions favorable. Moreover, higher car loan rates are associated with a smaller probability that households have a positive attitude towards spending on cars.

3.4.3 Buying Conditions for Houses

As a second extension, we consider the question on buying conditions for houses, asking if *now* is a good or a bad time to buy a house (Q4). To control for the financing costs , we add an aggregate measure of the 30-year mortgage rate to the model.[13] Unfortunately, the data on qualitative one-year and five-year house price expectations - (Q14) and (Q15), respectively - are not available for the period prior to May 2007.[14] We thus present two sets of results, one without house price expectations, covering the full sample period from 1984:01 to 2010:12, and one with house price expecations included. For the latter, we restrict our analysis to the period from 2007:05 to 2010:12, meaning that we have only few observations outside the zero lower bound period in this case.

The results for houses are reported in Tables 10 to 17. Altogether, expected inflation has similar effects on the reported readiness to buy houses as were found in the case of major household durables and cars. For the specifications without house price expectations and one-year inflation expectations, the mortgage rate has a significantly negative impact on the probability that households find buying conditions for houses favorable, while in other specifications, in particular when we control for expected house price changes, its coefficients and average marginal effects are insignificant. Increased house price expectations, however, have significantly positive effects on the probability that households have a positive attitude towards buying a house now.

3.4.4 Control Function Approach

As a final robustness check, we address the potential problem that inflation expectations are only observed with a measurement error, e.g. when survey respondents exert less effort to come up with their best estimate for the inflation outlook when answering the survey compared to when they actually go buy durable goods. A related concern is that we have failed to control for some factor relevant for both buying attitudes and inflation expectations. We follow the recommendation of Rivers and Vuong (1988), Wooldridge (2002) as well as Imbens and Wooldridge (2007) and use a so-called control function (CF) approach. The CF approach is a two stage

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[13]The mortgage rate series is from the Federal Reserve Board of the Governors. The series ID is MORTG.

[14]The qualitative house price expectations are coded '+1' for an expected increase in house prices, '0' for no price change, and '-1' for an expected decrease in house prices. The Michigan survey also asks for an expected percentage change in house prices. Unfortunately, this quantitative series shows a large number of missing observations and we thus decided not to use it.

instrumental variable estimation method that can also be applied to non-linear models. We proceed as follows.

First, we construct for eight different demographic groups (female/male cross Caucasian/Non-Caucasian cross young/old)[15] a time series of group specific inflation expectations by averaging across individual expectations for each month. Since for all practical purposes the available data in the Michigan Survey does not allow researchers to follow households over time, it is not possible to construct a time series of inflation expectations for each individual household. Given the group-specific inflation expectations, we can, however, attach an inflation expectation to each household and period, depending on which of these eight demographic groups households belong to.

Second, we use lagged inflation expectations as instruments in the CF approach. In particular, we regress in the first stage regressions household-specific inflation expectations on all exogenous variables plus 12 lags of the group-specific inflation expectations using ordinary least squares (OLS). We experimented with various lag structures and our results appear to be robust. The results of these first stage regressions are shown in Tables 18 and 19. Table 19 shows that group-specific inflation expectations at most lags are highly significant predictors of household-specific inflation expectations and as such constitute reasonable instruments.

Finally, we add the first stage residuals to our probit models in order to control for the potential endogeneity of household-specific inflation expectations and any function of them, including the interaction term with the zero lower bound dummy (see Imbens and Wooldridge, 2007, for the precise argument). The second stage, i.e. probit estimates are reported in Table 20. The first important result is that the coefficients on the first stage residual in the second stage ordered probit are not statistically different from zero, which suggests that endogeneity of individual inflation expectations is indeed not likely a concern (see Wooldridge, 2002, chapter 15). Secondly, the point estimates for the coefficients of interest, i.e. individual inflation expectations and individual inflation expectations interacted with the zero lower bound dummy, are hardly changed compared to the benchmark results. The only exception is the coefficient on individual inflation expectations in the year dummy specification, which changes from a significant -0.0014 to an insignificant 0.0074. However, the standard error on the latter is so large that we cannot reject the hypothesis that the benchmark estimate and the CF estimate are in fact the same.

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[15]We use a bivariate clustering method in age and inflation expectations to estimate a cut-off point between being young and old. The estimated value is approximately 48 years, which is close to both the sample mean and median age across individuals. We experimented with higher and lower cut-off points without any substantial effects on our results.

4 Conclusion

This paper investigates empirically the link between inflation expectations and readiness to spend on large household items, both outside and inside the zero lower bound regime for the federal funds rate. We do so using cross-sectional household data from the Michigan Survey of Consumers. We find little evidence to support the idea that inflations expectations matter for the buying decisions of households, either inside or outside the lower bound. If anything our results support the view that higher inflation as a tax on economic activity means future welfare losses, or even portends the impotence of macroeconomic stabilization policy and economic distress in the future. While we are of course aware that our reduced-form results are subject to the Lucas critique, we nevertheless think that they tell a cautionary tale about the notion that stabilization policy at the zero lower bound should attempt to generate inflation expectations to lower real rates and stimulate spending. After all, why should a household which for idiosyncratic reasons has high inflation expectations and is not inclined to purchase household durables, cars or houses, should change its mind, when these inflation expectations have been successfully engineered by the monetary or fiscal authority?

Our results do suggest, however, that stabilization policy should likely target other problems and not focus on raising inflation expectations. On the other hand, it should also be noted that our results do not invalidate per se the underlying macroeconomic models on which the policy recommendations in favor of engineering higher inflation expectations are based: it could very well be that consumers have not yet understood the new policy regime at the zero lower bound, having a conventional forward-looking Taylor rule in their minds when they think about the consequences of higher expected inflation. Another possibility could be that the envisioned channel – inflation expectations generating aggregate demand – works through investment rather than consumption expenditures. We leave this open to future research.

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Figure 1: Buying Conditions for Durable Goods - Aggregate Index
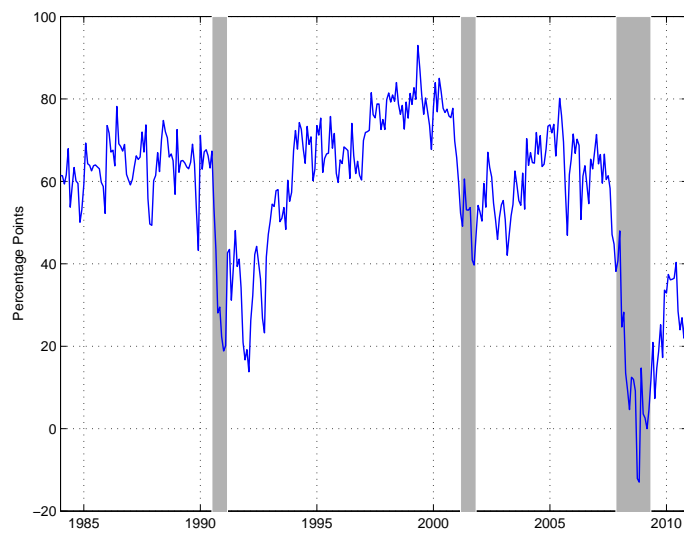
Notes: this figure shows the monthly time series of the fraction of people saying that now is a good time to buy durable goods minus those responding that now is a bad time to buy (solid line) together with U.S. recessions as dated by the NBER (gray shaded area). This aggregate index is based on Q1.

