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Household Inflation Expectations and Consumer Spending: Evidence from Panel Data*

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Abstract

Recent research offers mixed results concerning the relationship between inflation expectations and consumption, using qualitative measures of readiness to spend. We revisit this question using survey panel data of actual spending from the U.S. between 2009 and 2012 that also allows us to control for household heterogeneity. We find that durables spending increases with expected inflation only for selected types of households while nondurables spending does not respond to expected inflation. Moreover, spending decreases with expected unemployment. These results imply a limited stimulating effect of inflation expectations on aggregate consumption, which could be reversed if inflation and unemployment expectations move together.

JEL Codes: D12, E52, E58

Keywords: Inflation expectations, survey data, durable and nondurable goods consumption

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1. INTRODUCTION

The relationship between household inflation expectations and consumer spending holds important implications for monetary policy, particularly in an environment in which the zero-lower-bound (ZLB) on the monetary policy interest rate target is binding. During the recent period in which the ZLB was binding in the U.S. (December 2008 to November 2015), various economists called for the Federal Reserve to commit to policies that would raise expectations of future inflation, causing a decline in the real interest rate and thereby encouraging greater spending in the present.[4] In March 2020, four years after that ZLB period ended, the U.S. reverted back to the ZLB in response to the novel coronavirus pandemic, and rates are currently expected to stay low for an extended period. Furthermore, estimates of the natural real rate of interest declined considerably in the years following the Great Recession (Holston et al. 2017, Del Negro et al. 2018), suggesting that the ZLB may become binding more frequently in the long run (Kiley and Roberts 2017). Even in countries such as Japan which have instituted negative nominal interest rates, the debate over the use of inflation expectations as a tool for economic stimulus remains very much alive (Hogen and Okuma 2018).

This paper examines the relationship between household inflation expectations and actual spending on durable goods and, separately, on nondurable goods and services. We make use of a unique panel dataset pertaining to U.S. households surveyed between mid-2009 and late 2012, during which time the U.S. federal funds target rate remained at its lower bound range of zero to 0.25 percent. We find that higher inflation expectations stimulate current consumption spending on durable goods for those consumers who have at least some college education, whereas non-college households exhibit a null or negative response of spending and are significantly less

[4] See, for example, Krugman (2013) and Romer (2011).

likely to purchase durables as their inflation expectations increase. In particular, a 1 percentage point increase in the household's one-year ahead inflation expectation increases durable goods spending by about 21 percent for the immediate quarter among households with a college-educated respondent, and by 39 percent if the household also has a mortgage. The corresponding values (although imprecisely estimated) are -15 percent and 12 percent among the households without any college education. We observe practically no effect on consumption of nondurable goods and services for any type of household.

In sum, the stimulating effect of inflation expectations applies only to spending on durable goods and only to select groups. We estimate that the increase in aggregate spending following a 1 percentage point increase in inflation expectations across all households would be limited to 1.8 percent or less in a single quarter. We also observe a strong negative relationship between unemployment expectations and consumption that applies broadly across types of households and types of spending. Therefore, any positive effects of inflation expectations on consumption may be more than offset if higher inflation expectations are accompanied by higher unemployment expectations. Such co-movement of expectations has been documented by Kamdar (2019), and such offsetting effects are consistent with Coibion et al. (2019).

The previous literature offers mixed findings on the relationship between household inflation expectations and consumption, typically using microeconomic survey data capturing "readiness to spend" qualitatively rather than the actual spending level. Bachmann et al. (2015) observe either no relationship or, when the ZLB was binding, a negative relationship between household inflation expectations and readiness to spend on durable goods using the cross-sectional Michigan Survey of Consumers. Binder (2017) also uses the Michigan Survey data and confirms the finding of Bachmann et al. (2015) after controlling for inflation uncertainty,

although she does not study the ZLB period separately. Coibion et al. (2019) observe sharply negative effects of inflation expectations on durable goods spending among Dutch households—and modest negative effects on overall spending—where inflation expectations were manipulated experimentally within a consumer survey. In contrast, Duca-Radu et al. (2020) use cross-sectional survey data from the Euro area to document that higher expected inflation boosts readiness to spend in a ZLB environment. D'Acunto et al. (2019) find that among Finnish men only high-IQ individuals display a positive relationship between inflation expectations and the readiness to purchase durables. Two related papers on German and Polish consumers (D'Acunto et al. 2016 and 2018, respectively) find that an unexpected announcement of an increase in the consumption tax boosts inflation expectations and readiness to spend on durables by economically significant amounts.

A few other studies consider effects on actual spending rather than on the readiness to spend. Ichiue and Nishiguchi (2015) and Dräger and Nghiem (2020) both present evidence of a stimulating effect of inflation expectations on actual household spending, albeit in qualitative terms. The former study finds that Japanese consumers with higher inflation expectations were more likely to report that their household had increased its real total spending compared with one year prior. The latter study, based on survey data from Germany, observes that individuals with higher inflation expectations were more likely to say that their household's total "current spending"—defined as spending in the preceding twelve months—was higher than in an average year. Rondinelli and Zizza (2020) find a small but statistically significant positive effect of inflation expectations on actual total spending by Italian consumers in the high-inflation regime of the early 1990s, using survey data that capture within-household differences across two points in time. Crump et al. (2019) use panel survey data from the U.S. and find that households

respond to an increase in their inflation expectations by planning to reduce consumption *growth*, implying a willingness to reduce future consumption relative to today's consumption but not necessarily increase their present consumption in absolute terms.

Our panel data on household-level spending and economic expectations, which were assembled using two separate modules of the RAND American Life Panel survey (RAND-ALP), offer several advantages that help us reconcile the seemingly conflicting evidence in the literature: (1) the spending measures refer to actual spending levels (based on one-month or one-quarter recall) rather than to hypothetical "spending readiness," planned spending changes, or one-year recall of spending changes; (2) the data enable us to test the response of spending on nondurable goods and services separately from the response of durable goods spending and to estimate responses along both the discrete and continuous margins; (3) the panel aspect allows us to control for unobserved heterogeneity across households that might affect inflation expectations and spending simultaneously; and (4) we assess heterogeneity in behavior along new dimensions, including mortgagor status and other financial indicators, to reveal additional information about the mechanisms by which inflation expectations might influence spending. The data contain a rich set of controls for other economic expectations which could confound our estimates, including expectations of unemployment, nominal interest rates, own wages, house prices, and measures of the uncertainty surrounding both inflation expectations and wage expectations.

For policy purposes, the ability to test the microeconomic spending response both for durable goods and for nondurable goods and services is critical, because ultimately policymakers care about stimulating total consumer spending, of which spending on durable goods forms a relatively small portion—just above 10 percent on average during the time period covered in our

data.[5] Some of the studies listed above have offered estimates of the effects of inflation expectations on aggregate spending, but using only indirect and/or qualitative methods. The ability to assess whether household financial conditions—including monthly housing and car payments, mortgagor status, household income, and outstanding mortgage balances—mediate the response to inflation expectations also carries a high degree of policy relevance. For example, theory suggests that net debtor households, as opposed to net savers, should be more likely to increase spending in response to a decline in the real rate, such as would follow an increase in inflation expectations at the ZLB. Our finding that lower-income households' spending is more sensitive to inflation expectations conforms to this notion, to the extent that such households are more likely to be net debtors.[6] As another example, higher inflation expectations erode the real value of nominal debts, suggesting that households with greater nominal debt should experience a more positive consumption response. Consistent with this argument, we find that having a higher mortgage balance amplifies the consumption response to inflation expectations.

Past research suggests that inflation erodes consumers' standard of living (Shiller 1996) and consumers may associate higher inflation with greater economic uncertainty (Volcker 2011, Mackowiak and Wiederholt 2012). More recent studies suggest that consumers may associate higher inflation with higher unemployment (Coibion et al. 2018; Kamdar 2019). We find that expecting an increase in unemployment is associated with a large negative impact on spending on durable goods (and a modest negative impact on spending on nondurable goods and services)

[5] This calculation is based on personal consumption expenditures data from the Bureau of Economic Analysis, accessed using the Federal Reserve Bank of St. Louis's FRED online database, https://fred.stlouisfed.org/.

[6] For example, Duflo et al. (2006, 2007) present evidence to this effect.

for all types of households. Therefore, policies that seek to stimulate spending via inflation expectations may actually be ineffective or even counterproductive if consumers' expectations of higher inflation tend to concur with their expectations of weaker economic conditions. This finding may also explain the seemingly opposite conclusions derived from randomized information treatments (Coibion et al. 2019) as opposed to natural experiments with consumption tax (D'Acunto et al. 2016). In particular, when an increase in inflation expectations stems from news about inflation it may also lead to a more pessimistic outlook, whereas replacing a less efficient tax with a consumption tax need not have the same side effect.

Broadly speaking, our results are not quite as pessimistic as those of Bachmann et al. (2015) concerning the effectiveness of policies to stimulate spending via inflation expectations. The measure of optimism we obtain stems from results along the continuous margin of durable goods spending, which differs from the qualitative readiness-to-spend measure of the Bachmann et al. study. Another important difference is that our panel data allow us to control for household-level heterogeneity. Including these controls strengthens the positive relationship between inflation expectations and durables spending, especially among college-educated mortgagor households.

At the same time, we obtain less support in the aggregate for such policies than do some studies based on European data or Japanese data. This comparatively weak response on average may reflect the fact that our data coincide with the early years of the recovery from the Great Recession, as prior evidence suggests that following that recession durable goods consumption in the United States was less sensitive to real interest rates than in previous recoveries (Van Zandweghe and Braxton 2013).

The remainder of the paper is organized as follows. Section 2 reviews the basic theoretical predictions concerning the relationship between inflation expectations and current spending, Section 3 describes the data, Section 4 describes the empirical setup, Section 5 presents the results, Section 6 discusses aggregate policy implications, and Section 7 concludes with an assessment of our findings in the context of the related literature.

2. CONSUMPTION SPENDING AND INFLATION EXPECTATIONS

At the heart of the academic and policy discussions on this topic lies the prediction that an increase in expected inflation—all else constant—should boost current consumption relative to future consumption. This prediction draws on the Fisher equation, which approximates the real rate of interest as the difference between the nominal interest rate and the expected inflation rate. In the standard intertemporal choice framework, a decline in the real interest rate leads to a lower return to savings and encourages substitution toward present consumption relative to future consumption, regardless of whether the decline in the real rate occurs because of a decline in the nominal interest rate or because of an equivalent increase in expected inflation (Coibion et al. 2019). Purchases of large consumer durables should be particularly sensitive to real interest rates because such purchases are easily substituted across time and are often financed with debt (see, for example, Bachmann et al. 2015).

However, an exogenous increase in expected inflation may fail to boost current consumption for a number of reasons. Even in the standard intertemporal choice model, the net effect of a decline in the real interest rate on current consumption—achieved either by reducing the nominal rate or raising expected inflation—depends on the consumer's net asset position. Among net savers, a decline in the real rate yields a negative wealth effect that may more than offset the positive substitution effect, in which case both current and future consumption would

decline. Among net debtors, a lower real rate should boost current consumption, as both wealth and substitution effects would be positive. For households with high nominal debt, higher inflation expectations may erode the real value of debt, boosting consumption through a real wealth effect (as in Fisher 1933). Nevertheless, borrowing constraints could limit the effectiveness of changes in inflation expectations, just as such constraints could limit the effectiveness of forward guidance on interest rates (McKay et al. 2016).

Furthermore, an increase in expected inflation may not be equivalent to a decline in nominal borrowing rates in terms of its impact on intertemporal substitution of consumption. For example, equivalence fails if the consumer's future income is not fully indexed to inflation. In this case, an increase in expected inflation has ambiguous effects on current consumption for both net savers and net debtors alike, whereas income indexation has no bearing on the effect of a decline in the nominal rate.[7] Financial literacy may also play a role in consumers' ability to detect movements in real interest rates, such that households with more education, if this confers greater financial literacy, may exhibit a stronger spending response to expected inflation.

There are a number of other reasons why inflation expectations may operate differently than nominal interest rates in terms of their impact on current consumption. Mackowiak and Wiederholt (2012) show that, in a model with dispersed information, a commitment by policymakers to higher inflation may send negative signals about the future outlook for the economy, thereby reducing current consumption. In a related vein, Kamdar (2019) finds that consumers' expectations of inflation and unemployment tend to move in the same direction,

[7] In this scenario higher expected inflation reduces real future income for both net borrowers and net savers. Among borrowers this effect may more than offset the positive real wealth effect of higher expected inflation.

according to whether underlying consumer sentiment is positive (prompting expectations of lower unemployment and lower inflation) or negative (having the opposite effect).

Given these considerations, previous macroeconomic evidence that real aggregate spending responds positively to a decline in nominal rates need not apply to the question of whether attempts to boost inflation expectations would similarly stimulate spending.[8] Instead, the latter question should be treated as a separate and fundamentally empirical matter that could yield different answers in different economic environments. Based on this discussion, we motivate a reduced form model that can capture heterogeneous responses to inflation expectations depending on households' characteristics. We start with the description of our data in the next section and discuss our econometric approach in Section 4.

3. DATA SOURCES AND DESCRIPTIVE STATISTICS

A. Spending Data

Our spending data and some of the associated control variables pertain to U.S. households who responded to monthly spending modules that were fielded as part of the RAND-American Life Panel (RAND-ALP) Financial Crisis Surveys between May 2009 and January 2013.[9] The RAND-ALP is an internet panel survey covering the U.S. population ages 18 and over. It does not suffer from selection based on internet access because subjects are provided with such access if needed. The spending modules ask the respondent about recent spending for

[8] Christiano et al. (2005) and Bernanke and Gertler (1995) exploit nominal interest rate shocks to identify effects of real rate movements on real spending, and find that unexpected declines (increases) in policy rates are associated with significant increases (declines) in real spending.

[9] For more information on the RAND-ALP Financial Crisis Surveys see Hurd and Rohwedder (2012) and visit https://www.rand.org/research/data/alp.html.

the entire household on specific items. For the period we observe, each survey elicited spending during the previous calendar month on a list of frequently purchased items such as food and personal services, and once per calendar quarter the survey also asked about spending on durable goods (such as refrigerators and furniture) in the previous calendar quarter. Selected screen shots and the text of the relevant survey questions are provided in Appendix J.