Figure 2: Relationship between Aggregate Actual Consumption Expenditures on Durables and the Reported Readiness to Buy Durables
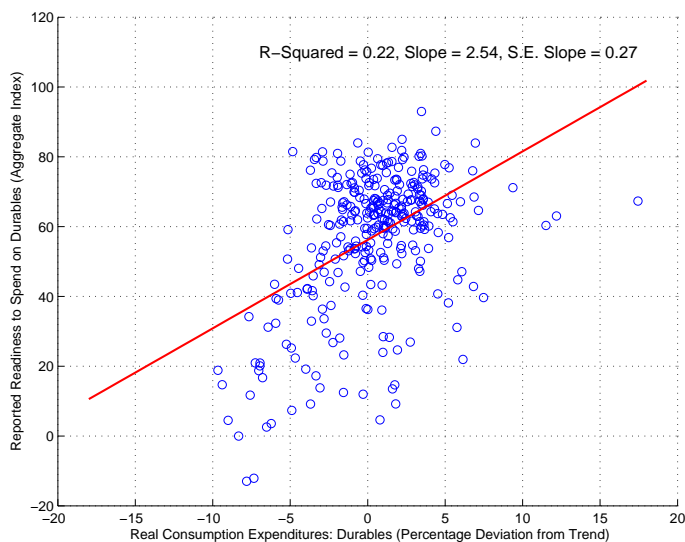
Notes: this figure shows a scatter plot between the reported readiness to spend on durables (see notes to Figure 1) and the detrended actual aggregate spending series together with a fitted regression line. We apply an HP-filter (with smoothing parameter $\lambda = 129,600$) to the actual aggregate spending series in order to obtain a measure for the cyclical component of consumer spending.

Figure 3: Dynamic Correlogram between Aggregate Actual Consumption Expenditures on Durables and the Reported Readiness to Buy Durables
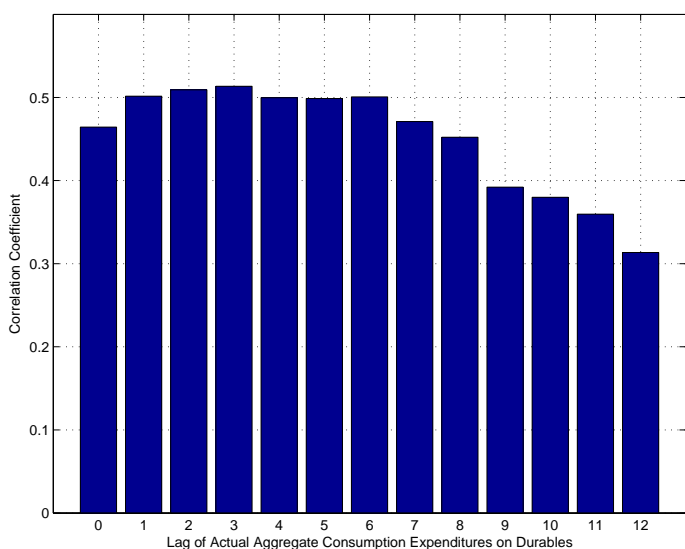
Notes: see notes to Figure 2. This figure shows a dynamic correlogram between the reported readiness to spend on durables and the detrended actual aggregate spending series.

Figure 4: One-Year Inflation Expectations
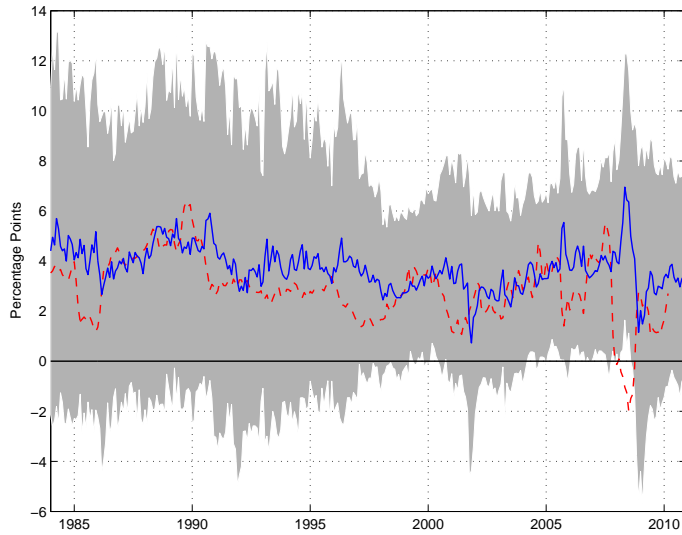
Notes: this figure shows the average one-year inflation expectations (solid line) together with the actual one-year-ahead inflation (dashed line) and a cross-sectional one standard deviation interval (gray shaded are). Inflation expectations are based on survey question Q2. Actual inflation, the timing of which has been brought in sync with inflation expectations, is based on the headline CPI (series CPIAUCSL from the St. Louis Federal Reserve Bank data base FRED).

Figure 5: Five-to-Ten-Years Inflation Expectations
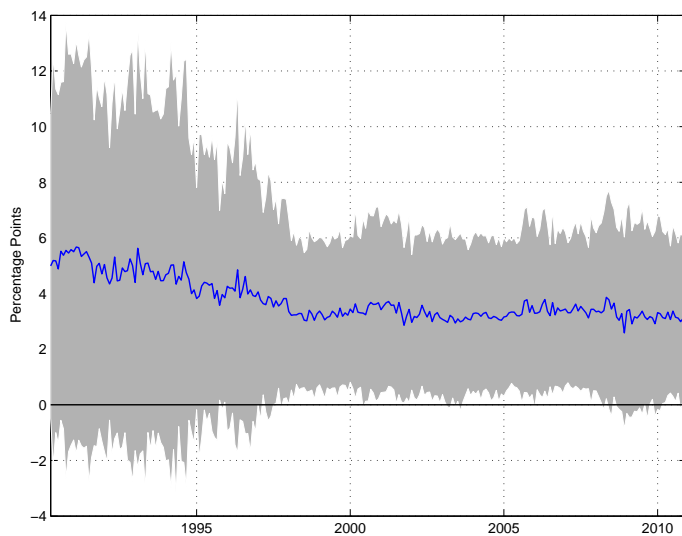
Notes: this figure shows the average five-to-ten-years inflation expectations (solid line) together with a cross-sectional one standard deviation interval (gray shaded area). Inflation expectations are based on survey question Q5.

Figure 6: Reported Reasons for Buying Durables
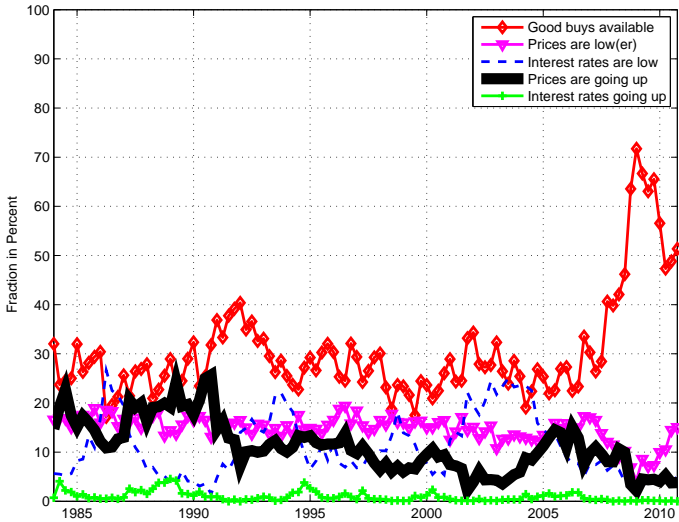
Notes: this figure shows the top five reasons why people are saying that now is a good time to buy durable consumption goods. Conditional on saying that now is a good time to buy, people are asked for one particular reason, meaning that the fractions of all possible reasons sum to 100 percent. For better readability we plot quarterly averages of the monthly numbers.

Figure 7: Reported Reasons for Not Buying Durables
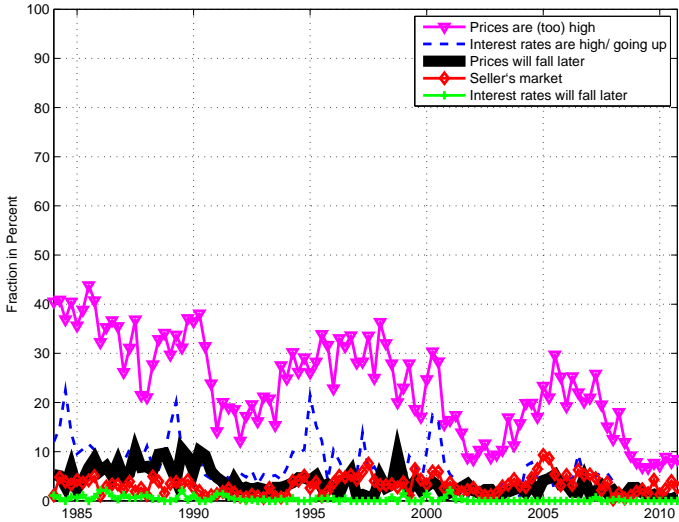
Notes: this figure shows the top five reasons why people are saying that now is a bad time to buy durable consumption goods. Conditional on saying that now is a bad time to buy, people are asked for one particular reason, meaning that the fractions of all possible reasons sum to 100 percent. For better readability we plot quarterly averages of the monthly numbers.

Figure 8: Reported Reasons for Buying Cars
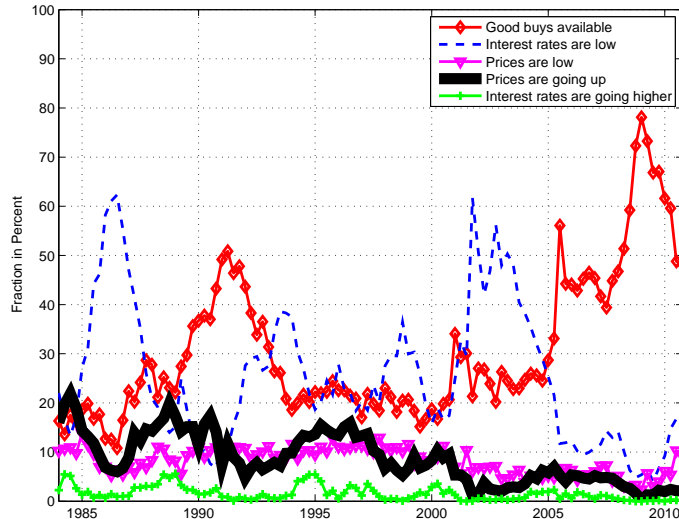
Notes: this figure shows the top five reasons why people are saying that now is a good time to buy a car. Conditional on saying that now is a good time to buy, people are asked for one particular reason, meaning that the fractions of all possible reasons sum to 100 percent. For better readability we plot quarterly averages of the monthly numbers.

Figure 9: Reported Reasons for Not Buying Cars
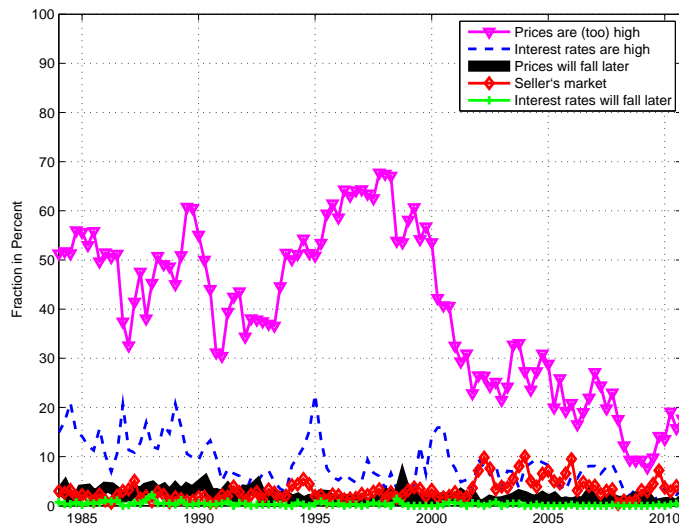
Notes: this figure shows the top five reasons why people are saying that now is a bad time to buy a car. Conditional on saying that now is a bad time to buy, people are asked for one particular reason, meaning that the fractions of all possible reasons sum to 100 percent. For better readability we plot quarterly averages of the monthly numbers.

Figure 10: Reported Reasons for Buying Houses
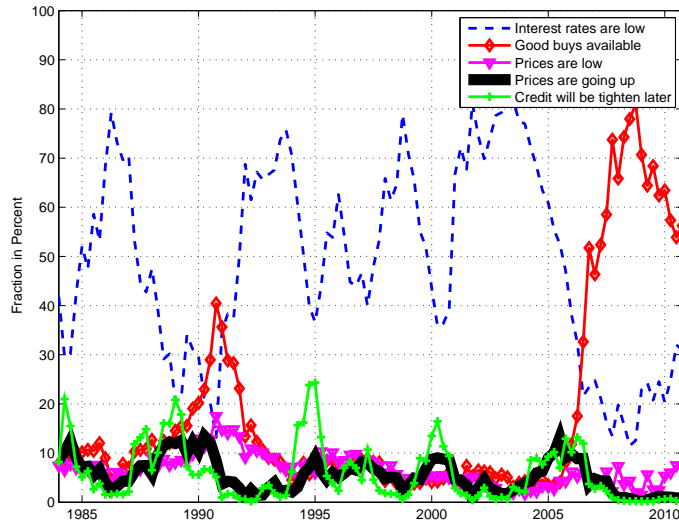
Notes: this figure shows the top five reasons why people are saying that now is a good time to buy a house. Conditional on saying that now is a good time to buy, people are asked for one particular reason, meaning that the fractions of all possible reasons sum to 100 percent. For better readability we plot quarterly averages of the monthly numbers.

Figure 11: Reported Reasons for Not Buying Houses
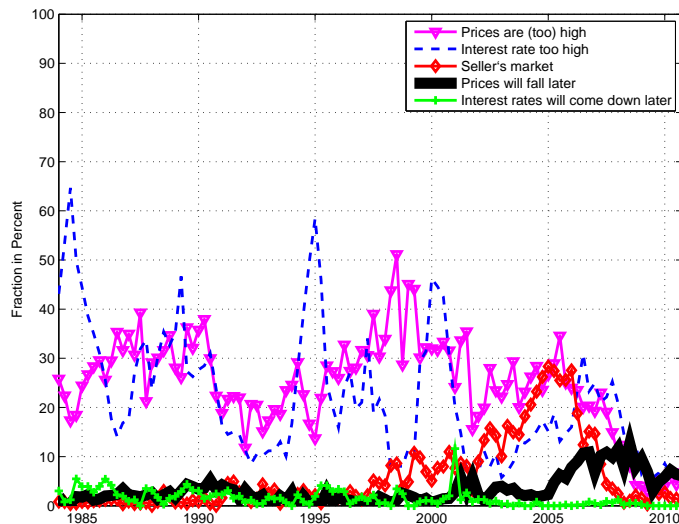
Notes: this figure shows the top five reasons why people are saying that now is a bad time to buy a house. Conditional on saying that now is a bad time to buy, people are asked for one particular reason, meaning that the fractions of all possible reasons sum to 100 percent. For better readability we plot quarterly averages of the monthly numbers.

Table 1: Baseline Specification with 1Y Inflation Expectations: Durables

Dependent Variable: Buying Conditions for Durables	Sample: 1984:01 to 2010:12		
Number of observations: 122378	Pseudo R2: 0.0570		

| | | Marginal Effects | |
Independent Variables	Coefficients	at ZLB = 0	at ZLB = 1
Inflation Expectations (1Y)	−0.0051***	−0.0015***	−0.0034***
	(0.0008)	(0.0002)	(0.0010)
ZLB Dummy Interacted with Expected Inflation (1Y)	−0.0038		
	(0.0027)		
ZLB Dummy	0.0317	0.0094	0.0122
	(0.0265)	(0.0078)	(0.0102)
Expected Financial Situation of Household	0.0879***	0.0260***	0.0339***
	(0.0060)	(0.0018)	(0.0023)
Expected Real Household Income	0.0622***	0.0184***	0.0204***
	(0.0061)	(0.0018)	(0.0024)
Expected Change in Nominal Interest Rate	0.0489***	0.0145***	0.0189***
	(0.0055)	(0.0016)	(0.0021)
Expected Aggregate Business Conditions (Idiosyncratic)	0.2103***	0.0622***	0.0812***
	(0.0045)	(0.0013)	(0.0018)
Current Real Household Income	0.0673***	0.0199***	0.0260***
	(0.0056)	(0.0017)	(0.0022)
Expected Aggregate Business Conditions (Index)	0.0032***	0.0010***	0.0012***
	(0.0002)	(0.0001)	(0.0001)
Uncertainty (Index)	−0.0057***	−0.0017***	−0.0022***
	(0.0006)	(0.0002)	(0.0002)
Federal Funds Rate	−0.0045	−0.0013	−0.0018
	(0.0028)	(0.0008)	(0.0011)
Civilian Unemployment Rate	−0.0470***	−0.0139***	−0.0181***
	(0.0043)	(0.0013)	(0.0017)
Current Inflation Rate	−0.0035	−0.0010	−0.0013
	(0.0048)	(0.0014)	(0.0018)