We construct three dependent variables referring to different measures of spending: one-quarter spending on a bundle of durable goods, one-month spending on a bundle of nondurables goods and services, and a binary variable indicating whether the household purchased any durable goods in the given quarter. The bundle of durable goods includes refrigerators, stoves and ovens, washers and dryers, dishwashers, televisions, computers, and home furnishings such as furniture, carpeting/rugs, and small appliances. The survey also asked about automobile purchases, but we do not include these in our spending measures because the incidence of car purchases is very low and the data exhibit irregularities. The nondurables and services bundle includes food, clothing, utilities, and a variety of other items—not including housing payments or debt service payments—which are listed in full in Table A1 of Appendix H. We separate the spending categories for two reasons: first, spending on durable goods is expected to respond more strongly to real interest rates than is spending on nondurable goods and services (see, for example, Bachmann et al. 2015); second, given the structure of the data it is impossible to construct a measure of total spending at either the monthly or quarterly frequency without engaging in extensive data imputation.

The spending modules also contain information on a variety of demographic and financial indicators that we use as explanatory factors and controls. For example, we observe age, race, sex, and educational attainment, which we divide into two groups based on whether

the respondent had at least some college education or not. Households in which the respondent has at least some college are referred to as "college-type households," and those with no exposure are called "non-college households." The spending modules also report whether the household owns a home, whether it has a mortgage, the total remaining amount owed on a mortgage if relevant, monthly mortgage payments and/or housing rental payments, and monthly payments on automobile loans and/or leases. We combine the housing and car payments into a single "monthly payments" variable that may be indicative of a household's debt service burden.

B. Expectations of Inflation and other Economic Conditions

The data on respondents' expectations of price inflation, wage growth, unemployment, interest rates, and household income are drawn from responses to the New York Fed mini-module on household expectations that was appended to the RAND-American Life Panel (ALP) between May 2008 and November 2012, at a roughly six-week frequency (Armantier et al. 2013, Bruine de Bruin et al. 2011). These modules represent a precursor to the New York Fed's Survey of Consumer Expectations (described in Armantier et al. 2017), which uses similar methods of eliciting inflation expectations. As described in Bruine de Bruin et al. (2011, pp. 3–4), the survey elicits density forecasts for price and wage inflation by asking respondents to assign probabilities to predetermined intervals for one-year ahead changes in the general price level and in own (same-job) wage earnings, such as going up by 0% to 2%, going down by 0% to 2%, et cetera.[10] The density forecasts are used to construct individual measures of the central tendency and of uncertainty for general price inflation and for same-job wage growth. For the central tendency

[10] The survey also elicits point forecasts of price inflation and own-wage growth, which we do not use. Bruine de Bruin et al. (2011) find that, within respondents, the point forecast of expected inflation agrees closely with the median of the density forecast for future inflation.

we use the density median and for uncertainty we use the interquartile range. For a description of the methods used to construct the density medians and interquartile ranges, see Appendix A.

The expectations survey elicited (at the one-year-ahead horizon) quantitative expectations of house price changes as point estimates, and elicited qualitative expectations of movements—up, down, or no change—in unemployment and "interest rates for borrowing money," where we assume the latter are interpreted as nominal interest rates. The survey also elicited expectations of other economic outcomes, but due to high non-response rates we do not include them in our models. Annual household income, as a discrete range, was also reported in the expectations modules. We converted each range to a point value using the midpoint of the given range or, for those in the top-coded category of $200,000 or more, income was set to $237,500. For the text of all relevant survey questions see Appendix J.

C. Constructing the Merged Sample

There is substantial overlap between the set of respondents to the ALP spending modules and the ALP/New York Fed expectations modules, enabling us to create an unbalanced panel data set containing matched observations of economic expectations, household spending (either durables or nondurables/services), and the control variables described above. For details on how the two datasets were merged, see Appendix A. In order to control for wage growth expectations, we retain only observations in which these expectations are non-missing, and so our results are applicable to households in which at least one individual (i.e., the respondent) is employed.[11] To be included in the panel for either type of spending, the respondent must have at least 3 observations with non-missing values for all relevant variables. For the durables goods spending

[11]Some individuals reported being both retired and employed, as these categories are not mutually exclusive. We retain these observations, although results are robust to excluding them.

panel, respondents must have purchased durables in at least one of their observations, and for the nondurables panel observations involving zero spending are excluded. The remaining sample restrictions are described in Appendix A.

Following the matching and sample selection procedures, the baseline durable goods spending sample consists of 1,084 household-quarter observations spanning the time period 2009Q4 to 2012Q4, and the nondurable goods and services spending sample contains 2,010 household-month observations spanning November 2009 to November 2012.[12] The (unweighted) average number of observations per household is 6.5 in the quarterly (durables) panel and 10 in the monthly (nondurables) panel. Researchers at RAND supplied us with a separate set of weights for each of these panels, such that a given household's weight is constant over time within each. Weights were calibrated to match the distribution of various demographic characteristics (including age-by-sex, race-by-sex, and household-size-by-income) of the 2012 Current Population Survey. For weighting purposes, age was set to a respondent's age as of 2012. Sample weights are used in all descriptive statistics and regression analysis.

D. Summary Statistics

Table 1a shows the weighted summary statistics of the key dependent and independent variables for our two main regression samples. Columns 1 through 4 pertain to the baseline sample for durable goods spending and Columns 5 through 8 pertain to the baseline sample for nondurable goods spending. All dollar values are expressed in January 2012 dollars. Table 1b

[12] For both the durables panel and the nondurables panel, the date range of the observations employed in the regressions is narrower than the full date range of the spending surveys reported in Section 3.A above. This occurs as a result of the procedures for matching the spending data and the expectations data, as described further in Appendix A.

provides analogous summary statistics restricted to the mortgagor subsample, which we study separately in order to analyze the effect of mortgage balances. Comparing the numbers in Table 1a to statistics for the U.S. as a whole as of 2012 (based on either the CPS or the ACS), the set of respondents in either the durable goods or nondurable goods sample appears approximately representative along several dimensions, including educational attainment, but is older on average than the general population. The durable goods sample exhibits an elevated share of men, a higher homeownership rate, and somewhat elevated median income compared with the U.S. as a whole, while the nondurables sample closely resembles the U.S. population along those dimensions. See Appendix B for a more detailed discussion of sample representativeness.

In the baseline sample, mean quarterly household spending on large durable goods—including major appliances, furniture, and televisions, but not including motor vehicles—amounts to $320, and average monthly spending on selected nondurable goods and services comes to $1,547. Average spending on nondurables/services spending is somewhat higher in the mortgagor sample, at $1,753 per month. As seen in the left panel of Figure 1, average yearly spending on durable goods in our sample (from 2009 through 2012) comes reasonably close in most years to a comparable spending measure based on the Consumer Expenditure Survey (CES), although in 2009 our value falls short of the CES measure by 22 percent. The right panel of Figure 1 offers a similar validation for nondurables spending and shows that our sample again resembles the CES closely in all years except 2012, when our spending measure is 12.5 percent lower. See Appendix C for more details on these comparisons. For a demonstration that results are robust to omitting observations from 2009 (for durables) and 2012 (for nondurables), see Appendix G and Tables A5-A10 of Appendix H.

The average value of expected inflation (based on the individual density medians) at the one-year horizon is 3.2 percent in the durable goods regression sample and just under 4 percent in the nondurables and services spending sample; the corresponding values are somewhat lower in the mortgagor samples. Inflation expectations exhibit significant variation both between households and within households over time—the standard deviation across all observations is in the vicinity of 3 percentage points in any given sample. In the baseline sample (for either type of spending), the average within-household standard deviation of the inflation expectation is close to 2 percentage points.

The quarterly sample median inflation expectations from our sample (calculated using the durable goods spending sample) exhibit positive forecast errors on average relative to the realized over-the-year CPI inflation rates for the U.S.—see Figure 2. However, the absolute inflation forecast errors in our sample are in most cases (and on average) smaller than the corresponding errors (for the same time periods) derived from the median inflation expectations of the Michigan Survey of Consumers, which are also shown in Figure 2. Calculated at the monthly frequency using our nondurables spending sample, the sample median inflation expectations exhibit somewhat greater volatility than those calculated at the quarterly frequency—see Figure A1 of Appendix H. However, the sample median expectations from the nondurables sample, when aggregated to the quarterly frequency, closely resemble those from the durables sample, as seen in Figure A2 of Appendix H. Furthermore, results are robust to omitting months with unusually high median inflation expectations, as shown in Appendix G and Tables A5-A10 of Appendix H.

Expectations of other economic outcomes, such as wage growth, appear reasonable in relation to real-world data, although the unemployment expectations in our data appear

somewhat pessimistic relative to the actual experience in the U.S. at the time. See Appendix D for further discussion of the external validity of these other economic expectations.

4. EMPIRICAL ESTIMATION

A. Model Specification and Estimation Procedures

Our goal is to estimate the response of current consumption outcomes—either a continuous spending measure or the chance of purchasing durable goods—to changes in expected inflation and other factors. As discussed in Section 2, we follow the previous literature and adopt approximate reduced form equations that are informed by a combination of theory, economic intuition, and the properties of our data.

The durable goods spending data exhibit a high degree of skewness and include a large number of zeroes, properties which are to be expected for lumpy purchases. Following Wooldridge (2010) and Zeger et al. (1988), we use the method of generalized estimating equations (GEE), which represents an extension to panel data of the generalized linear model (GLM). Within the GEE framework we adopt a Poisson model, which assumes that the log of the conditional mean of spending (rather than the conditional mean of log spending) is linear in the explanatory variables, as follows:

$$\log E[\, C_t^i | \boldsymbol{X_{it}}, \mu_i] = \alpha E_t^i[\pi_{t+1}] + \boldsymbol{X_{it}}' \boldsymbol{\beta} + \mu_i \qquad (1)$$

The main explanatory variable of interest is the inflation expectation, $E_t^i[\pi_{t+1}]$. The other observed explanatory factors, captured by the vector $\boldsymbol{X_{it}}$, include expectations of own wage growth, of unemployment, of interest rates, and of house prices, inflation forecast uncertainty and wage growth forecast uncertainty, demographic characteristics (having at least some college education, gender, race, and age), and household financial factors including annual income, owning a home, having a mortgage, combined monthly payments on housing and cars and, in the

mortgagor-only sample, the remaining mortgage balance. The term μ_i represents a fixed household-level effect that is additive on the log of mean spending. Time dummies (for the quarter or month) are included in all models.

Using the GEE approach with the Poisson specification addresses the skewness of spending by means of the log transformation, but unlike a standard log-linear model it is robust to heteroscedasticity and can accommodate zero spending values without requiring adjustments that could introduce distortions. The estimation is implemented using quasi-maximum likelihood (QMLE) with robust standard errors. The resulting estimators are consistent (and asymptotically normal) as long as the conditional mean is correctly specified, even if the data do not exhibit the Poisson property that the conditional variance equals the conditional mean (Wooldridge 2010, Zeger et al. 1988).

We proxy for the fixed unobserved heterogeneity at the household level using correlated random effects (Wooldridge 2019, Mundlak 1978). This method assumes that the heterogeneity can be captured as a linear function of the within-household means of the complete set of time-varying explanatory variables, and that after including the within-household means as added regressors, strict exogeneity holds. That is, conditional on the fixed heterogeneity in spending, the residual spending within a household is taken to be uncorrelated with the explanatory variables from all time periods. For more details on the estimation method refer to Appendix E.

In the most comprehensive models we also include interaction terms between the inflation expectation and each of (1) the dummy variable for no college exposure, (2) the within-household mean of log annual income, (3) the within-household average of the monthly payments, (4) the within-household average mortgage indicator, and, in the mortgagor sample, the within-household mean of the mortgage balance. These interactions aim to capture factor that

might mediate the response of spending to changes in expected inflation. For example, households with more education may have greater financial literacy and/or better cognitive abilities, either of which would predict a better understanding of inflation and real interest rates and therefore a stronger spending response to expected inflation. Households with lower income might have a more positive consumption response, to the extent that they are more likely to be net debtors. Mortgagor households with higher mortgage balances (controlling for income) are expected to react more positively than those with lower balances, based on real wealth effects. Having higher payments on housing and cars (again controlling for income) could limit a household's ability to borrow further, and so might inhibit the household's spending response to an increase in expected inflation.[13] In alternative models (discussed in Appendix G) we include additional controls, other interaction terms, and/or lagged inflation expectations. For detailed descriptions of all explanatory variables see Table A2 of Appendix H.

We use the same basic model for spending on durable goods as well as for spending on nondurables and services. The latter data contain no zeroes but they also exhibit significant skewness. To estimate models of purchasing any durable goods, we again adopt the GEE approach with correlated random effects, but employing a logit specification instead of Poisson.

B. Identification

Identification of the coefficient on the inflation expectation requires that within-household changes in expected inflation be strictly exogenous in the time-varying idiosyncratic shocks to spending within a household. As our data do not exploit a natural experiment, we can

[13] The interactions use the within-household mean of a given factor because we are unlikely to detect within-household variation in the response to inflation expectations at, say, slightly different values of their mortgage balance in different (but nearby) time periods.

only claim to rely on quasi-experimental variation in inflation expectations. We control for what we believe are the most important potential confounders of the effects of inflation expectations on spending, including household-level heterogeneity, expectations of economic factors other than inflation, household-level financial conditions, aggregate shocks (via time dummies), and, in extended models, region fixed effects and regional gas prices. Controlling for household-level heterogeneity addresses identification concerns to a significant degree, because a study that links similar survey data on inflation expectations with an economic experiment finds that respondents adjusted their behavior reasonably in the experiment as their inflation expectations changed organically over time (Armantier et al. 2015).

Movements in oil prices have been found to exert a significant influence on consumers' inflation expectations (Coibion and Gorodnichenko 2015). As seen in Figure A6 (Appendix H), quarterly median inflation expectations in our sample roughly track four-quarter changes in U.S. retail gas prices, at least between 2009Q4 and 2011Q4. Since changes in gasoline prices could affect real spending on non-gasoline items, as in Gelman et al. (2017), it may be important to control for gas price inflation. Time dummies will control for national gas prices per time period, but gas price movements could vary regionally. Therefore, as described in Appendix G, we include regional gas price inflation as an additional control variable as a robustness check.

Our approach requires that, conditional on the included controls, the revisions to households' inflation expectations occur in response to factors which do not also directly affect their current consumption decisions. For example, a household member might hear a friend complain that inflation is too high or that prices are going up, and this might cause him to raise his own expectation of inflation, but the friend's complaint should not directly affect his own spending decision. Reading a newspaper article about a recent increase in actual headline

inflation, or about an increase in the Federal Reserve's latest forecast of inflation, might have a similar effect of raising an individual's expectations of future inflation, and again (conditioned on the time dummies and other controls) such information should affect current spending only insofar as it affects the household's inflation expectations.

Identification also requires that there be no reverse causality from spending to inflation expectations. Reverse causality might occur, for example, if a household notices an increase in its nominal spending on a given basket of goods—caused by recent inflation in the prices of those goods—and this recognition causes members of the household to raise their expectations of future inflation. In addition to including time dummies to control for aggregate inflation, we control for reverse causality by (1) deflating nominal spending values to obtain real spending values, as described in Table A1 (Appendix H),[14] and (2) matching the data so as to reduce the possibility that expectations were formed after the spending took place.

5. RESULTS

A. Durables goods spending on the continuous margin

The first 6 columns of Table 2 show the results of models of durable goods spending estimated over the baseline sample. The models in columns (4)-(6) include the within-subject means of the time-varying regressors in order to control for household-level heterogeneity, as explained above. The coefficients on most of the latter variables are suppressed from the tables for compactness. Table A11 (Appendix H) shows the coefficients on all included variables.

The coefficients on most variables represent semi-elasticities, or the percent change in spending for a unit change in the given variable, holding all other covariates fixed. The coefficients on log household income represent elasticities. For expected inflation and inflation

[14]All results are robust to using nominal spending values instead of the deflated values.

uncertainty, a unit change represents one percentage point. All variables that enter into interactions have been re-centered around their sample-wide means in order to facilitate interpretation of the effects. The joint significance of each regression is indicated by a Wald chi-squared statistic and its corresponding p-value at the bottom of the table.

Column 1 of Table 2 shows results from a standard GEE model which includes just the inflation expectation and inflation uncertainty, plus a constant term and time dummies. The main coefficient on expected inflation is a small positive value that is not significantly different from zero. Column 2 includes interest rate expectations and real wage growth expectations, wage growth uncertainty, income, demographic characteristics, mortgagor and homeowner status, while column 3 adds unemployment expectations. In these models, which omit the household-level heterogeneity controls, the coefficient on inflation expectations becomes a small negative number, consistent with previous studies that use cross-sectional surveys that do not control for household-level heterogeneity.

Starting with column 4, we introduce within-subject means of the time-varying regressors to control for household-level heterogeneity. The coefficient on inflation expectations remains insignificant; nevertheless, it becomes positive and increases in magnitude. Note that the coefficient on the household-mean inflation expectation is a large negative value, suggesting that households that tend to exhibit higher inflation expectations also tend to spend less money on durable goods. Without this control, the effect of the current inflation expectation is therefore biased downwards (compare columns 3 and 4), suggesting that cross-sectional data may underestimate the relationship between inflation expectations and consumption. Moreover, the coefficient on expecting an increase in unemployment becomes more strongly negative, suggesting that the controls for heterogeneity are indeed important.

The coefficients on expected inflation estimated thus far could embed diverse effects for different types of households. Accordingly, the model in column 5 introduces interactions between expected inflation and inflation uncertainty and the no-college indicator. The results reveal a large and statistically significant difference between the durable-goods spending responses of these two types of households. The college-educated respondents increase spending on durable goods when their inflation expectations increase (as indicated by the positive coefficient in the top row of column 5), whereas non-college respondents have a much weaker, effectively null or negative, response (as indicated by the negative and highly significant coefficient on the relevant interaction term). Estimates of average marginal effects by educational attainment, described below, affirm and strengthen the contrast between these groups. This differential response is consistent with previous research that focuses on differences in IQ (D'Acunto et al. 2019) or differences in financial literacy (Dräger and Nghiem 2020). Nevertheless, Appendix G investigates alternative explanations for this pattern.

The model in column 6 is similar to the one in column 5, but introduces interaction terms between the inflation expectation and each of three within-household average characteristics: (1) the average of the monthly payments variable, (2) the average of the mortgage indicator variable, and (3) the average (log) annual household income. The coefficient on the inflation expectation for the college-educated respondents (top row) remains positive and becomes more precise. We also see that households with lower mean incomes tend to react more positively to changes in inflation expectations compared to higher-income households. This result is consistent with the prediction that net debtors should be more likely to increase spending in response to higher inflation expectations, as higher inflation expectations reduces real rates at the ZLB, because lower-income households are more likely to be net debtors (Duflo et al. 2006, 2007). The

interaction between inflation expectations and average monthly payments is very small (positive) and insignificant. The interaction with the non-mortgagor indicator is negative, as predicted if mortgagors experience positive real wealth effects of higher expected inflation, but is small and insignificant. See Table A11 of Appendix H for the complete set of coefficient estimates.

To examine the effect of mortgage balances on the relationship between inflation expectations and durable goods spending, we restrict the estimation to the subsample of respondents who report having a mortgage in each period in which they are observed. Column 7 of Table 2 shows results estimated over the resulting mortgagor sample, for a model that contains the maximal set of controls and that includes an interaction between inflation expectations and the (within-household average) remaining (log) mortgage balance. (The average log mortgage balance and the current log mortgage balance are also included in the model as standalone terms.) Among mortgagors, the inflation expectation exhibits a positive association with durable goods spending, but again there is a significant negative interaction between the inflation expectation and the no-college dummy. Consistent with real wealth effects of nominal debt, the coefficient on the interaction between the inflation expectation and the mortgage balance is positive and highly significant.

Table 3 shows estimates of the average marginal effects of inflation expectations on durable goods spending within the baseline sample and the mortgagor sample, respectively, at selected values of key covariates. The results are based, respectively, on the models in column 6 (baseline sample) and column 7 (mortgagor sample) of Table 2. All estimates represent average semi-elasticities, or the average relative increase in spending for a 1 percentage-point increase in

expected inflation, holding only selected covariates fixed as indicated in the leftmost column.[15] Within the baseline sample (column 1) the average semi-elasticity of inflation expectations on durable goods spending is small, positive, and not significantly different from zero. However, the estimates imply that the average college-educated respondent increases spending on durables by 21 percent per 1 percentage point increase in expected inflation, an economically nontrivial and statistically significant value. Consistent with results from Table 2 (column 6), the average semi-elasticity for non-college households has a negative point estimate (-0.15), although the value is not statistically significant.

Table 2 also shows the average marginal effects for households (by college status) at 25th percentile income and 75th percentile income, respectively, based on the sample-wide distribution of within-household average income. Consistent with the negative interaction coefficient, the semi-elasticities at 25th percentile income are greater than those at 75th percentile income, for either college or non-college types. Among college-educated respondents the semi-elasticity is positive (0.25) and highly significant at 25th percentile income and becomes not only smaller but also insignificant (0.14) at 75th percentile income, while for non-college types both estimates are negative (-0.10 and -0.21, respectively) but neither value is highly significant.

Within the mortgagor sample (column 2 of Table 3), the average marginal effect of expected inflation on durable goods spending is positive and statistically significant, but this overall effect appears to be driven by the college types. The average college-educated mortgagor increases spending on durables by an estimated 39 percent per 1 percentage point increase in

[15] The average marginal effects are calculated setting the given regressors to the specified values and integrating over the distribution of the remaining regressors in the given sample population. The row labelled "average" gives the overall average marginal effect for the given sample.

expected inflation, while among non-college types the corresponding point estimate is smaller (still positive) and statistically insignificant. Having a higher mortgage balance boosts the durable-goods spending response considerably: for college types the semi-elasticity rises from 28 percent, assuming a mortgage balance at the 25th percentile, to 53 percent for a mortgage balance at the 75th percentile. Among non-college mortgagors, the semi-elasticity estimates also increase with the mortgage balance but are statistically insignificant in all cases. The estimated semi-elasticities by income percentile in Table 3 are consistent with the fact that the income interaction (from column 7 of Table 2) is negative and insignificant. The point estimates decline with the income percentile (within either education type) but are positive and significant among college-educated mortgagors at both the 25th and 75th income percentiles.

The results from models of purchasing any durable goods in a quarter are described in Appendix F and Tables A3-A4 and Figures A4-A6 of Appendix H. The most important results of those models are (a) for college types in general the chance of buying durables is unresponsive to inflation expectations, (b) among college-educated mortgagors the chance of buying durables *increases* on average with expected inflation, and (c) among those with no college education the tendency to purchase durables *decreases* on average with expected inflation.

B. Spending on Nondurable Goods and Services

Table 4 shows results of GEE models of monthly spending on our bundle of nondurable goods and services that are otherwise similar to the models in Table 2—the first 6 columns refer to models estimated over the baseline sample and column 7 shows results for the mortgagor subsample. (See Table A12 of Appendix H for all coefficient estimates.) For the baseline sample, nondurables spending is mostly unresponsive to expected inflation, regardless of educational attainment. In the mortgagor sample (column 7), larger mortgage balances are associated with

greater increases in nondurables spending for a given increase in expected inflation, but the magnitude of the interaction is much smaller compared to the case of durable goods spending.

The average marginal effects estimates (Table 5) confirm that there is a zero response of nondurables spending to inflation expectations, on average in the baseline sample and separately among both college and non-college types. However, households with 25th percentile (average) income exhibit a small but statistically significant positive spending response of 2 percent. Among mortgagors the average response of nondurables spending is a small and marginally significant negative value (-2 percent). Also, despite the positive interaction between the mortgage balance and expected inflation in Table 4 (column 7), the estimated response of nondurables spending is at best zero and insignificant (for college-educated mortgagors at the 75th percentile mortgage balance), and reaches a significant negative value (-3 percent) among non-college mortgagors with a 25th percentile mortgage balance.

Additional analysis and robustness checks, all of which strongly reinforce our main results, are described in Appendix G, and results are shown in Tables A5-A10 in Appendix H.

6. AGGREGATE POLICY IMPLICATIONS

Despite our finding that some types of households exhibit a strong durable-goods consumption response to an increase in expected inflation, our results do not make a strong case for policies seeking to boost aggregate consumption by engineering higher inflation expectations. The primary reasons are that the effects are limited to durable goods for a subset of population. Therefore, even if the central bank can engineer a permanent shift in inflation expectations the effects are likely to be limited.

For example, in the baseline sample the average effect of a 1 percentage point increase in inflation expectations on consumption is limited to a 4 percent increase in durables spending in a

single quarter, based on the (insignificant) point estimate in Table 4 (column 1, top row). The fact that durables account for only 10 percent of aggregate spending means that aggregate spending in the quarter would increase by just 0.4 percent. One can boost this estimate by arguing that the effects are strongly positive for college-educated consumers, whereas the negative point estimates for non-college types can be treated as zeroes given their imprecision. Among college-educated consumers, the model predicts a 21 percent increase in one-quarter durables spending following a 1 percentage-point increase in expected inflation. Based on the typical share of college-type households' durables spending in aggregate spending, we estimate that one-quarter aggregate spending would increase by approximately 1.8 percent.[16]

Based on European data, Duca-Radu et al. (2020) estimate that a 2 percentage point increase in expected inflation would lead to a cumulative increase in aggregate spending on the order of 0.36 percent over a three-year horizon. Translating our optimistic scenario just described to the scale used by Duca-Radu et al., our model predicts a cumulative increase in aggregate spending of 0.30 percent over a three-year horizon for a 2-percentage point increase in expected inflation. Including lagged effects on spending, which are estimated in Appendix G, the corresponding estimate does not change materially, at 0.31 percent. The fact that we obtain weaker effects in the U.S. compared with Europe—even in our most generous assessment—could reflect the fact that, during our time period following the Great Recession, U.S. households

[16] According to the 2017 Consumer Expenditure Survey households with at least some college education accounted for about 85 percent of aggregate spending and durables accounted for about 10 percent of their total spending. Accordingly, the increase in aggregate spending is calculated as 21 percent times (0.1)(0.85), or 1.8 percent. This calculation sets the effects on nondurables spending to zero for both college and non-college households, based on Table 5.

exhibited a relative insensitivity to interest rates compared with earlier recoveries, as observed by Van Zandweghe and Braxton (2013).

7. CONCLUSION

Using a unique panel dataset that matches the inflation expectations of individual respondents with the actual spending behavior of the respondent's household, we find that some subgroups of the population—especially college-educated mortgagors and to a lesser extent college-educated individuals in general—exhibit significantly greater real spending on durable goods when their expectations of one-year-ahead inflation are higher, while non-college households on average exhibit no or weakly negative response. Spending on nondurable goods and services is practically unresponsive to inflation expectations. Also, expecting an increase in unemployment is associated with large and robust negative effects on durable goods spending and modest negative effects on nondurables/services spending. We also find that higher household income dampens the effect of inflation expectations on spending whereas higher mortgage balances amplify it.

Our results shed light on the factors that might enable or inhibit the consumption response to expected inflation. The fact that we only observe significant positive consumption responses among households in which the respondent had at least some college education, while non-college households may even respond negatively, suggests that cognitive ability or financial literacy may be important mediating factors, consistent with some previous findings. Our result that households with larger mortgage balances respond more positively to increases in their inflation expectations agrees with the prediction that individuals with higher nominal debt loads—all else equal—should respond more strongly to higher expected inflation because inflation erodes the real value of debt and thereby increases real wealth.

Overall, our results help to reconcile some of the conflicting evidence observed across previous studies. Compared with other papers that use data from the U.S., our results are qualitatively similar to those of Bachmann et al. (2015) in that we also observe a zero or possibly negative response of durable goods purchases (on the extensive margin) to higher expected inflation. The fact that we observe some positive effects of inflation expectations on durable goods consumption agrees with the results of a few studies of European consumers, although most of the latter studies observed only qualitative measures of readiness-to-spend.

In sum, we observe evidence of positive effects of inflation expectations on durable goods consumption. Nevertheless, the estimated aggregate effects on total consumption are rather limited. If consumers' expectations of inflation and unemployment tend to move in the same direction, policies that stimulate inflation expectations may have the unintended consequence of stoking higher unemployment expectations and, as a result, could lead to net reductions in aggregate spending. Therefore, central banks should exercise caution in using inflation expectations as a policy tool.