Notes: '***', '**', and '*' denote significance at the 1 percent, 5 percent, and 10 percent level, respectively. Standard errors are in paranthesis. The Zero Lower Bound (ZLB) Dummy takes on unity from 2008:12 to 2010:12 (and zero otherwise). Marginal effects measure the effect of a particular variable on the probability that households find buying conditions favorable in percentage points; evaluated within and outside the ZLB regime with the remaining variables set at their respective conditional means (further details on the calculation of marginal effects are provided in Footnote 9 in the main text). The dependent variable is "Buying conditions for household durable", based on (Q1), which is coded '+1' for good, '0' for neither good nor bad, and '-1' for bad.

Table 2: Baseline Specification with 1Y Inflation Expectations: Durables - Demographics

Dependent Variable: Buying Conditions for Durables	Sample: 1984:01 to 2010:12		
Number of observations: 122378	Pseudo R2: 0.0570		

		Marginal Effects	
Independent Variables	Coefficients	at ZLB = 0	at ZLB = 1
Sex	-0.0809^{***}	-0.0239^{***}	-0.0312^{***}
	(0.0082)	(0.0024)	(0.0032)
African American	-0.0448^{***}	-0.0132^{***}	-0.0173^{***}
	(0.0145)	(0.0042)	(0.0056)
Hispanic American	-0.109^{***}	-0.0322^{***}	-0.0421^{***}
	(0.0187)	(0.0055)	(0.0072)
Native American	-0.0837^{**}	-0.0247^{**}	-0.0323^{**}
	(0.0416)	(0.0122)	(0.0160)
Asian American	-0.1470^{***}	-0.0435^{***}	-0.0568^{***}
	(0.0296)	(0.0088)	(0.0114)
Age	-0.0295^{***}	0.0005^{***}	0.0012^{***}
	(0.0053)	(0.0001)	(0.0002)
Age^2	0.0005^{***}		
	(0.0001)		
Age^3	0.0000^{***}		
	(0.0000)		

Notes: see notes to Table 1. The demographic controls include a dummy which takes on unity for female respondents and zero for males ('Sex') as well as dummies for each race, except for non-hispanic Caucasians, i.e. 'African American', 'Hispanic American', 'Native American', and 'Asian American'. We also add polynomials of the age of the respondent ('Age', 'Age^2', and 'Age^3').

Table 3: Year Dummy Specification with 1Y Inflation Expectations: Durables

Dependent Variable: Buying Conditions for Durables	Sample: 1984:01 to 2010:12		
Number of observations: 122378	Pseudo R2: 0.0595		
		Marginal Effects	
Independent Variables	Coefficients	at ZLB = 0	at ZLB = 1
Inflation Expectations (1Y)	−0.0048***	−0.0014***	−0.0030***
	(0.0008)	(0.0002)	(0.0009)
ZLB Dummy Interacted with Expected Inflation (1Y)	−0.0044		
	(0.0027)		
ZLB Dummy		−0.0050	−0.0042
		(0.0032)	(0.0026)
Expected Financial Situation of Household	0.0881***	0.0263***	0.0287***
	(0.0060)	(0.0018)	(0.0020)
Expected Real Household Income	0.0629***	0.0188***	0.0205***
	(0.0061)	(0.0018)	(0.0020)
Expected Change in Nominal Interest Rate	0.0396***	0.0118***	0.0129***
	(0.0056)	(0.0017)	(0.0018)
Expected Aggregate Business Conditions (Idiosyncratic)	0.2202***	0.0657***	0.0717***
	(0.0044)	(0.0013)	(0.0016)
Current Real Household Income	0.0682***	0.0203***	0.0222***
	(0.0056)	(0.0017)	(0.0018)

Notes: see notes to Table 1.

Table 4: Baseline Specification with 5Y Inflation Expectations: Durables

Dependent Variable: Buying Conditions for Durables	Sample: 1990:04 to 2010:12		
Number of observations: 87784	Pseudo R2: 0.0595		

| | | Marginal Effects | |
Independent Variables	Coefficients	at ZLB = 0	at ZLB = 1
Inflation Expectations (5Y)	−0.0030***	−0.0009***	−0.0009
	(0.0011)	(0.0003)	(0.0016)
ZLB Dummy Interacted with Expected Inflation (5Y)	0.0008		
	(0.0042)		
ZLB Dummy	0.05614*	0.0171*	0.0217*
	(0.0336)	(0.0102)	(0.0130)
Expected Financial Situation of Household	0.748***	0.0227***	0.0289***
	(0.0069)	(0.0021)	(0.0027)
Expected Real Household Income	0.0668***	0.0203***	0.0258***
	(0.0071)	(0.0022)	(0.0027)
Expected Change in Nominal Interest Rate	0.0527***	0.0160***	0.0204***
	(0.0065)	(0.0020)	(0.0025)
Expected Aggregate Business Conditions (Idiosyncratic)	0.2020***	0.0614***	0.0782***
	(0.0053)	(0.0016)	(0.0021)
Current Real Household Income	0.0535***	0.0163***	0.0207***
	(0.0064)	(0.0020)	(0.0025)
Expected Aggregate Business Conditions (Index)	0.0039***	0.0012***	0.0015***
	(0.0002)	(0.0001)	(0.0001)
Uncertainty (Index)	−0.0045***	−0.0014***	−0.0017***
	(0.0007)	(0.0002)	(0.0003)
Federal Funds Rate	0.0051	0.0015	0.0020
	(0.0035)	(0.0011)	(0.0014)
Civilian Unemployment Rate	−0.0436***	−0.0132***	−0.0169***
	(0.0063)	(0.0019)	(0.0024)
Current Inflation Rate	0.0069	0.0021	0.0027
	(0.0057)	(0.0017)	(0.0014)

Notes: see notes to Table 1.

Table 5: Year Dummy Spesification with 5Y Inflation Expectations: Durables

Dependent Variable: Buying Conditions for Durables	Sample: 1990:04 to 2010:12		
Number of observations: 87784	Pseudo R2: 0.0622		
		Marginal Effects	
Independent Variables	Coefficients	at ZLB = 0	at ZLB = 1
Inflation Expectations (5Y)	−0.0032***	−0.0010***	−0.0001
	(0.0011)	(0.0003)	(0.0013)
ZLB Dummy Interacted with Expected Inflation (5Y)	0.0028		
	(0.0042)		
ZLB Dummy		0.0033	0.0029
		(0.0049)	(0.0043)
Expected Financial Situation of Household	0.0755***	0.0233***	0.0245***
	(0.0069)	(0.0021)	(0.0023)
Expected Real Household Income	0.0671***	0.0207***	0.0218***
	(0.0071)	(0.0022)	(0.0023)
Expected Change in Nominal Interest Rate	0.0389***	0.0114***	0.0120***
	(0.0066)	(0.0020)	(0.0022)
Expected Aggregate Business Conditions (Idiosyncratic)	0.2127***	0.0655***	0.0691***
	(0.0052)	(0.0016)	(0.0018)
Current Real Household Income	0.0558***	0.0172***	0.0181***
	(0.0064)	(0.0020)	(0.0021)

Notes: see notes to Table 1.