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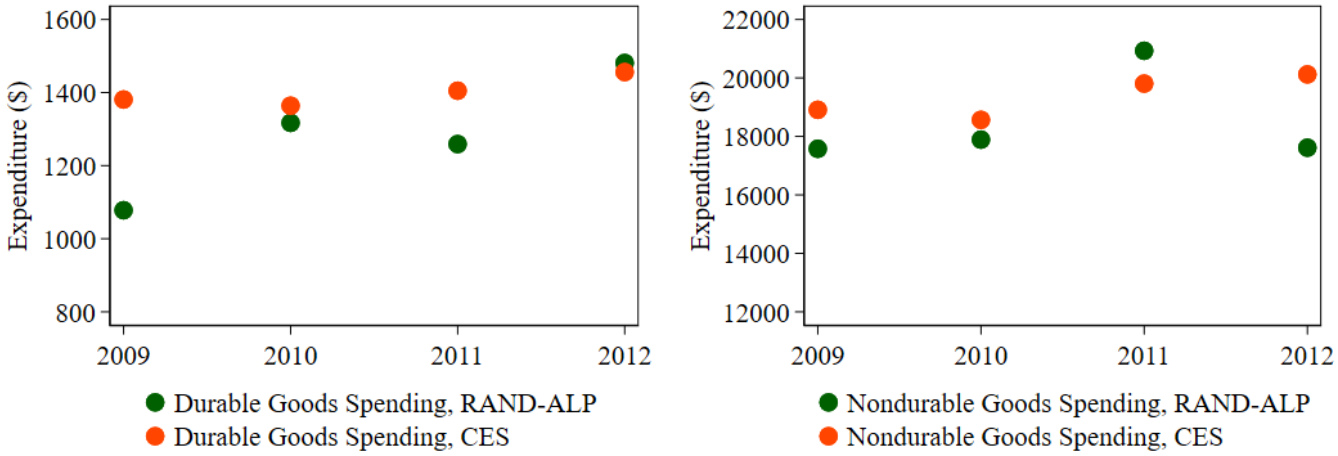
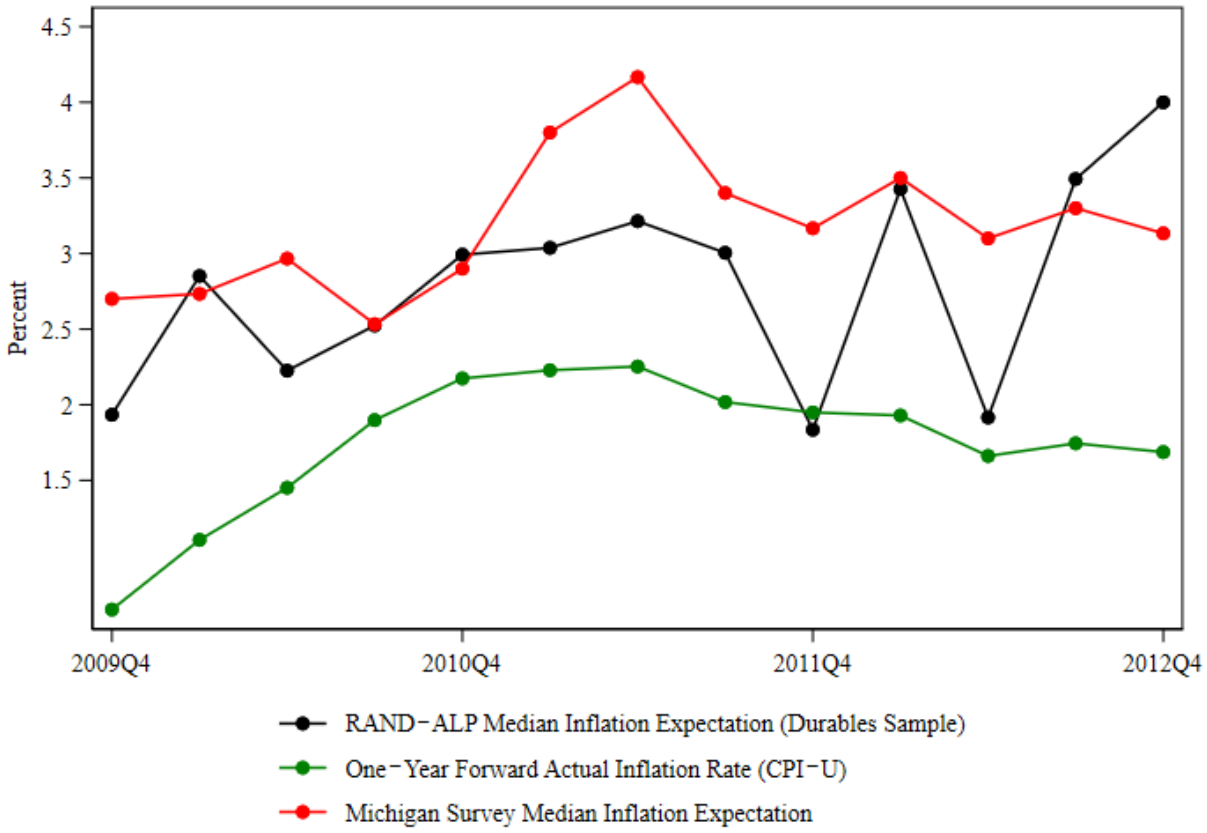
Figure 1. RAND-ALP Durables and Nondurables Spending vs. Consumer Expenditure Survey



Note: The durable goods bundle from the regression sample includes large and small appliances, furniture, floor coverings, televisions, computers, and miscellaneous household equipment. The durable goods bundle from the Consumer Expenditure Survey (CES) includes large and small appliances, furniture, floor coverings, miscellaneous housewares, and miscellaneous household equipment. The nondurable goods bundle from the regression sample includes food, electricity, water, heating fuel, phone and cable TV services, gasoline, personal care goods and services, health care services, medical supplies, prescription drugs, clothing, entertainment, hobbies and leisure equipment, house cleaning goods and services, gardening goods and services, and other child spending. The nondurable goods bundle from the CES includes food, utilities/fuels/public services, gasoline/motor oil, personal care goods and services, health care services, medical supplies, prescription drugs, apparel and related services, entertainment, pets/toys/hobbies/playground equipment, laundry and cleaning supplies, household operations, and other household products. Due to a lack of observations of durable goods spending in selected quarters (2009 and 2011) and of nondurables spending in selected months (all years), we impute spending for the missing quarters or months in order to compute annual spending values. See Appendix C for details of these imputations.

Figure 2. RAND-ALP Inflation Expectations vs. Realized Inflation and Michigan Inflation Expectations



Note: Median inflation expectation refers to the median one-year ahead inflation expectation for the given quarter, based on the dates on which subjects completed the expectations surveys.

Table 1a. Summary Statistics for Baseline Sample

	Durables Spending Panel (N=1,084)				Nondurables Spending Panel (N=2,010)			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Durables Spending ($)	320.11	845.60	0.00	12,942.66	.	.	.	.
Nondurables Spending ($)	.	.	.	.	1,547.04	967.61	249.96	10,028.94
Bought Durables	0.42	0.49	0.00	1.00	.	.	.	.
Inflation Expectation	3.20	3.01	–5.00	23.25	3.97	3.46	–5.00	21.58
Inflation Uncertainty	2.15	1.96	0.14	20.54	2.18	2.13	0.14	20.54
Household Income (Median $)	67,500	44,551	8,750	237,500	55,000	48,730	8,750	237,500
Monthly Payments ($)	807	749	0	10,520	917	796	0	9,754
Expects Interest Rate Increase	0.34	0.47	0.00	1.00	0.37	0.48	0.00	1.00
Expects Interest Rate Decrease	0.11	0.32	0.00	1.00	0.05	0.22	0.00	1.00
Expects Unemployment Increase	0.24	0.43	0.00	1.00	0.29	0.45	0.00	1.00
Expects Unemployment Decrease	0.23	0.42	0.00	1.00	0.22	0.41	0.00	1.00
Real Wage Growth Expectation	0.20	7.24	–22.80	35.36	–1.34	6.68	–20.57	35.36
Wage Growth Uncertainty	1.36	1.80	0.14	20.27	1.56	2.16	0.14	20.73
House Price Growth Expectation	2.60	7.05	–50.00	25.00	1.41	8.32	–100.00	25.00
Age*	56.44	7.29	43.00	74.00	55.39	6.78	43.00	74.00
Non-White*	0.12	0.32	0.00	1.00	0.19	0.40	0.00	1.00
Female*	0.45	0.50	0.00	1.00	0.51	0.50	0.00	1.00
No College*	0.41	0.49	0.00	1.00	0.44	0.50	0.00	1.00
Homeowner	0.82	0.38	0.00	1.00	0.67	0.46	0.00	1.00
Has Mortgage	0.57	0.47	0.00	1.00	0.46	0.48	0.00	1.00

Note: * Values represent the weighted average of the given variable over the unique set of individuals in the given sample.

Table 1b. Summary Statistics for Mortgagor Sample

	Durables Spending Panel (N=671)				Nondurables Spending Panel (N=579)			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Durables Spending ($)	336.51	914.74	0.00	12,942.66	.	.	.	.
Nondurables Spending ($)	.	.	.	.	1,753.51	1,016.21	332.77	9,544.67
Bought Durables	0.41	0.49	0.00	1.00	.	.	.	.
Inflation Expectation	2.70	2.45	–3.54	23.25	3.07	2.74	–3.30	19.02
Inflation Uncertainty	2.11	2.05	0.14	20.54	1.96	2.10	0.14	20.54
Household Income (Median $)	67,500	44,185	8,750	237,500	87,500	49,152	8,750	237,500
Mortgage Balance ($)	99,161	89,982	400	1,100,000	122,800	97,521	400	835,000
Monthly Payments ($)	1,136	788	0	10,520	1,402	870	0	9,754
Expects Interest Rate Increase	0.31	0.46	0.00	1.00	0.34	0.47	0.00	1.00
Expects Interest Rate Decrease	0.16	0.36	0.00	1.00	0.08	0.27	0.00	1.00
Expects Unemployment Increase	0.27	0.44	0.00	1.00	0.34	0.47	0.00	1.00
Expects Unemployment Decrease	0.24	0.43	0.00	1.00	0.22	0.41	0.00	1.00
Real Wage Growth Expectation	–0.26	3.99	–22.80	35.36	–0.94	3.92	–18.02	35.36
Wage Growth Uncertainty	1.42	1.85	0.14	17.64	1.50	1.85	0.14	14.20
House Price Growth Expectation	1.92	6.44	–20.00	25.00	0.65	6.23	–20.00	20.00
Age*	54.80	6.94	43.00	70.00	55.01	6.94	43.00	70.00
Non-White*	0.10	0.30	0.00	1.00	0.14	0.35	0.00	1.00
Female*	0.41	0.49	0.00	1.00	0.44	0.50	0.00	1.00
No College*	0.47	0.50	0.00	1.00	0.44	0.50	0.00	1.00

Note: * Values represent the weighted average of the given variable over the unique set of individuals in the given sample.

Table 2: Real Durable Goods Spending vs. Year-Ahead Expectations, Baseline Sample (Columns 1-6), Mortgagor Sample (Column 7), GEE estimation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Inflation Expectation	0.038	–0.006	–0.012	0.080	0.179*	0.191**	0.571***
	(0.038)	(0.045)	(0.052)	(0.109)	(0.095)	(0.089)	(0.183)
Inflation Uncertainty	–0.009	0.068	0.087	–0.003	0.101	0.075	0.087
	(0.043)	(0.053)	(0.055)	(0.068)	(0.093)	(0.091)	(0.097)
Household Income (Log)		0.836***	0.802***	–1.344*	–1.473*	–1.128	–1.516
		(0.260)	(0.237)	(0.795)	(0.821)	(0.839)	(1.213)
Expects Unemployment Increase			–0.481*	–1.092***	–1.160***	–1.232***	–1.225**
			(0.256)	(0.384)	(0.391)	(0.409)	(0.586)
Expects Unemployment Decrease			0.074	–0.118	–0.070	–0.103	–0.129
			(0.277)	(0.276)	(0.275)	(0.284)	(0.274)
Mean Inflation Expectation				–0.141	–0.211	–0.248*	–0.438***
				(0.153)	(0.141)	(0.132)	(0.156)
Mean Log Household Income				2.310***	2.589***	2.320***	2.431*
				(0.866)	(0.890)	(0.896)	(1.311)
Mean Expects Unemployment Increase				1.301**	1.164**	1.276***	0.756
				(0.514)	(0.463)	(0.416)	(0.474)
Mean Expects Unemployment Decrease				0.540	0.280	0.225	–0.284
				(0.456)	(0.414)	(0.381)	(0.487)
No College					–0.621*	–0.497	0.004
					(0.362)	(0.375)	(0.473)
No College × Inflation Expectation					–0.360***	–0.355***	–0.271**
					(0.079)	(0.087)	(0.131)
No College × Inflation Uncertainty					0.048	0.043	0.016
					(0.115)	(0.120)	(0.150)
Mean Log Household Income × Inflation Expectation						–0.169***	–0.118
						(0.038)	(0.103)
Mean Log Mortgage Balance							–0.249
							(0.314)
Inflation Expectation × Mean Log Mortgage Balance							0.160***

Mortgage Balance (Log)							(0.055) 0.376 (0.236)
Correlated Random Effects	No	No	No	Yes	Yes	Yes	Yes
Chi^2	29.55	214.18	253.17	788.30	967.82	2195.88	5094.23
P Value	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Sample Size	1084	1084	1084	1084	1084	1084	671

Standard errors in parentheses

Note: Each column includes time fixed effects. All means refer to within-subject means. Model (1) includes the inflation expectation and inflation uncertainty. Model (2) adds household income (log), monthly payments (log), the "expects interest rate increase" indicator, the "expects interest rate decrease indicator", the real wage expectation, wage uncertainty, the house price expectation, the no mortgage indicator, respondent's age, and the indicators for non-white, female, retired, and homeowner. Model (3) adds the "expects unemployment increase" indicator and the "expects unemployment decrease" indicator. Model (4) adds the within-subject means of the inflation expectation, inflation uncertainty, household income (log), monthly payments (log), expects interest rate increase, expects interest rate decrease, the real wage expectation, wage uncertainty, the house price expectation, expects unemployment increase, expects unemployment decrease, the no mortgage indicator, and the homeowner indicator. Model (5) adds the no college indicator and the indicator's interactions with the inflation expectation and inflation uncertainty. Model (6) adds interactions between the inflation expectation and each of within-subject mean household income (log), mean monthly payments (log), and the mean no mortgage indicator. Model (7) is restricted to the mortgagor sample. This model includes the mortgage balance (log), the within-subject mean of the mortgage balance (log), and the interaction between the inflation expectation and within-subject mean mortgage balance. The full set of coefficients is presented in Appendix H. Robust standard errors are clustered at the level of the individual respondent. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Average Marginal Effects of Inflation Expectations on Durable Goods Spending

	Baseline Sample Model (6)	**Mortgagor Sample** Model (7)
Average	0.04	0.25**
	(0.09)	(0.12)
No College	-0.15	0.12
	(0.10)	(0.16)
Some College or More	0.21**	0.39***
	(0.09)	(0.09)
No College, 25th Percentile Household Income	-0.10	0.16
	(0.10)	(0.16)
College, 25th Percentile Household Income	0.25***	0.43***
	(0.09)	(0.09)
No College, 75th Percentile Household Income	-0.21*	0.06
	(0.11)	(0.18)
College, 75th Percentile Household Income	0.14	0.33***
	(0.10)	(0.12)
No College, 25th Percentile Mortgage Balance		0.01
		(0.15)
College, 25th Percentile Mortgage Balance		0.28***
		(0.07)
No College, 75th Percentile Mortgage Balance		0.26
		(0.19)
College, 75th Percentile Mortgage Balance		0.53***
		(0.13)
Observation	1084	671

Standard errors in parentheses

Note: A given semi-elasticity estimate indicates the population average relative change in quarterly durable goods spending for a 1-percentage-point increase in expected inflation one year ahead, assuming the given characteristics. (Percentage changes are obtained by multiplying each value by 100.)

$^{*}p < 0.10,^{**}p < .05,^{***}p < .01$

Table 4: Real Nondurable Goods Spending vs. Year-Ahead Expectations, Baseline Sample (Columns 1-6), Mortgagor Sample (Column 7), GEE estimation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Inflation Expectation	0.002	0.002	0.003	0.003	–0.001	0.003	0.027
	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.012)	(0.021)
Inflation Uncertainty	–0.004	–0.002	–0.000	–0.003	0.016	0.012	0.021
	(0.007)	(0.008)	(0.007)	(0.008)	(0.010)	(0.011)	(0.013)
Household Income (Log)		0.419***	0.409***	0.116	0.118	0.124	0.012
		(0.056)	(0.056)	(0.089)	(0.089)	(0.090)	(0.137)
Expects Unemployment Increase			–0.124***	–0.125***	–0.123***	–0.123***	–0.128**
			(0.034)	(0.033)	(0.034)	(0.034)	(0.064)
Expects Unemployment Decrease			–0.023	–0.027	–0.028	–0.028	0.001
			(0.027)	(0.027)	(0.027)	(0.027)	(0.047)
Mean Inflation Expectation				–0.012	–0.011	–0.020	–0.075**
				(0.022)	(0.022)	(0.021)	(0.031)
Mean Log Household Income				0.409***	0.404***	0.419***	0.472***
				(0.108)	(0.108)	(0.113)	(0.153)
Mean Expects Unemployment Increase				0.201	0.206	0.233	–0.311
				(0.170)	(0.168)	(0.163)	(0.226)
Mean Expects Unemployment Decrease				–0.039	–0.045	–0.047	0.039
				(0.190)	(0.185)	(0.184)	(0.158)
No College					0.011	0.020	–0.112
					(0.090)	(0.090)	(0.114)
No College × Inflation Expectation					0.006	–0.000	–0.010
					(0.009)	(0.009)	(0.021)
No College × Inflation Uncertainty					–0.030**	–0.026**	0.005
					(0.012)	(0.011)	(0.020)
Mean Log Household Income × Inflation Expectation						–0.021**	0.017
						(0.008)	(0.015)
Mean Log Mortgage Balance							–0.043
							(0.054)
Inflation Expectation × Mean Log Mortgage Balance							0.025**

Mortgage Balance (Log)							(0.011) 0.050 (0.049)
Correlated Random Effects	No	No	No	Yes	Yes	Yes	Yes
Chi^2	168.47	317.43	417.65	773.60	930.76	1224.80	1468.69
P Value	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sample Size	2010	2010	2010	2010	2010	2010	579

Standard errors in parentheses

Note: Each column includes time fixed effects. All means refer to within-subject means. Model (1) includes the inflation expectation and inflation uncertainty. Model (2) adds household income (log), monthly payments (log), the "expects interest rate increase" indicator, the "expects interest rate decrease indicator", the real wage expectation, wage uncertainty, the house price expectation, the no mortgage indicator, respondent's age, and the indicators for non-white, female, retired, and homeowner. Model (3) adds the "expects unemployment increase" indicator and the "expects unemployment decrease" indicator. Model (4) adds the within-subject means of the inflation expectation, inflation uncertainty, household income (log), monthly payments (log), expects interest rate increase, expects interest rate decrease, the real wage expectation, wage uncertainty, the house price expectation, expects unemployment increase, expects unemployment decrease, the no mortgage indicator, and the homeowner indicator. Model (5) adds the no college indicator and the indicator's interactions with the inflation expectation and inflation uncertainty. Model (6) adds interactions between the inflation expectation and each of within-subject mean household income (log), mean monthly payments (log), and the mean no mortgage indicator. Model (7) is restricted to the mortgagor sample. This model includes the mortgage balance (log), the within-subject mean of the mortgage balance (log), and the interaction between the inflation expectation and within-subject mean mortgage balance. The full set of coefficients is presented in Appendix H. Robust standard errors are clustered at the level of the individual respondent. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Average Marginal Effects of Inflation Expectations on Real Nondurables/Services Spending, As Semi-Elasticities

	Baseline Sample Model (6)	**Mortgagor Sample** Model (7)
Average	0.01	-0.02*
	(0.01)	(0.01)
No College	0.00	-0.02*
	(0.00)	(0.01)
Some College or More	0.01	-0.01
	(0.01)	(0.01)
No College, 25th Percentile Household Income	0.02***	-0.03*
	(0.01)	(0.02)
College, 25th Percentile Household Income	0.02	-0.02
	(0.01)	(0.02)
No College, 75th Percentile Household Income	-0.00	-0.02
	(0.01)	(0.01)
College, 75th Percentile Household Income	-0.00	-0.01
	(0.01)	(0.02)
No College, 25th Percentile Mortgage Balance		-0.03**
		(0.01)
College, 25th Percentile Mortgage Balance		-0.02
		(0.02)
No College, 75th Percentile Mortgage Balance		-0.01
		(0.02)
College, 75th Percentile Mortgage Balance		0.00
		(0.01)
Observations	2010	579

Standard errors in parentheses

Note: A given semi-elasticity estimate indicates the population average relative change in monthly nondurable goods and services spending for a 1-percentage-point increase in expected inflation one year ahead, assuming the given characteristics. (Percentage changes are obtained by multiplying each value by 100.)

$^{*}p < 0.10,^{**} p < .05,^{***} p < .01$

Appendix A. Data Construction, Merging, and Cleaning

For a complete list and description of all variables used in the analysis, refer to Tables A1 and A2 of Appendix H.

The "inflation expectation" for a given respondent in a given time period is constructed as the median of the estimated density function over one-year-ahead inflation for the respondent for that time period. Following Bruine de Bruine et al. (2011), the density function per respondent per time period is constructed by fitting a beta distribution to the points on the individual's cumulative distribution function for one-year-ahead inflation. Those latter points are inferred from the probabilities the individual placed on the various ranges for future inflation provided in the survey (see Appendix J for the full elicitation). When positive probability is placed on only two or fewer bins, the method assumes that the density function has the shape of an isosceles triangle. For further details see Engelberg et al. (2009). Inflation uncertainty is specified as the interquartile range of the same implied density function. The nominal wage growth expectation and its associated uncertainty are specified analogously. The real wage growth expectation is the difference between the nominal wage growth expectation and the inflation expectation for the same respondent and time period.

Spending on durable goods is reported at a quarterly frequency and the data do not indicate the exact date/s within the quarter on which the spending took place. However, the expectations of inflation and other economic outcomes are reported at a six-week frequency on average, and we observe the exact date on which the expectations survey was completed. Ideally, the expectations assigned to a given spending occurrence would be those dated just prior to the spending event, so that they would have been salient and yet would not have been influenced *ex post* by the spending itself. Lacking the exact timing of the spending, we face a tradeoff between using expectations

formed before the start of the spending quarter, which may have been subsequently revised before the spending occurred, and using expectations dated within the spending quarter itself, in which case the expectations may have been formed after at least some of the spending took place. To balance this tradeoff, we assign the expectations (of inflation, wage growth, etc.) that are dated within the first month of the spending quarter, if available. If no such expectations are available we look for expectations dated within the month immediately preceding the spending quarter or, if these are also missing, from the month prior to that. If none of these are available the durables spending observation is dropped.[1]

Spending on nondurable goods and services is reported at a monthly frequency. Again we don't observe the exact timing of the spending within the month, but we observe the date on which each expectations survey was completed. The matching procedure is roughly analogous to that used in the case of durable goods spending. Our first choice is to use expectations dated within the first 10 days of the spending month; if these are unavailable we look for expectations dated up to 5 weeks prior to the start of the spending month, and if none of these are available the spending observation is dropped.[2]

Following the merging procedure for a given type of spending, additional restrictions are applied to construct the baseline sample for that type of spending. For either sample we exclude all observations in which (a) the short-run inflation expectation equals 35 percent or greater (11 observations in the durable goods sample and 17 observations in the nondurable goods sample), (b) the house price growth expectation is less than -50 percent (2 observations in either sample),

[1] As an optional variable in some models, we also included lagged inflation expectations. These are taken from the first month of the quarter immediately prior to the spending quarter, if available, or from up to 12 months before the first month of the spending quarter. If no lagged inflation expectations are available the spending observation is dropped.

[2] For lagged inflation expectations in this case we use the next-most-recent expectations available, relative to the date of those initially matched, but dated no more than 12 months prior to the spending month. If no lagged inflation expectations are available the observation is dropped.

or (c) in which the monthly mortgage payment exceeds $200,000 (1 observation in either sample). For the durables sample we drop one observation in which single-quarter durable goods spending was $34,000. For the nondurables sample we drop one observation in which single-month nondurables spending was over $28,000,[3] and we drop 34 observations involving zero single-month spending—recall that the nondurables bundle includes food and utilities. Observations involving zero dollars of single-quarter spending on durable goods are not dropped, as such reports are not implausible. Respondents must have at least 3 observations of a given type of spending to be included in the panel for that type of spending, and for durable goods at least one of the respondent's observations must involve nonzero spending.[4] The latter restriction is imposed because those with uniformly zero spending contribute no identifying variation in models that control for household-level heterogeneity.

To construct the mortgagor subsample for either type of spending, we start with the baseline sample for the given type of spending, and select all respondents that reported having a mortgage in all of their retained observations.

Appendix B. Sample Representativeness

In Tables 1a. and 1b. of the main text, the statistics for time-varying factors (such as spending) represent the weighted means across person-by-quarter or person-by-month observations; the means of demographic characteristics are weighted means over the unique set of respondents represented in the sample. The durable goods sample is approximately representative (of adults) in terms of the share with only a high school diploma or less education, at about 41

[3] Results are qualitatively robust to all of these exclusions.

[4]The exclusion based on number of observations per individual does not reduce the number of observations dramatically and results in a modest increase in the precision of the estimates. Results are similar when we drop respondents in the bottom quartile of the distribution of observations per household, as described in Appendix G and in Tables A5-A10.

percent of our respondents versus 42 percent in the 2012 American Community Survey (ACS). (The education statistics for the ACS are based on those ages 25 and over, and the education statistics from our sample are unchanged if we restrict to those ages 25 and over.) The durable goods sample somewhat underrepresents women, with 45 percent female respondents versus a female share of 51.4 percent of adults in the 2012 ACS. The durable goods sample overrepresents homeowners (82 percent versus 69 percent in the 2012 CPS), underrepresents nonwhites (12 percent vs. 22 percent based on the 2012 ACS), and the sample's mean age, at 56, is elevated relative to mean age of 46 among all U.S. adults ages 17 and over (based on the 2012 CPS).[5] Our sample's median age is slightly less elevated, at 54 versus 46 for the U.S. population. Also, median annual household income, estimated at $67,500 in our sample, exceeds the U.S. value of $55,500 based on the 2012 ACS. The group represented in the nondurable goods sample comes closer to the U.S. population in terms of the share female, at 51 percent, the share nonwhite, at 19 percent, and median income, at $55,000. However, mean and median ages are still elevated relative to the U.S. population, at 55 and 53, respectively.

Appendix C. External Validity of Spending Data

To assess the external validity of our sample's durable goods spending patterns, we compare average single-year spending per household on durable goods within our regression sample to average single-year spending per household for a comparable bundle of durable goods based on the Consumer Expenditure Survey (CES), for each year of the period 2009-2012.[6] As seen in the left panel of Figure 1 (main text), in most years the numbers in our sample and in the

[5] The CPS figure is calculated using the monthly CPS-IPUMS as the homeownership rate among adults ages 17 and over, averaged over the 12 months of 2012.

[6] The durable goods bundle from the regression sample includes large and small appliances, furniture, floor coverings, televisions, computers, and miscellaneous household equipment. The durable goods bundle from the Consumer Expenditure Survey (CES) includes large and small appliances, furniture, floor coverings, miscellaneous housewares, and miscellaneous household equipment.

CES are close to each other, with the exception of 2009 where our spending value falls short of CES by 22 percent. This is driven by the fact that we have durable goods spending data only for the fourth quarter of 2009 and we have to impute the spending in other quarters of 2009 to come up with the whole-year figure. (Annual durables spending for 2011 is also imputed, as 2011Q4 data are missing.) Excluding 2009, the average absolute deviation between average annual durables spending in our sample and the corresponding figure based on the CES is about 5 percent. As noted in Appendix G and Tables A5 and A6 of Appendix H, results pertaining to durable goods spending are robust to excluding all observations from 2009.

The imputations mentioned in the paragraph above proceed as follows. For 2009, we impute (average) annual durables spending by assuming that the ratio of (average) Q4 spending on durable goods to average annual spending on durable goods would have been the same in 2009 as it was on average in our sample in 2010 and 2012. Specifically, we start with the (weighted) sample mean quarterly durables spending values for each of the four quarters of 2010 and each of the four quarters of 2012. For each of those years, we calculate the share of (average) Q4 durables spending in average annual durables spending—where average annual spending is the unweighted sum of the quarterly average spending values—and then take the average of those two shares. The final step is to take the inverse of this last result and multiply it by average durable goods spending in 2009Q4 as observed in the sample. Average annual durables spending for 2011 is imputed similarly but based on the sample's average share of combined Q1-Q3 spending in annual durables spending for 2010 and 2012.

The right panel of Figure 1 (main text) shows results of a similar exercise that compares nondurable goods spending in our sample to nondurable goods spending observed in the CES.[7]

[7] The nondurable goods bundle from the regression sample includes food, electricity, water, heating fuel, phone and cable TV services, gasoline, personal care goods and services, health care services, medical supplies, prescription

Again we find that our spending numbers come reasonably close to those of the CES. The annual average absolute deviation between our sample and the CES sample is about 4 percent between 2009 and 2012, with the largest discrepancy being 12.5 percent in 2012. Our results pertaining to nondurable goods/services spending are robust to excluding all observations from 2012 (see Appendix G and Tables A9 and A10 of Appendix H). Using a less restricted sample from the 2010 ALP alone, Hurd and Rohwedder (2012) find strong agreement with the CES considering average household spending on all goods.