Table 6: Baseline Specification with 1Y Inflation Expectations: Durables - With Subjective Probabilities

Dependent Variable: Buying Conditions for Durables		Sample: 1998:01 to 2010:12	
Number of observations: 54637		Pseudo R2: 0.0654	

		Marginal Effects	
Independent Variables	Coefficients	at ZLB = 0	at ZLB = 1
Inflation Expectations (1Y)	−0.0084***	−0.0025***	−0.0039***
	(0.0017)	(0.0005)	(0.0010)
ZLB Dummy Interacted with Expected Inflation (1Y)	−0.0017		
	(0.0031)		
ZLB Dummy	0.1620***	0.0480***	0.0624***
	(0.0588)	(0.0174)	(0.0226)
Subjective Probability of Job Loss	−0.0017***	−0.0005***	−0.0007***
	(0.0002)	(0.0001)	(0.0001)
Subjective Probability of Real Income Gains	0.0009***	0.0003***	0.0003***
	(0.0003)	(0.0001)	(0.0001)
Expected Financial Situation of Household	0.0719***	0.0213***	0.0277***
	(0.0087)	(0.0026)	(0.0034)
Expected Real Household Income	0.0473***	0.0140***	0.0182***
	(0.0104)	(0.0031)	(0.0040)
Expected Change in Nominal Interest Rate	0.0531***	0.0157***	0.0204***
	(0.0084)	(0.0025)	(0.0033)
Expected Aggregate Business Conditions (Idiosyncratic)	0.1973***	0.0584***	0.0760***
	(0.0068)	(0.0020)	(0.0026)
Current Real Household Income	0.0479***	0.0142***	0.0185***
	(0.0081)	(0.0024)	(0.0031)
Expected Aggregate Business Conditions (Index)	0.0042***	0.0013***	0.0016***
	(0.0003)	(0.0001)	(0.0001)
Uncertainty (Index)	−0.0036***	−0.0011***	−0.0014***
	(0.0008)	(0.0002)	(0.0003)
Federal Funds Rate	0.0018	0.0005	0.0007
	(0.0076)	(0.0023)	(0.0029)
Civilian Unemployment Rate	−0.0559***	−0.0165***	−0.0215***
	(0.0164)	(0.0048)	(0.0063)
Current Inflation Rate	0.0262***	0.0078***	0.0101***
	(0.0065)	(0.0019)	(0.0025)

Notes: see notes to Table 1. We add the subjective probability for an adult household member to become unemployed in the next five years (Q12) and the subjective probability of real income gains in the next five years (Q11) as additional controls.

Table 7: Year Dummy Specification with 1Y Inflation Expectations: Durables - With Subjective Probabilities

Dependent Variable: Buying Conditions for Durables	Sample: 1998:01 to 2010:12		
Number of observations: 54637	Pseudo R2: 0.0679		

| | | Marginal Effects | |
Independent Variables	Coefficients	at ZLB = 0	at ZLB = 1
Inflation Expectations (1Y)	−0.0069***	−0.0021***	−0.00321***
	(0.0017)	(0.0005)	(0.0009)
ZLB Dummy Interacted with Expected Inflation (1Y)	−0.0027		
	(0.0031)		
ZLB Dummy		−0.0029	−0.0027
		(0.0032)	(0.0030)
Subjective Probability of Job Loss	−0.0018***	−0.0006***	−0.0006***
	(0.0002)	(0.0001)	(0.0001)
Subjective Probability of Real Income Gains	0.0009***	0.0003***	0.0003***
	(0.0003)	(0.0001)	(0.0001)
Expected Financial Situation of Household	0.0705***	0.0215***	0.0230***
	(0.0087)	(0.0027)	(0.0029)
Expected Real Household Income	0.0483***	0.0147***	0.0158***
	(0.0104)	(0.0032)	(0.0034)
Expected Change in Nominal Interest Rate	0.0332***	0.0101***	0.0108***
	(0.0086)	(0.0026)	(0.0028)
Expected Aggregate Business Conditions (Idiosyncratic)	0.2074***	0.0633***	0.0678***
	(0.0067)	(0.0020)	(0.0023)
Current Real Household Income	0.0492***	0.0150***	0.0161***
	(0.0082)	(0.0025)	(0.0027)

Notes: see notes to Tables 1 and 6.

Table 8: Baseline Specification with 5Y Inflation Expectations: Cars

Dependent Variable: Buying Conditions for Cars		Sample: 1990:04 to 2010:12	
Number of observations: 55172		Pseudo R2: 0.0380	

		Marginal Effects	
Independent Variables	Coefficients	at ZLB = 0	at ZLB = 1
Inflation Expectations (5Y)	−0.0045***	−0.0016***	−0.0044**
	(0.0016)	(0.0006)	(0.0018)
ZLB Dummy Interacted with Expected Inflation (5Y)	−0.0079		
	(0.0052)		
ZLB Dummy	−0.1449***	−0.0507***	−0.0523***
	(0.0499)	(0.0174)	(0.0182)
Car Loan Rate	−0.0129***	−0.0045***	−0.0046***
	(0.0037)	(0.0013)	(0.0013)
Expected Change in Gasoline Prices (5Y)	−0.0007***	−0.0002***	−0.0002***
	(0.0001)	(0.0000)	(0.0000)
Expected Financial Situation of Household	0.0722***	0.0253***	0.0261***
	(0.0083)	(0.0029)	(0.0030)
Expected Real Household Income	0.0962***	0.0337***	0.0348***
	(0.0085)	(0.0030)	(0.0031)
Expected Change in Nominal Interest Rate	−0.0384***	−0.0134***	−0.0139***
	(0.0080)	(0.0028)	(0.0029)
Expected Aggregate Business Conditions (Idiosyncratic)	0.1550***	0.0542***	0.0560***
	(0.0064)	(0.0022)	(0.0023)
Current Real Household Income	0.1270***	0.0445***	0.0459***
	(0.0079)	(0.0028)	(0.0029)
Expected Aggregate Business Conditions (Index)	0.0033***	0.0012***	0.0012***
	(0.0003)	(0.0001)	(0.0001)
Uncertainty (Index)	0.0061***	0.0021***	0.0022***
	(0.0009)	(0.0003)	(0.0003)
Federal Funds Rate	−0.0146**	−0.0051**	−0.0053**
	(0.0063)	(0.0022)	(0.0023)
Civilian Unemployment Rate	0.0137	0.0048	0.0050
	(0.0115)	(0.0040)	(0.0042)
Current Inflation Rate	−0.0416***	−0.0146***	−0.0150***
	(0.0069)	(0.0024)	(0.0025)

Notes: see notes to Table 1. The dependent variable is "Buying conditions for car", based on (Q3), which is coded '+1' for good, '0' for neither good nor bad, and '-1' for bad. We add the car loan rate from the Federal Reserve Board of the Governors and the expected gasoline price change over the next five years in cents per gallon and based on (Q13) as additional controls.

Table 9: Year Dummy Specification with 5Y Inflation Expectations: Cars

Dependent Variable: Buying Conditions for Cars	Sample: 1990:04 to 2010:12		
Number of observations: 55172	Pseudo R2: 0.0392		
		Marginal Effects	
Independent Variables	Coefficients	at ZLB = 0	at ZLB = 1
Inflation Expectations (5Y)	−0.0059***	−0.0020***	−0.0029
	(0.0016)	(0.0005)	(0.0018)
ZLB Dummy Interacted with Expected Inflation (5Y)	−0.0021		
	(0.0050)		
ZLB Dummy		−0.0028	−0.0024
		(0.0068)	(0.0058)
Expected Change in Gasoline Prices (5Y)	−0.0005***	−0.0002***	−0.0002***
	(0.0001)	(0.0000)	(0.0000)
Expected Financial Situation of Household	0.0714***	0.0247***	0.0258***
	(0.0083)	(0.0029)	(0.0030)
Expected Real Household Income	0.0943***	0.0326***	0.0341***
	(0.0085)	(0.0029)	(0.0031)
Expected Change in Nominal Interest Rate	−0.0472***	−0.0163***	−0.0171***
	(0.0082)	(0.0028)	(0.0030)
Expected Aggregate Business Conditions (Idiosyncratic)	0.1585***	0.0549***	0.0574***
	(0.0064)	(0.0022)	(0.0024)
Current Real Household Income	0.1284***	0.0444***	0.0465***
	(0.0079)	(0.0028)	(0.0029)

Notes: see notes to Tables 1 and 8.