Due to the fact that we have no observations from selected months in the nondurables regression sample, the average annual nondurables spending values in Figure 1 are imputed for all years. For 2011 and 2012, we observe nondurables spending in all months except November 2011 and July 2012. We impute expenditures in these missing months using the ratio of (average) single-month nondurables spending in 2012 to (average) same-month spending in 2011, averaged over the months that are observed in both years. July 2012 average nondurables spending is then imputed by multiplying July 2011 average nondurables spending by that average ratio, and November 2011 average nondurables spending is imputed similarly using the inverse ratio. For each of 2011 and 2012 we generate average annual nondurable goods spending as the sum of the observed and imputed monthly average spending values. In 2010 we observe average nondurables spending in all months except April and May. To impute annual average nondurables spending for 2010, using the 2011 and 2012 data we calculate the average share of average combined spending in the 10 months excluding April and May out of average annual nondurables spending and then

drugs, clothing, entertainment, hobbies and leisure equipment, house cleaning goods and services, gardening goods and services, and other child spending. The nondurable goods bundle from the CES includes food, utilities/fuels/public services, gasoline/motor oil, personal care goods and services, health care services, medical supplies, prescription drugs, apparel and related services, entertainment, pets/toys/hobbies/playground equipment, laundry and cleaning supplies, household operations, and other household products.

multiply the inverse of that value by average combined spending in the observed 10 months of 2010. In 2009 we observe nondurables spending only for November and December. To impute annual average nondurables spending in this case we proceed similarly using the average share of combined average November-December spending out of average annual spending observed in 2011 and 2012.

Appendix D. External Validity of Economic Expectations

As seen in Figure 2 of the main text, the quarterly median one-year-ahead inflation forecasts from our baseline sample (made between 2009Q4 and 2012Q4) tended to overshoot the realized four-quarter changes in actual inflation in the U.S. between 2010Q4 and 2013Q4 (based on the non-seasonally adjusted all-items CPI-U).[8] The forecast errors (in percentage points) show an average of just above 1 for the time period, with a high of about 2.3 and a low of about -0.10. At the same time, the movements in our sample forecasts over time generally track those in actual inflation one year forward, notwithstanding the marked fluctuations in our series between 2011Q4 and 2012Q3. In terms of bias, the forecasts from our baseline sample in most quarters proved more accurate than the corresponding forecasts from the Michigan Survey of Consumers, also shown in Figure 2.

Figure A1 (Appendix H) shows the monthly (weighted) median values of inflation expectations from our baseline regression sample for nondurables and services spending, together with the monthly median inflation expectations from the Michigan Survey for the same time period (October 2009 to November 2012). The monthly median inflation expectations from our sample, seen in Figure A1, appear more volatile than the quarterly median inflation expectations from our sample, seen in Figure 2. In each of four months our monthly sample median inflation expectation

[8] This statement is based on Bureau of Labor Statistics data accessed via Haver Analytics.

exceeds 7 percent. However, when aggregated to the quarterly frequency, the series in Figure A1 becomes much smoother, as seen in Figure A2 (Appendix H).[9] Nevertheless, all results are robust to omitting these months (Appendix G and Tables A5-A10 of Appendix H).

Considering other economic expectations, within any given sample only a modest share of observations (between 4 and 16 percent) expected that interest rates would decline one year forward, consistent with the fact that short-term rates were held at zero and long-term borrowing rates were already quite low throughout our time period. Unemployment expectations in our data appear somewhat pessimistic relative to the actual experience in the U.S. at the time, which generally entailed falling (although generally high) unemployment: in most samples the share of observations expecting an increase in unemployment exceeded the share expecting a decrease. The respective sample mean values of expected same-job real wage growth range from 1.25 percent (college sample, durable goods spending panel) to -1.34 percent (baseline sample, other spending panel). The latter figure comes quite close to the average realized (year-over-year) growth rate in median real weekly earnings between 2010Q4 and 2013Q4, at -0.9 percent.[10] Based on the broader sample of the expectations surveys alone—not merged with the spending surveys—Armantier et al. (2013) report a similar, if slightly lower, range of median values of expected real wage growth for the same time period.[11]

Appendix E. Econometric Methods

[9] In Figure A2 (Appendix H), quarterly median inflation expectations are different for the durable goods sample and the nondurable goods sample because the sets of individuals and observations that contribute to the series are not perfectly coincident. Considering the 163 households that contribute to both samples and plotting median expectations at the monthly frequency, the series are identical.

[10] These calculations are based on median usual weekly real earnings data produced by the Bureau of Labor Statistics and accessed from the St. Louis Fed's FRED website: https://fred.stlouisfed.org/series/LES1252881600Q

[11] This statement is based on visual inspection of Figure 16 on page 298 of Armantier et al. (2013).

The complete reduced form model of spending, not including interaction terms, can be written as follows:[12]

$$\log E[\,C_t^i] = \alpha_0 + \alpha_1 E_t^i[\pi_{t+1}] + \alpha_2 E_t^i[\Delta r_{t+1}] + \alpha_3 E_t^i[\Delta U_{t+1}] + \alpha_4 E_t^i[\Delta w_{t+1}^i] + \alpha_5 E_t^i[\Delta H_{t+1}] +$$

$$\alpha_6 y_t^i + \alpha_7 Unc_t^i(\pi_{t+1}) + \alpha_8 Unc_t^i(\Delta w_{t+1}^i) + \alpha_9 X_t^i + \mu_i + D_t \qquad (1)$$

In equation (1), $E_t^i[\pi_{t+1}]$ refers to the one-year-ahead expectation of inflation as of the current time period, and α_1 denotes its reduced-form coefficient (as a semi-elasticity), which is not the same as the intertemporal elasticity of substitution. This coefficient may take either a positive or negative sign depending on factors such as the household's initial net asset position and the relative strength of income and substitution effects. $E_t^i[\Delta r_{t+1}]$ refers to the expected (directional) change in nominal interest rates, $E_t^i[\Delta U_{t+1}]$ refers to the expected (directional) change in the aggregate unemployment rate, $E_t^i[\Delta w_{t+1}^i]$ stands for the expected percent change in the respondent's own real wage in the same job, and $E_t^i[\Delta H_{t+1}]$ refers to the expected percent change in the U.S. average home price.[13] All of these expectations are subjective at the level of the survey respondent and refer to outcomes one year ahead.

Turning to the second row of equation (1), the term y_t^i refers to (log) annual household income. $Unc_t^i(\pi_{t+1})$ denotes the subjective uncertainty (measured as the interquartile range) of

[12] Under reasonable assumptions one can start with a standard log-linear model of consumption and arrive at an expression for log expected consumption that is roughly equivalent to equation (1), up to additive differences in the constant term, the individual effects, and the time dummies. However, under the Poisson model the variance of non-log consumption increases in expected consumption, whereas in the standard log-linear model the conditional variance is homoscedastic.

[13] With some abuse of notation, $E_t^i[\Delta r_{t+1}]$ actually refers to two distinct dummy variables: one indicating whether the subject expects interest rates to increase one year ahead, and another indicating whether the subject expects interest rates to decrease one year ahead. A separate coefficient is estimated for each dummy. At most one of the two dummies can equal one; if neither dummy equals one, the subject expects interest rates to stay constant. Similarly, $E_t^i[\Delta U_{t+1}]$ refers to two distinct dummy variables, respectively, for whether the subject expects unemployment to increase and whether it expects unemployment decrease one year ahead.

future inflation and $Unc_t^i(\Delta w_{t+1}^i)$ refers to the subjective uncertainty of (nominal) same-job wage growth for the survey respondent, also measured as an interquartile range. The term X_t^i refers to a vector of time-varying aspects of the household's financial situation, including annual household income, whether the household owns a home, whether it has a home mortgage, and the combined amount of recurring payments it makes on its home (rent or mortgage payment) and its car (car loan payment). In the case of mortgagors this list also includes the remaining balance on the household's mortgage. We use time-period dummies, D_t, to capture all time-specific (quarter-by-year or month-by-year) aggregate influences on current spending. Tables A1 and A2 (Appendix H) list and describe all dependent and independent variables used in the regressions.

The term μ_i refers to a fixed unobserved effect at the household level that is additive on the log of mean spending. In theory this term reflects the influence of fixed, unobserved factors such as financial literacy and idiosyncratic preferences which could influence both expectations formation as well as spending (Bruine de Bruin et al. 2010, Burke and Manz 2014). In practice we proxy for the unobserved heterogeneity using the correlated random effects approach (Wooldridge 2010, Wooldridge 2019, Zeger et al. 1988, Chamberlain 1982, Mundlak 1978). This method models the heterogeneity as a linear function of the within-household means of the complete set of time-varying regressors, where this function is assumed to fully capture the correlation between the heterogeneity and the regressors. [14] After including the within-household means, any resulting deviations of log spending from its conditional expected value are taken to be uncorrelated with the extended set of regressors, but they may be correlated within a

[14] One can also estimate a fixed effects (conditional MLE) Poisson model, which places no restrictions on the unobserved heterogeneity. However, this latter approach also carries several disadvantages: (1) it cannot give estimates of population average marginal effects and therefore does not yield quantitative policy implications—related to this, the estimation cannot make use of population weights; (2) consistent estimation requires that the residuals be serially uncorrelated within a household; and (3) estimation tends to be less efficient than estimation of correlated random effects Poisson models (Ballinger 2004).

household over time. We assume an exchangeable correlation structure, which means that all of the off-diagonal elements of the variance-covariance matrix are equal to each other in expectation.[15]

Because our panel is unbalanced, this method requires that selection into the sample in a given period be uncorrelated with the time-varying innovations in the dependent variable (Wooldridge 2019). According to Hurd and Rohwedder (2012) the spending panel data exhibit no evidence of this type of selection bias. The joint significance of each regression is indicated by a Wald chi-squared statistic and its corresponding p-value at the bottom of the table.

Appendix F. Durables Goods Consumption Response on the Discrete Margin

We also investigate the response of durable goods consumption to inflation expectations along the discrete margin, for several reasons. First, discrete purchase decisions may be subject to less recall bias than exact spending amounts, especially in the case of large durable goods, and therefore estimating the discrete margin response may serve as a robustness check. Second, the indicator of whether someone purchased durables or not may come closer to the qualitative measure of readiness-to-spend on durable goods used in several other studies, offering greater comparability across results. Finally, the consumption response could operate differently along the extensive margin, with potential implications for policy. Within the durable goods sample, 42 percent of (weighted) observations involved purchase of at least one durable good—after having omitted observations from households who never purchased any durable goods.

Table A3 (Appendix H) shows results of logit models of whether a household purchased any durable goods in a given quarter, estimated using GEE over the baseline sample and

[15] In Stata, the estimation proceeds using the xtgee command, selecting the Poisson family with the log link function, using the random effects option and assuming an exchangeable correlation structure. The standard errors are clustered at the individual level and the robust option is selected.

sequentially introducing the same set of control variables as in Table 2 in the main text. Based on the first four columns the chance of buying durable goods appears unresponsive to inflation expectations, even controlling for household-level heterogeneity and other factors. However, results in column 5 suggest that whereas college types appear unresponsive to inflation expectations along the extensive margin (top row), non-college types become significantly less likely to purchase durable goods as their inflation expectations increase, results that are confirmed in the margins analysis below. The coefficients on the additional interaction terms in column 6 suggest that the chance of purchasing durable goods responds less positively (and possibly negatively) to inflation expectations among non-mortgagors as opposed to mortgagors, and that higher (average) household income is also associated with a weaker response. We also see that expecting higher unemployment leads to a lower chance of buying durables (after controlling for household-level heterogeneity).

When restricting the discrete margin analysis to just the mortgagor sample (Table A4 of Appendix H), before separating by educational attainment (columns 1-4) the coefficient on expected inflation is not significantly different from zero. However, the models in columns 5 and 6 show that college-educated mortgagors are significantly more likely to purchase durables as their inflation expectations increase, whereas mortgagors with no college exhibit a null or negative response, a result studied in more detail in margins analysis below. None of the additional interaction terms added in column 6 have significant coefficients—in particular having a higher mortgage balance does not predict a significantly stronger response of the discrete purchase decision to inflation expectations, nor does having lower income.

To facilitate the interpretation of results, Figures A3 and A4 (Appendix H) show selected estimates of average marginal effects (semi-elasticities) of inflation expectations on the durable

goods purchase probability, for the model estimated on the baseline sample and including maximal controls and interaction terms (column 6 of Table A3). In either figure, a given effect represents the average relative increase in the probability of purchasing durables for a 1 percentage-point increase in expected inflation, holding selected factors fixed and integrating over the remaining covariates. Figure A3 (Appendix H) provides estimates for a range of initial values of expected inflation, separately by college status.[16] The average response is significantly negative among non-college types and weakly (insignificantly) positive among college types, a pattern that holds across the different values of inflation expectations. Figure A4 (Appendix H) shows the estimated average semi-elasticities for a range of (within-subject average) income levels, again separately by college status. Among college-educated respondents, the average marginal effect is significantly positive for households with 25th percentile income but becomes weaker (and insignificant) at higher income percentiles, consistent with the negative interaction coefficient between household (average) income and expected inflation in Table A3. For non-college households the response is strictly negative across the range of incomes.

Figure A5 (Appendix H) is similar to Figure A4 but is based on the model restricted to the mortgagor sample (column 6 of Table A4) and shows estimates for different percentiles of the mortgage balance (rather than for different income percentiles). Again we observe a stark difference in responses based on educational attainment: for a 1 percentage point increase in expected inflation, college-educated mortgagors are more than 20 percent more likely to purchase durables regardless of mortgage balance, whereas for non-college types the effects are roughly

[16] The semi-elasticities in the logit model may vary with the level of the inflation expectation (and holding all else constant) because the logit transformation does not result in a linear relationship between the log probability of purchasing durables and expected inflation. In contrast, the Poisson model of continuous spending implies a linear relationship between the log of (mean) spending and expected inflation, such that semi-elasticities do not vary with the level of expected inflation, ceteris paribus.

opposite in magnitude but are not statistically significant. The lack of significant variation in the marginal effects with the mortgage balance amount agrees with the insignificant interaction coefficient in Table A4.