Table 10: Baseline Specification with 1Y Inflation Expectations: Houses

Dependent Variable: Buying Conditions for Houses	Sample: 1984:01 to 2010:12		
Number of observations: 125779	Pseudo R2: 0.0666		

		Marginal Effects	
Independent Variables	Coefficients	at ZLB = 0	at ZLB = 1
Inflation Expectations (1Y)	−0.0098***	−0.0029***	−0.0056**
	(0.0008)	(0.0002)	(0.0008)
ZLB Dummy Interacted with Expected Inflation (1Y)	−0.0096***		
	(0.0029)		
ZLB Dummy	−0.6852***	−0.1990***	−0.1971***
	(0.0329)	(0.0095)	(0.0108)
Mortgage Rate	−0.0619***	−0.0180***	−0.0178***
	(0.0064)	(0.0019)	(0.0018)
Expected Financial Situation of Household	0.1052***	0.0306***	0.0303***
	(0.0060)	(0.0017)	(0.0018)
Expected Real Household Income	0.0630***	0.0183***	0.0181***
	(0.0061)	(0.0018)	(0.0018)
Expected Change in Nominal Interest Rate	−0.0386***	−0.0112***	−0.0111***
	(0.0055)	(0.0016)	(0.0016)
Expected Aggregate Business Conditions (Idiosyncratic)	0.1814***	0.0527***	0.0522***
	(0.0045)	(0.0013)	(0.0014)
Current Real Household Income	0.1770***	0.0514***	0.0509***
	(0.0055)	(0.0017)	(0.0017)
Expected Aggregate Business Conditions (Index)	0.0028***	0.0008***	0.0509***
	(0.0002)	(0.0001)	(0.0017)
Uncertainty (Index)	0.0014**	0.0004**	0.0004**
	(0.0006)	(0.0002)	(0.0002)
Federal Funds Rate	−0.0257***	−0.0075***	−0.0074***
	(0.0052)	(0.0015)	(0.0015)
Civilian Unemployment Rate	0.1250***	0.0363***	0.0359***
	(0.0072)	(0.0021)	(0.0021)
Current Inflation Rate	−0.0665***	−0.0193***	−0.0191***
	(0.0049)	(0.0014)	(0.0014)

Notes: see notes to Table 1. The dependent variable is "Buying conditions for houses", based on (Q4), which is coded '+1' for good, '0' for neither good nor bad, and '-1' for bad. We add the mortgage rate from the Federal Reserve Board of the Governors as an additional control.

Table 11: Year Dummy Specification with 1Y Inflation Expectations: Houses

Dependent Variable: Buying Conditions for Houses	Sample: 1984:01 to 2010:12		
Number of observations: 125779	Pseudo R2: 0.0742		
		Marginal Effects	
Independent Variables	Coefficients	at ZLB = 0	at ZLB = 1
Inflation Expectations (1Y)	−0.0100***	−0.0028***	−0.0059**
	(0.0008)	(0.0002)	(0.0009)
ZLB Dummy Interacted with Expected Inflation (1Y)	−0.0086***		
	(0.0030)		
ZLB Dummy		−0.0095***	−0.0080***
		(0.0033)	(0.0028)
Expected Financial Situation of Household	0.1090***	0.0308***	0.0342***
	(0.0060)	(0.0017)	(0.0019)
Expected Real Household Income	0.0640***	0.0181***	0.0201***
	(0.0061)	(0.0017)	(0.0019)
Expected Change in Nominal Interest Rate	−0.0284***	−0.0080***	−0.0089***
	(0.0057)	(0.0016)	(0.0018)
Expected Aggregate Business Conditions (Idiosyncratic)	0.1865***	0.0527***	0.0585***
	(0.0045)	(0.0013)	(0.0015)
Current Real Household Income	0.1857***	0.0525***	0.0583***
	(0.0055)	(0.0016)	(0.0018)

Notes: see notes to Tables 1 and 10.

Table 12: Baseline Specification with 5Y Inflation Expectations: Houses

Dependent Variable: Buying Conditions for Houses	Sample: 1990:04 to 2010:12		
Number of observations: 89972	Pseudo R2: 0.0617		

		Marginal Effects	
Independent Variables	Coefficients	at ZLB = 0	at ZLB = 1
Inflation Expectations (5Y)	−0.0080***	−0.0022***	−0.0040**
	(0.0011)	(0.0003)	(0.0012)
ZLB Dummy Interacted with Expected Inflation (5Y)	−0.0066		
	(0.0045)		
ZLB Dummy	−0.6143***	−0.1695***	−0.1683***
	(0.0405)	(0.0111)	(0.0137)
Mortgage Rate	0.0159*	0.0044*	0.0044*
	(0.0087)	(0.0024)	(0.0023)
Expected Financial Situation of Household	0.1128***	0.0311***	0.0309***
	(0.0070)	(0.0020)	(0.0020)
Expected Real Household Income	0.0549***	0.0152***	0.0151***
	(0.0073)	(0.0020)	(0.0020)
Expected Change in Nominal Interest Rate	−0.0666***	−0.0184***	−0.0183***
	(0.0067)	(0.0019)	(0.0019)
Expected Aggregate Business Conditions (Idiosyncratic)	0.1785***	0.0493***	0.0489***
	(0.0054)	(0.0015)	(0.0018)
Current Real Household Income	0.1726***	0.0476***	0.0473***
	(0.0064)	(0.0018)	(0.0021)
Expected Aggregate Business Conditions (Index)	0.0038***	0.0011***	0.0011***
	(0.0003)	(0.0001)	(0.0001)
Uncertainty (Index)	0.0025***	0.0007***	0.0007***
	(0.0008)	(0.0002)	(0.0002)
Federal Funds Rate	−0.0413***	−0.0114***	−0.0113***
	(0.0064)	(0.0018)	(0.0016)
Civilian Unemployment Rate	0.1390***	0.0384***	0.0381***
	(0.0086)	(0.0024)	(0.0029)
Current Inflation Rate	−0.0675***	−0.0186***	−0.0185***
	(0.0060)	(0.0017)	(0.0017)

Notes: see notes to Tables 1 and 10.

Table 13: Year Dummy Specification with 5Y Inflation Expectations: Houses

Dependent Variable: Buying Conditions for Houses	Sample: 1990:04 to 2010:12		
Number of observations: 89972	Pseudo R2: 0.0681		

		Marginal Effects	
Independent Variables	Coefficients	at ZLB = 0	at ZLB = 1
Inflation Expectations (5Y)	−0.0088***	−0.0024***	−0.0045***
	(0.0011)	(0.0003)	(0.0013)
ZLB Dummy Interacted with Expected Inflation (5Y)	−0.0066		
	(0.0044)		
ZLB Dummy		−0.0070	−0.0061
		(0.0047)	(0.0041)
Expected Financial Situation of Household	0.1145***	0.0310***	0.0337***
	(0.0070)	(0.0019)	(0.0021)
Expected Real Household Income	0.0537***	0.0145***	0.0158***
	(0.0073)	(0.0020)	(0.0022)
Expected Change in Nominal Interest Rate	−0.0493***	−0.0133***	−0.0145***
	(0.0069)	(0.0019)	(0.0020)
Expected Aggregate Business Conditions (Idiosyncratic)	0.1830***	0.0495***	0.0539***
	(0.0054)	(0.0014)	(0.0017)
Current Real Household Income	0.1801***	0.0488***	0.0531***
	(0.0065)	(0.0018)	(0.0020)

Notes: see notes to Tables 1 and 10.

Table 14: Baseline Specification with 1Y Inflation Expectations: Houses - With House Price Expectations

Dependent Variable: Buying Conditions for Houses		Sample: 2007:05 to 2010:12	
Number of observations: 16164		Pseudo R2: 0.0687	
		Marginal Effects	
Independent Variables	Coefficients	at ZLB = 0	at ZLB = 1
Inflation Expectations (1Y)	−0.0149***	−0.0052***	−0.0048**
	(0.0034)	(0.0012)	(0.0008)
ZLB Dummy Interacted with Expected Inflation (1Y)	−0.0023		
	(0.0044)		
ZLB Dummy	−0.0986	−0.0342	−0.0277
	(0.0973)	(0.0337)	(0.0274)
Mortgage Rate	0.0279	0.0097	0.0079
	(0.0436)	(0.0151)	(0.0048)
Expected Change in House Prices (1Y)	0.1320***	0.0457***	0.0371***
	(0.0171)	(0.0059)	(0.0048)
Expected Financial Situation of Household	0.1268***	0.0439***	0.0357***
	(0.0149)	(0.0052)	(0.0042)
Expected Real Household Income	0.0396**	0.0137**	0.0111**
	(0.0179)	(0.0062)	(0.0050)
Expected Change in Nominal Interest Rate	−0.0824***	−0.0285***	−0.0232***
	(0.0151)	(0.0052)	(0.0042)
Expected Aggregate Business Conditions (Idiosyncratic)	0.1100***	0.0381***	0.0310***
	(0.0134)	(0.0046)	(0.0038)
Current Real Household Income	0.2737***	0.0948***	0.0770***
	(0.0143)	(0.0051)	(0.0042)
Expected Aggregate Business Conditions (Index)	−0.0034**	−0.0012**	−0.0010**
	(0.0015)	(0.0005)	(0.0004)
Uncertainty (Index)	−0.0044	−0.0015	−0.0012
	(0.0029)	(0.0010)	(0.0008)
Federal Funds Rate	0.0330	0.0114	0.0093
	(0.0315)	(0.0109)	(0.0089)
Civilian Unemployment Rate	0.1497***	0.0518***	0.0421***
	(0.0361)	(0.0125)	(0.0102)
Current Inflation Rate	−0.0020	−0.0007	−0.0006***
	(0.0099)	(0.0034)	(0.0028)

Notes: see notes to Tables 1 and 10. We add the qualitative one-year house price expectation of the households, based on (Q14), as an additional control. The variable is coded '+1' for an expected house price increase, '0' for no price change, and '-1' for an expected decrease in house prices.

Table 15: Year Dummy Specification with 1Y Inflation Expectations: Houses - With House Price Expectations

Dependent Variable: Buying Conditions for Houses	Sample: 2007:05 to 2010:12		
Number of observations: 16164	Pseudo R2: 0.0690		
		Marginal Effects	
Independent Variables	Coefficients	at ZLB = 0	at ZLB = 1
Inflation Expectations (1Y)	-0.0139^{***}	-0.0043^{***}	-0.0055^{**}
	(0.0033)	(0.0010)	(0.0009)
ZLB Dummy Interacted with Expected Inflation (1Y)	-0.0038		
	(0.0043)		
ZLB Dummy		-0.0053	-0.0035
		(0.0061)	(0.0040)
Expected Change in House Prices (1Y)	0.1335^{***}	0.0409^{***}	0.0414^{***}
	(0.0171)	(0.0052)	(0.0053)
Expected Financial Situation of Household	0.1281^{***}	0.0393^{***}	0.0397^{***}
	(0.0149)	(0.0046)	(0.0047)
Expected Real Household Income	0.0386^{**}	0.0118^{**}	0.0120^{**}
	(0.0178)	(0.0055)	(0.0055)
Expected Change in Nominal Interest Rate	-0.0762^{***}	-0.0233^{***}	-0.0236^{***}
	(0.0150)	(0.0046)	(0.0047)
Expected Aggregate Business Conditions (Idiosyncratic)	0.1109^{***}	0.0340^{***}	0.0344^{***}
	(0.0133)	(0.0041)	(0.0041)
Current Real Household Income	0.2730^{***}	0.0836^{***}	0.0846^{***}
	(0.0143)	(0.0046)	(0.0046)

Notes: see notes to Tables 1 and 14.

Table 16: Baseline Specification with 5Y Inflation Expectations: Houses - With House Price Expectations

Dependent Variable: Buying Conditions for Houses	Sample: 2007:05 to 2010:12		
Number of observations: 13548	Pseudo R2: 0.0778		

		Marginal Effects	
Independent Variables	Coefficients	at ZLB = 0	at ZLB = 1
Inflation Expectations (5Y)	−0.0174***	−0.0059***	−0.0034**
	(0.0056)	(0.0019)	(0.0014)
ZLB Dummy Interacted with Expected Inflation (5Y)	0.0047		
	(0.0075)		
ZLB Dummy	−0.1114	−0.0379	−0.0298
	(0.1100)	(0.0374)	(0.0295)
Mortgage Rate	0.0015	0.0005	0.0004
	(0.0486)	(0.0165)	(0.0130)
Expected Change in House Prices (5Y)	0.3124***	0.1064***	0.0836***
	(0.0188)	(0.0065)	(0.0052)
Expected Financial Situation of Household	0.0972***	0.0331***	0.0260***
	(0.0166)	(0.0057)	(0.0045)
Expected Real Household Income	0.0627***	0.0213***	0.0168***
	(0.0202)	(0.0068)	(0.0054)
Expected Change in Nominal Interest Rate	−0.0689***	−0.0234***	−0.0184***
	(0.0167)	(0.0057)	(0.0045)
Expected Aggregate Business Conditions (Idiosyncratic)	0.1169***	0.0398***	0.0313***
	(0.0151)	(0.0051)	(0.0040)
Current Real Household Income	0.2259***	0.0769***	0.0605***
	(0.0175)	(0.0062)	(0.0050)
Expected Aggregate Business Conditions (Index)	−0.0033*	−0.0011*	−0.0009*
	(0.0017)	(0.0006)	(0.0005)
Uncertainty (Index)	−0.0055*	−0.0019*	−0.0015*
	(0.0033)	(0.0011)	(0.0009)
Federal Funds Rate	0.0360	0.0122	0.0096
	(0.0351)	(0.0120)	(0.0094)
Civilian Unemployment Rate	0.1503***	0.0512***	0.0402***
	(0.0401)	(0.0137)	(0.0107)
Current Inflation Rate	−0.0020	−0.0007	−0.0005***
	(0.0111)	(0.0038)	(0.0030)

Notes: see notes to Table 1. We add the five-year house price expectation of the households, based on (Q15), as an additional control. The variable is coded '+1' for an expected increase in house prices, '0' for no price change, and '-1' for an expected decrease in house prices.

Table 17: Year Dummy Specification with 5Y Inflation Expectations: Houses - With House Price Expectations

Dependent Variable: Buying Conditions for Houses	Sample: 2007:05 to 2010:12		
Number of observations: 13548	Pseudo R2: 0.0779		

		Marginal Effects	
Independent Variables	Coefficients	at ZLB = 0	at ZLB = 1
Inflation Expectations (5Y)	−0.0160***	−0.0048***	−0.0044***
	(0.0054)	(0.0016)	(0.0015)
ZLB Dummy Interacted with Expected Inflation (5Y)	0.0013		
	(0.0072)		
ZLB Dummy		0.0017	0.0011
		(0.0098)	(0.0064)
Expected Change in House Prices (5Y)	0.3135***	0.0935***	0.0934***
	(0.0188)	(0.0058)	(0.0057)
Expected Financial Situation of Household	0.0984***	0.0293***	0.0293***
	(0.0166)	(0.0050)	(0.0050)
Expected Real Household Income	0.0615***	0.0183***	0.0183***
	(0.0201)	(0.0060)	(0.0060)
Expected Change in Nominal Interest Rate	−0.0636***	−0.0190***	−0.0190***
	(0.0165)	(0.0049)	(0.0049)
Expected Aggregate Business Conditions (Idiosyncratic)	0.1175***	0.0350***	0.0350***
	(0.0150)	(0.0045)	(0.0044)
Current Real Household Income	0.2249***	0.0671***	0.0670***
	(0.0175)	(0.0055)	(0.0055)

Notes: see notes to Table 1 and 16.