Appendix G. Additional Analysis and Robustness Tests

To assess the robustness of our results and investigate additional relationships, for each combination of dependent variable and sample we estimate the following: model 1 replicates the results of the most comprehensive model from the original analysis, model 2 controls for regional gas price inflation and region fixed effects, model 3 includes lagged inflation expectations (and lagged inflation uncertainty) in addition to current expectations, model 4 includes interaction terms between unemployment expectations and the non-college indicator, model 5 restricts the sample to the set of overlapping respondents between the durables and nondurables panels, model 6 drops respondents with low numbers of observations, model 7 excludes observations from months in which the sample median inflation expectations were 7 percent or higher, and model 8 excludes observations from the year in which the given sample's average spending value deviated significantly from the CES—2009 in the case of durables, and 2012 for nondurables. Each of Tables A5-A10 (Appendix H) shows the results of all eight of the aforementioned specifications for a given combination of dependent variable and sample.

As discussed in Section 3 of the main text and in light of Figure A6 (Appendix H), gas price inflation could represent a confounding factor in the relationship between inflation expectations and spending, and time dummies will not be sufficient controls if gas price inflation varies regionally. Using the respondent's state of residence we attach a measure of retail gasoline price inflation at the level of the Petroleum Administration for Defense District, or PADD, as

published by the U.S. Energy Information Administration.[17] We also include PADD dummies to isolate regional gas price effects from region fixed effects—there are seven PADDs in all. As seen in column 2 of each of Tables A5 through A10, the respective coefficient estimates on expected inflation are very close to their previous values, for all dependent variables and samples, alleviating concerns that the original results omitting gas price inflation were biased.

Column 3 of each table (relative to column 1) adds once-lagged inflation expectations and its interaction with college status, to account for the possibility of a lag or persistence in the consumption response to changes in inflation expectations that could affect longer-horizon estimates of policy implications.[18] In all tables the coefficient on the current inflation expectation is not significantly different from its value in column 1, and the coefficient on the lagged inflation expectation is mostly zero. We observe a modest but significant positive effect of the lagged expectation on durable goods spending that pertains mainly to college types, suggesting that inflation expectations may have persistent effects on durable goods spending (Table A5). In contrast, we observe a sizeable negative effect of the lagged expectation on the probability of buying durables among college-educated mortgagors (Table A8). Nonetheless, incorporating the potential lagged effects does not significantly change the implications of our results for aggregate spending that are presented in Section 6 of the main document.

Column 4 of each table includes interaction terms between each of the unemployment expectations indicators (expecting an increase and a decrease, respectively) and the no-college

[17] We use the year-over-year change in the region-specific price of regular gasoline, dated to the quarter or month of the given observation. Monthly gas prices reflect the simple average of the published weekly prices for the given month, and similar for quarterly prices. The seven districts are New England (PADD 1A), Central Atlantic (PADD 1B), Lower Atlantic (PADD 1C), Midwest (PADD 2), Gulf Coast (PADD 3), Rocky Mountain (PADD 4), and West Coast/Alaska/Hawaii (PADD 5). For more information see https://www.eia.gov/todayinenergy/detail.php?id=4890 and https://www.eia.gov/dnav/pet/TblDefs/pet_pri_gnd_tbldef2.asp.

[18] We do not include within-household average lagged inflation expectations as these are nearly identical to the within-household average of the current inflation expectation.

indicator. By capturing potential differences in the response of consumption to unemployment expectations by educational attainment, these terms control for the possibility that the differential responses of consumption to inflation expectations by college status (observed in some models) relate to differences between these two groups in how unemployment expectations co-vary with inflation expectations. For example, the general economic pessimism associated with higher inflation expectations (Coibion et al. 2018; Kamdar 2019) might be stronger among non-college-educated respondents. The coefficients on expected inflation and its interaction with the no college indicator are highly robust in most models, the one exception being that the significance level of the interaction coefficient falls from 5 percent to 10 percent in the model of durable goods spending on the mortgagor sample (Table A6). Based on this evidence at least, unemployment expectations do not explain the differential responses of consumption to inflation expectations by college status.

The remaining robustness checks modify the composition of the sample in different ways. Column 5 of each table includes only the set of respondents that belong to the estimation samples for both types of spending (durables and nondurables/services). Column 6 drops respondents in the bottom quartile of the distribution of observations per household (for the given regression sample) in order to create a more balanced panel in which each household has a relatively large number of observations. Column 7 excludes the months that entailed very high values (7 percent or higher) of the sample median inflation expectation (June 2010, March 2011, September 2011, and February 2012). Column 8 excludes all observations from the year 2009 (for durables) or the year 2012 (for nondurables), as in 2009 we observe a relatively large discrepancy between durable goods spending in our sample and the comparable figure in the CES, and a similar discrepancy applies to nondurable goods spending in 2012. Overall, the results are highly robust to these variations in the sample. Considering the coefficients on inflation expectations and related

interactions, the point estimates never differ significantly from those in column 1 of the same table, albeit with lower precision in a few cases, which is expected due to having fewer observations.

Appendix H. Appendix Tables and Figures

Table A1: Dependent Variables

Durable Goods Spending (quarterly frequency)[19]	Combined spending on refrigerators, stoves, ovens, washers, dryers, dishwashers, televisions, computers, furniture, floor coverings, and miscellaneous household furnishings and equipment; deflators = CPI-U Appliances, CPI-U washers, CPI-U televisions, CPI-U computers, CPI-U furniture; all Jan. 2012
Bought Any Durable Goods (quarterly frequency)	Binary indicator of whether the household spent any money on durable goods in the quarter (from the list of goods above)
Other Spending: Nondurable Goods/Services (monthly frequency)	Clothing, food (home and away), utilities (phone/cable/internet, electricity, water, heating), gasoline, personal care (goods and services), hobbies and leisure equipment, house cleaning (goods/services), gardening (goods/services), health care and medical expenditures (not including drugs), other child spending, entertainment; deflator = CPI-U Nondurables, Jan. 2012

Table A2. Explanatory Variables and Controls

Variable Name	Description
Inflation Expectation	Median of density function for one-year-ahead inflation rate, given by the individual respondent.
Inflation Uncertainty	Interquartile range of respondent's density function over one-year-ahead inflation rate.
Real Wage Growth Expectation[20]	Difference between the nominal wage growth expectation and the inflation expectation. Nominal wage growth expectation equals the median of the respondent's density function over same-job wage growth (analogous to the inflation expectation).
Wage Uncertainty[21]	Interquartile range of density function for (nominal) same-job wage growth, one year ahead.
Expects Interest Rate Increase (Decrease)	Binary indicator equal to 1 if respondent expects borrowing rates to increase (decrease) one year ahead; 0 otherwise.
Expects Unemployment Increase (Decrease)	Binary indicator equal to 1 if respondent expects unemployment rate to increase (decrease) one year ahead; 0 otherwise.

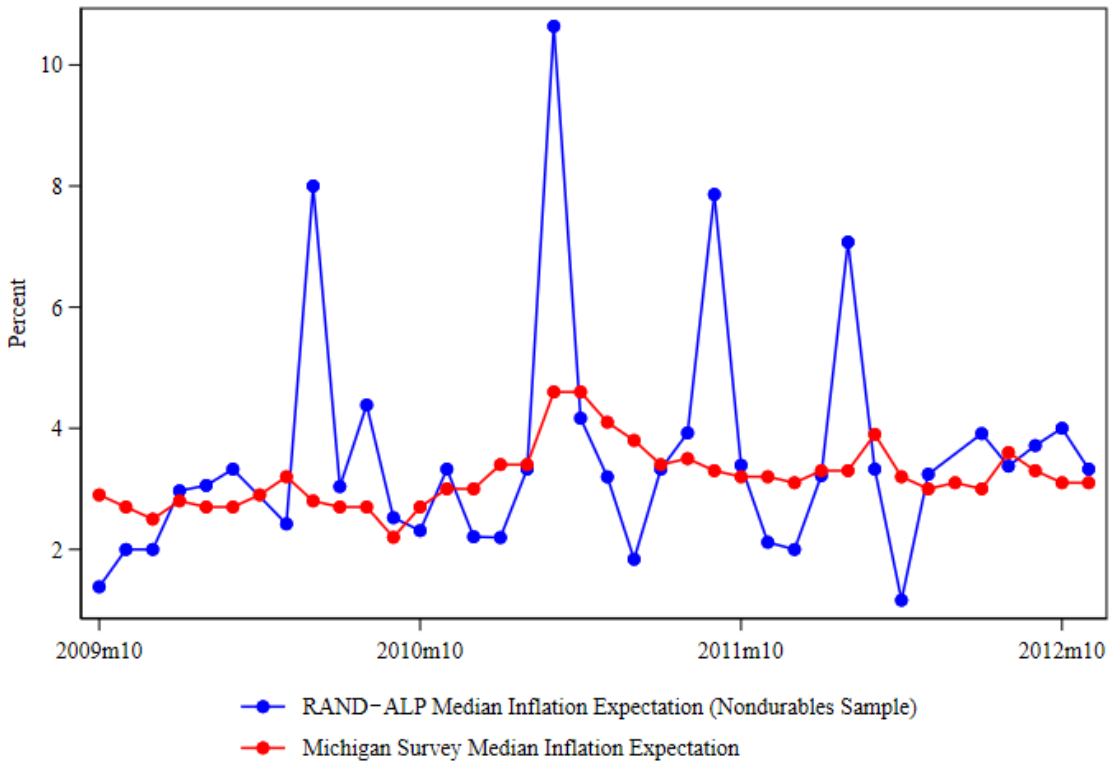
[19]Beginning in November 2011, half of respondents to the ALP spending modules (selected at random) were polled about spending on durable goods (and other infrequent purchases) at a monthly frequency rather than a quarterly frequency (see Hurd and Rohwedder 2013). To construct the quarterly durables spending total for such respondents we sum the monthly spending amounts on the relevant items within the quarter, provided a given respondent had non-missing data for all three months in the quarter. If the latter condition is not met the quarterly durables spending total is considered missing.

[20] Results are robust if the real wage growth expectation is defined as the difference between the respective density means of nominal wage growth and inflation in place of the medians.

[21] We cannot construct an interquartile range for real wage growth.

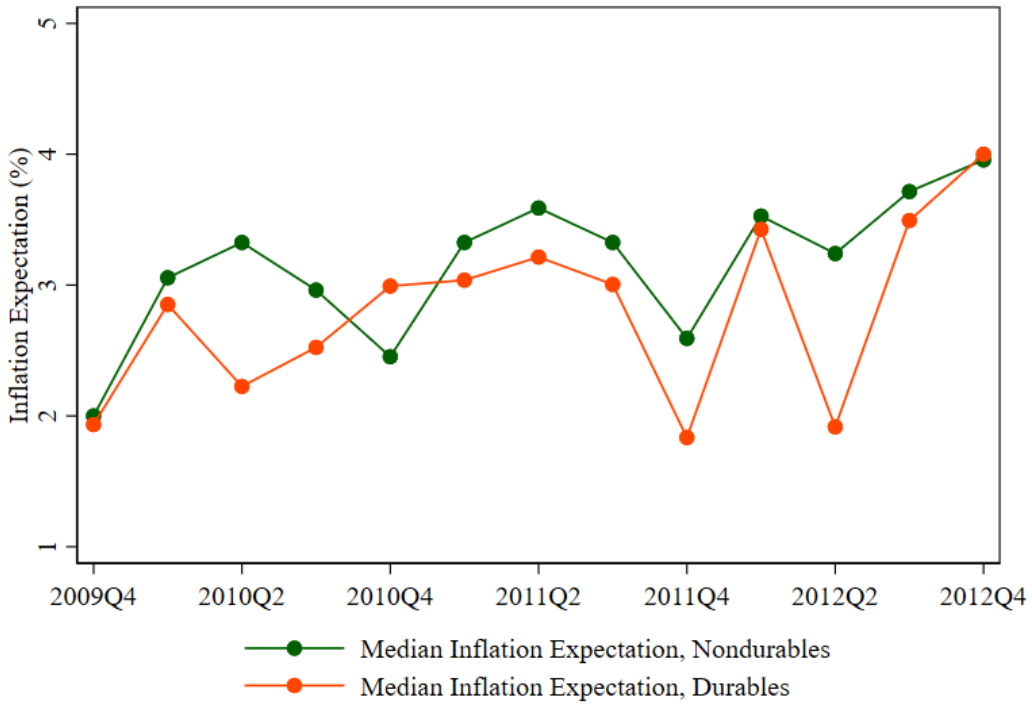
House Price Expectation	Point estimate of 12-month change in U.S. average house price, given by individual respondent.
Household Income	Log of an imputed value of annual household income, where the imputed value represents the midpoint of the reported income range.
Homeowner	Binary indicator equal to 1 if household currently owns its primary residence; 0 otherwise. Indicator varies across observations within some households.
Has Mortgage	Binary indicator equal to 1 if household currently holds a mortgage on its primary residence; 0 otherwise. Indicator varies within some households.
Recurring payments	Combined payments (per month or quarter) for household on housing (rent or mortgage) and car payment (lease or loan).
Mortgage Balance	Remaining principal balance on household's mortgage—included in models on mortgagor subsample only.
Sociodemographic characteristics	Age as continuous variable, plus dummy variables for Nonwhite, Female, Retired, Some College or More. Other than age these variables do not vary within a survey respondent over time.
Within-household means of all time-varying independent variables	For example, within-household mean of expected inflation; included in some models to control for household-level heterogeneity
Time dummies	Quarterly or monthly
The remaining variables appear in alternative/robust models only	
Regional gas price inflation	Year-over-year change in the region-specific retail price of regular gasoline, dated to the quarter or month of the given observation. Regions are defined as Petroleum Administration for Defense Districts; data come from the Energy Information Administration (EIA).
Region dummies	Dummy variable for residing in one of seven Petroleum Administration for Defense Districts as defined by the EIA.
Lagged inflation expectation	Similar to the inflation expectation but taken from an observation that is lagged at least one quarter (durables) or by at least one month (nondurables).
Lagged inflation uncertainty	Similar to inflation uncertainty but taken from an observation that is lagged by at least one quarter (durables) or by at least one month (nondurables).

Figure A1. RAND-ALP Inflation Expectations vs. Michigan Inflation Expectations



Note: Median inflation expectation refers to the median one-year ahead inflation expectation for the given month, based on the dates on which subjects completed the expectations surveys.

Figure A2. Quarterly Inflation Expectations of Durables and Nondurables Samples



Note: Median inflation expectation refers to the median inflation expectation for the given quarter, based on the dates on which subjects completed the expectations surveys.