Table 18: Control Function Approach: Durables - First Stage Regression

Dependent Variable: Individual Inflation Expectations	Sample: 1984:01 to 2010:12	
Independent Variables	1Y	1Y-Dummies
Number of Observations	127490	127490
R2	0.0759	0.0757
S.E. Residual	5.0547	5.0553
ZLB Dummy	−0.0728	
	(0.0926)	
Expected Financial Situation of Household	−0.0200	−0.0148
	(0.0218)	(0.0218)
Expected Real Household Income	−0.5850***	−0.5868***
	(0.0214)	(0.0214)
Expected Change in Nominal Interest Rate	0.8626***	0.8828***
	(0.0196)	(0.0199)
Expected Aggregate Business Conditions (Idiosyncratic)	−0.4372***	−0.4382***
	(0.0160)	(0.0158)
Current Real Household Income	−0.4905***	−0.4935***
	(0.0198)	(0.0198)
Expected Aggregate Business Conditions (Index)	−0.0018**	
	(0.0008)	
Uncertainty (Index)	−0.0144***	
	(0.0022)	
Federal Funds Rate	−0.0196*	
	(0.0115)	
Civilian Unemployment Rate	0.0417***	
	(0.0152)	
Current Inflation Rate	0.2252***	
	(0.0199)	

Notes: this table shows the first stage regression results, estimated with OLS, of individual inflation expectations on our standard set of control variables and instruments (see Table 19).

Table 19: Control Function Approach: Durables - First Stage Regression Continued

Dependent Variable: Individual Inflation Expectations	Sample: 1984:01 to 2010:12	
Independent Variables	1Y	1Y-Dummies
Number of Observations	127490	127490
R2	0.0759	0.0757
Group-specific Lagged (-1M) Inflation Expectations	0.2219***	0.2375***
	(0.0155)	(0.0154)
Group-specific Lagged (-2M) Inflation Expectations	0.0660***	0.0689***
	(0.0158)	(0.0159)
Group-specific Lagged (-3M) Inflation Expectations	0.0639***	0.0694***
	(0.0157)	(0.0157)
Group-specific Lagged (-4M) Inflation Expectations	−0.0295*	−0.0268*
	(0.0156)	(0.0157)
Group-specific Lagged (-5M) Inflation Expectations	−0.0650***	−0.0659***
	(0.0156)	(0.0157)
Group-specific Lagged (-6M) Inflation Expectations	0.1015***	0.1035***
	(0.0156)	(0.0157)
Group-specific Lagged (-7M) Inflation Expectations	0.0246	0.0255*
	(0.0154)	(0.0155)
Group-specific Lagged (-8M) Inflation Expectations	0.0007	0.0123
	(0.0153)	(0.0153)
Group-specific Lagged (-9M) Inflation Expectations	−0.0075	0.0022
	(0.0154)	(0.0154)
Group-specific Lagged (-10M) Inflation Expectations	0.0155	0.0174
	(0.0153)	(0.0154)
Group-specific Lagged (-11M) Inflation Expectations	0.0649***	0.0590***
	(0.0152)	(0.0153)
Group-specific Lagged (-12M) Inflation Expectations	0.0644***	0.0439***
	(0.0148)	(0.0148)

Notes: this table shows the first stage regression results, estimated with OLS, of individual inflation expectations on our standard set of controls and group-specific lagged inflation expectations as instruments. We construct a time series of group specific inflation expectations for eight demographic groups (female/male cross Caucasian/Non-Caucasian cross young/old) by averaging across individual expectations for each month. We use these group specific inflation expectations to attach an inflation expectation to each individual household and month depending on which of these eight groups households belong to. Lagged group-specific inflation expectations are then used to instrument for potential endogeneity of household-specific inflation expectations.

Table 20: Control Function Approach: Durables - Second Stage Regression

Dependent Variable: Buying Conditions for Durables	Sample: 1984:01 to 2010:12	
Independent Variables	1Y	1Y-Dummies
Number of Observations	122378	122378
R2	0.0570	0.0595
Inflation Expectations	−0.0069	0.0074
	(0.0106)	(0.0108)
ZLB Dummy Interacted with Expected Inflation	−0.0038	−0.0043
	(0.0027)	(0.0027)
ZLB Dummy	0.0315	
	(0.0265)	
First-Stage Residual	0.0018	−0.0123
	(0.0106)	(0.0109)
Expected Financial Situation of Household	0.0878***	0.0881***
	(0.0060)	(0.0060)
Expected Real Household Income	0.0611***	0.0701***
	(0.0088)	(0.0089)
Expected Change in Nominal Interest Rate	0.0505***	0.0284**
	(0.0108)	(0.0112)
Expected Aggregate Business Conditions (Idiosyncratic)	0.2095***	0.2253***
	(0.0065)	(0.0066)
Current Real Household Income	0.0664***	0.0740***
	(0.0076)	(0.0077)
Expected Aggregate Business Conditions (Index)	0.0032***	
	(0.0002)	
Uncertainty (Index)	−0.0058***	
	(0.0006)	
Federal Funds Rate	−0.0044	
	(0.0115)	
Civilian Unemployment Rate	−0.0468***	
	(0.0044)	
Current Inflation Rate	−0.0029	
	(0.0057)	

Notes: see notes to Table 1. The first stage residual is obtained from the first stage regressions displayed and described in Tables 18 and 19. Following Wooldridge (2002) the estimated coefficient in the second stage is computed from the standard ordered probit coefficient divided by $[1 + (\text{coefficient on first-stage residual})^2 \times (\text{S.E. residual from first stage})^2]^{1/2}$.

A   Survey Questions Used

Q 1 *(A18)*[16] *"About the big things people buy for their homes – such as furniture, a refrigerator, stove, television, and things like that. Generally speaking, do you think now is a good or a bad time for people to buy major household items? "*

Q 2 *(A12b)* *"By about what percent do you expect future prices to go (up/down) on the average, during the <u>next</u> 12 months? "*

Q 3 *(A19)* *"Speaking now of the automobile market – do you think the next 12 months or so will be a good time or a bad time to buy a vehicle, such as a car, pickup, van or sport utility vehicle?"*

Q 4 *(A16)* *"Generally speaking, do you think that now is a good time or a bad time to buy a house?"*

Q 5 *(A13b)* *"By about what percent <u>per year</u> do you expect prices to go (up/ down) on the average, during the <u>next</u> 5 to 10 years?"*

Q 6 *(A3)* *"Now looking ahead – do you think that <u>a year from now</u> you (and your family living there) will be <u>better off</u> financially, or <u>worse off</u>, or just about the sam as now? "*

Q 7 *(A14)* *"During the next year or two, do you expect that your (family) income will go up <u>more than prices</u> will go up, <u>about the same</u>, or <u>less than prices</u> will go up? "*

Q 8 *(A11)* *"No one can say for sure, but what do you think will happen to <u>interest rates</u> for borrowing money during the next 12 months – will they go up, stay the same, or go down? "*

Q 9 *(A4)* *"Now turning to business conditions in the country as a whole – do you think that during the next 12 months we'll have <u>good</u> times financially, or <u>bad</u> times, or what? "*

Q 10 *"To get a picture of people's financial situation we need to know the general range of income of all people we interview. Now, thinking about (your/ your family's) total income from all sources (including your job), how much did (you/ your family) receive in the previous year? "*[17]

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[16] This ID is used by the Michigan Survey.

[17] This question does not have an ID in the Michigan survey.

Q 11 *(A23a) "What do you think the chances are that your (family) income will increase by more than the rate of inflation during the next five years or so?"*

Q 12 *(A23b) "During the next 5 years, what do you think the chances are that you (or your husband/ wife) will lose a job that you wanted to keep?"*

Q 13 *(A20a) "About how many cents per gallon do you think gasoline prices will (increase/ decrease) during the next five years compared to now?"*

Q 14 *(A22b) "What do you think will happen to the prices of homes (like yours) in your community over the next 12 months? Will they increase at a rapid rate, increase at a moderate rate, remain about the same, decrease at a moderate rate, or decrease at a rapid rate?"*

Q 15 *(A22d) "What about the outlook for prices of homes like yours in your community over the next 5 years or so? Do you expect them to increase, remain about the same, or decrease?"*