Table A3: Bought Durables Indicator vs. Year-Ahead Expectations, Baseline Sample, GEE Logit estimation

	(1)	(2)	(3)	(4)	(5)	(6)
Inflation Expectation	0.041	0.030	0.026	-0.078	0.047	0.118
	(0.044)	(0.051)	(0.053)	(0.083)	(0.085)	(0.082)
Inflation Uncertainty	0.003	0.055	0.068	0.021	-0.058	-0.067
	(0.058)	(0.066)	(0.066)	(0.092)	(0.135)	(0.126)
Household Income (Log)		0.661**	0.641**	-0.952	-1.050	-0.628
		(0.292)	(0.291)	(0.821)	(0.911)	(0.894)
Expects Unemployment Increase			-0.552	-1.579***	-1.729***	-1.821***
			(0.365)	(0.407)	(0.422)	(0.420)
Expects Unemployment Decrease			-0.215	-0.140	-0.069	-0.101
			(0.378)	(0.545)	(0.543)	(0.557)
Mean Inflation Expectation (within-subject)				0.141	0.134	0.064
				(0.124)	(0.121)	(0.126)
Mean Log Household Income (within-subject)				1.781**	2.073**	1.733*
				(0.822)	(0.871)	(0.907)
Mean Expects Unemployment Increase (within-subject)				2.046***	1.706***	1.870***
				(0.609)	(0.608)	(0.583)
Mean Expects Unemployment Decrease (within-subject)				-0.194	-0.375	-0.412
				(0.801)	(0.829)	(0.827)
No College					-1.138**	-1.120**
					(0.469)	(0.496)
No College × Inflation Expectation					-0.497***	-0.496***
					(0.106)	(0.112)
No College × Inflation Uncertainty					0.427***	0.403**
					(0.157)	(0.163)
Mean Log Household Income × Inflation Expectation						-0.183***
						(0.042)
Mean No Mortgage Indicator × Inflation Expectation						-0.198**
						(0.095)
Correlated Random Effects	No	No	No	Yes	Yes	Yes
Chi^2	10.35	101.18	108.12	772.42	873.30	933.21
P Value	0.66	0.00	0.00	0.00	0.00	0.00
Sample Size	1084	1084	1084	1084	1084	1084

Standard errors in parentheses

Note: Each column includes time fixed effects.

Model (1) includes the inflation expectation and inflation uncertainty.

Model (2) adds household income (log), monthly payments (log), the "expects interest rate increase" indicator, the "expects interest rate decrease indicator", the real wage expectation, wage uncertainty, the house price expectation, the no mortgage indicator, respondent's age, and the indicators for non-white, female, retired, and homeowner.

Model (3) adds the "expects unemployment increase" indicator and the "expects unemployment decrease" indicator.

Model (4) adds the within-subject means of the inflation expectation, inflation uncertainty, household income (log), monthly payments (log), expects interest rate increase, expects interest rate decrease, the real wage expectation, wage uncertainty, the house price expectation, expects unemployment increase, expects unemployment decrease, the no mortgage indicator, and the homeowner indicator.

Model (5) adds the no college indicator and the indicator's interactions with the inflation expectation and inflation uncertainty.

Model (6) adds interactions between the inflation expectation and each of within-subject mean household income (log), mean monthly payments (log), and the mean no mortgage indicator.

The full set of coefficients is presented in Table A13. Robust standard errors are clustered at the level of the individual respondent.

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

Table A4: Bought Durables Indicator vs. Year-Ahead Expectations, Mortgagor Sample, GEE Logit estimation

	(1)	(2)	(3)	(4)	(5)	(6)
Inflation Expectation	0.067	-0.056	-0.120	0.027	0.337**	0.454**
	(0.071)	(0.093)	(0.111)	(0.119)	(0.148)	(0.218)
Inflation Uncertainty	0.008	0.054	0.108	-0.046	-0.265	-0.258
	(0.064)	(0.084)	(0.077)	(0.098)	(0.179)	(0.169)
Mortgage Balance (Log)		0.205*	0.212	0.849**	0.676	0.701
		(0.120)	(0.142)	(0.415)	(0.426)	(0.427)
Household Income (Log)		1.050***	1.126***	-3.991***	-3.472**	-3.349**
		(0.338)	(0.323)	(1.343)	(1.411)	(1.394)
Expects Unemployment Increase			-1.232***	-2.765***	-3.095***	-3.137***
			(0.410)	(0.649)	(0.733)	(0.707)
Expects Unemployment Decrease			-1.322***	-1.599***	-1.623***	-1.671***
			(0.312)	(0.432)	(0.432)	(0.457)
Mean Inflation Expectation (within-subject)				0.004	-0.154	-0.204
				(0.238)	(0.263)	(0.265)
Mean Log Mortgage Balance (within-subject)				-0.704	-0.452	-0.662
				(0.440)	(0.460)	(0.473)
Mean Log Household Income (within-subject)				4.701***	4.733***	4.887***
				(1.359)	(1.427)	(1.359)
Mean Expects Unemployment Increase (within-subject)				1.902**	1.596*	1.977**
				(0.929)	(0.958)	(0.937)
Mean Expects Unemployment Decrease (within-subject)				-0.617	-0.998	-0.814
				(0.717)	(0.774)	(0.766)
No College					-1.679***	-1.689***
					(0.628)	(0.634)
No College × Inflation Expectation					-0.787***	-0.688***
					(0.178)	(0.158)
No College × Inflation Uncertainty					0.641***	0.564***
					(0.221)	(0.216)
Mean Log Mortgage Balance × Inflation Expectation						0.004
						(0.086)
Mean Log Household Income × Inflation Expectation						-0.218
						(0.147)
Correlated Random Effects	No	No	No	Yes	Yes	Yes
Chi^2	12.22	239.58	255.13	677.84	902.65	1531.14
P Value	0.51	0.00	0.00	0.00	0.00	0.00
Sample Size	671	671	671	671	671	671

Standard errors in parentheses

Note: Each column includes time fixed effects.

Model (1) includes the inflation expectation and inflation uncertainty.

Model (2) adds household income (log), monthly payments (log), the "expects interest rate increase" indicator, the "expects interest rate decrease indicator", the real wage expectation, wage uncertainty, the house price expectation, the no mortgage indicator, respondent's age, and the indicators for non-white, female, retired, and homeowner.

Model (3) adds the "expects unemployment increase" indicator and the "expects unemployment decrease" indicator.

Model (4) adds the within-subject means of the inflation expectation, inflation uncertainty, household income (log), monthly payments (log), expects interest rate increase, expects interest rate decrease, the real wage expectation, wage uncertainty, the house price expectation, expects unemployment increase, expects unemployment decrease, the no mortgage indicator, and the homeowner indicator.

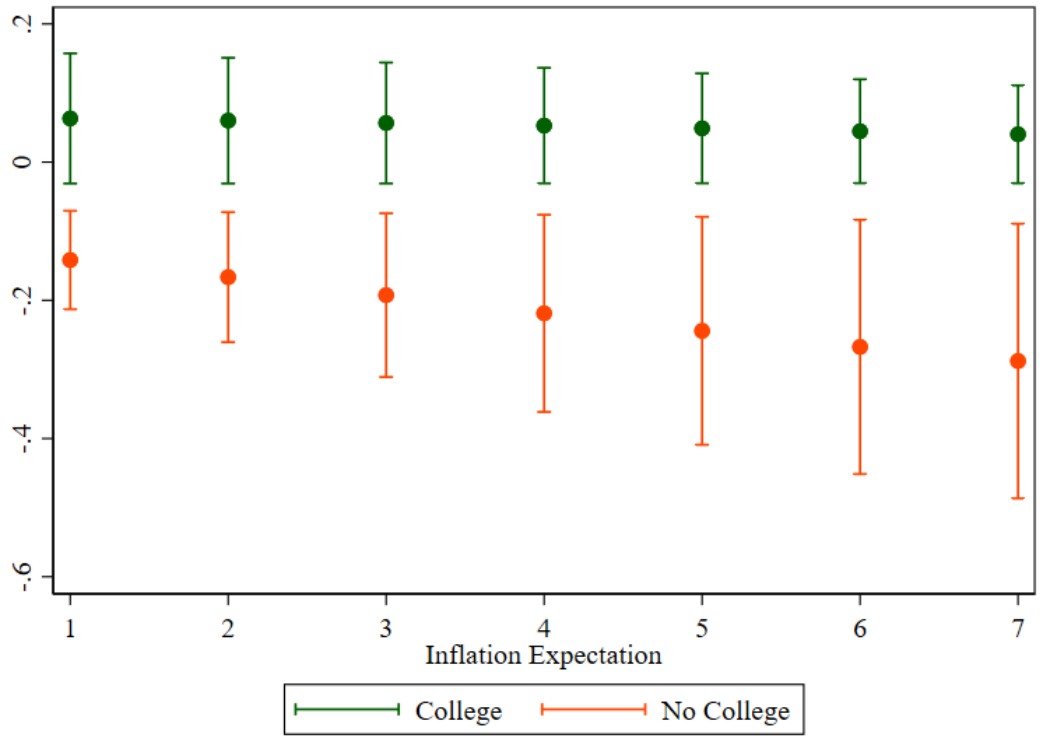
Model (5) adds the no college indicator and the indicator's interactions with the inflation expectation and inflation uncertainty.

Model (6) adds interactions between the inflation expectation and each of within-subject mean household income (log), mean monthly payments (log), and the mean no mortgage indicator.

The full set of coefficients is presented in Table A14. Robust standard errors are clustered at the level of the individual respondent.

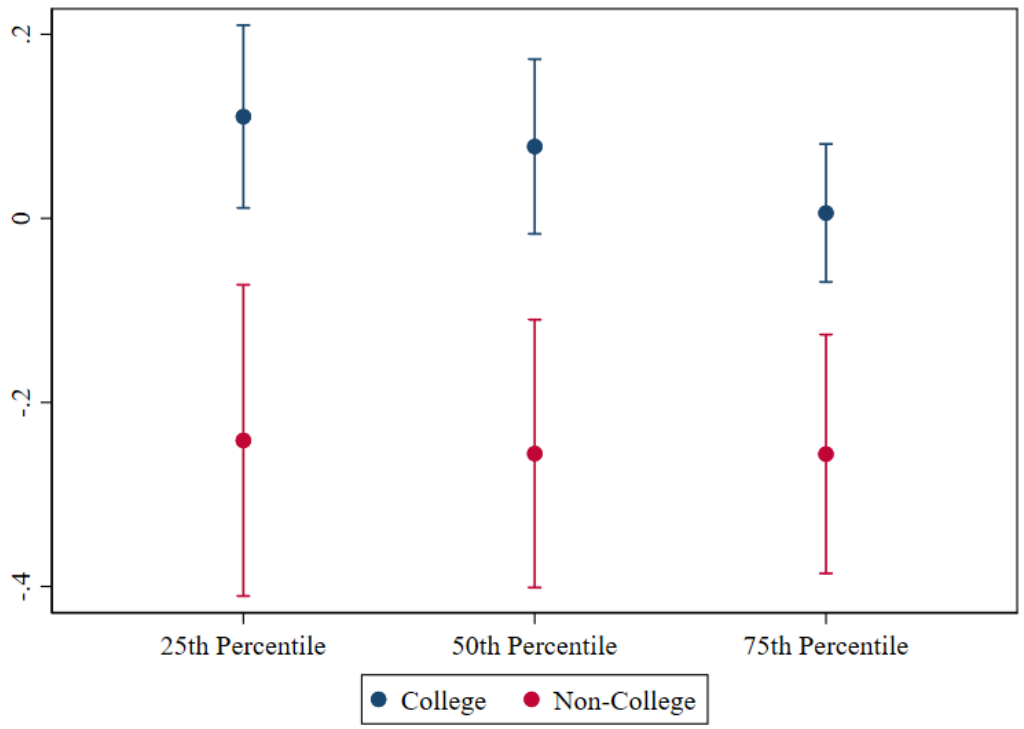
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure A3. Marginal Effects of Inflation Expectation on Chance of Purchasing Durable Goods by College Status



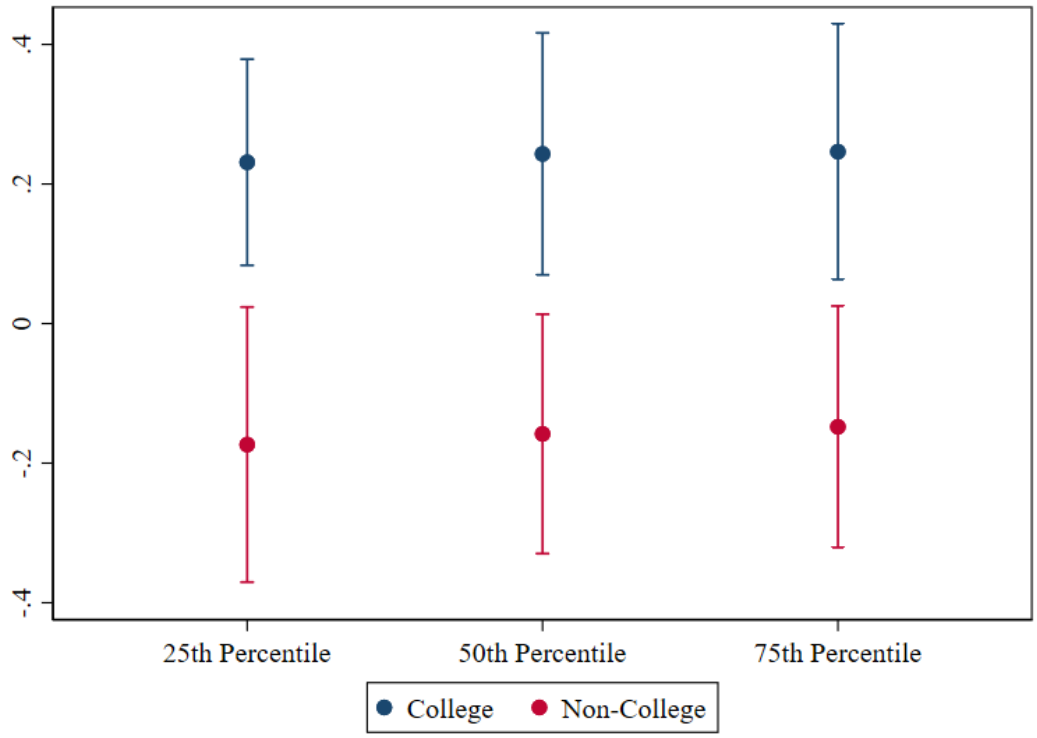
Note: A given marginal effect estimate indicates the population average relative change in the probability of purchasing durable goods for a 1-percentage-point increase in expected inflation, assuming the given characteristics. (Percentage changes are obtained by multiplying each value by 100.)

Figure A4. Marginal Effects of Inflation Expectation on Chance of Purchasing Durable Goods by College Status and Income Percentile



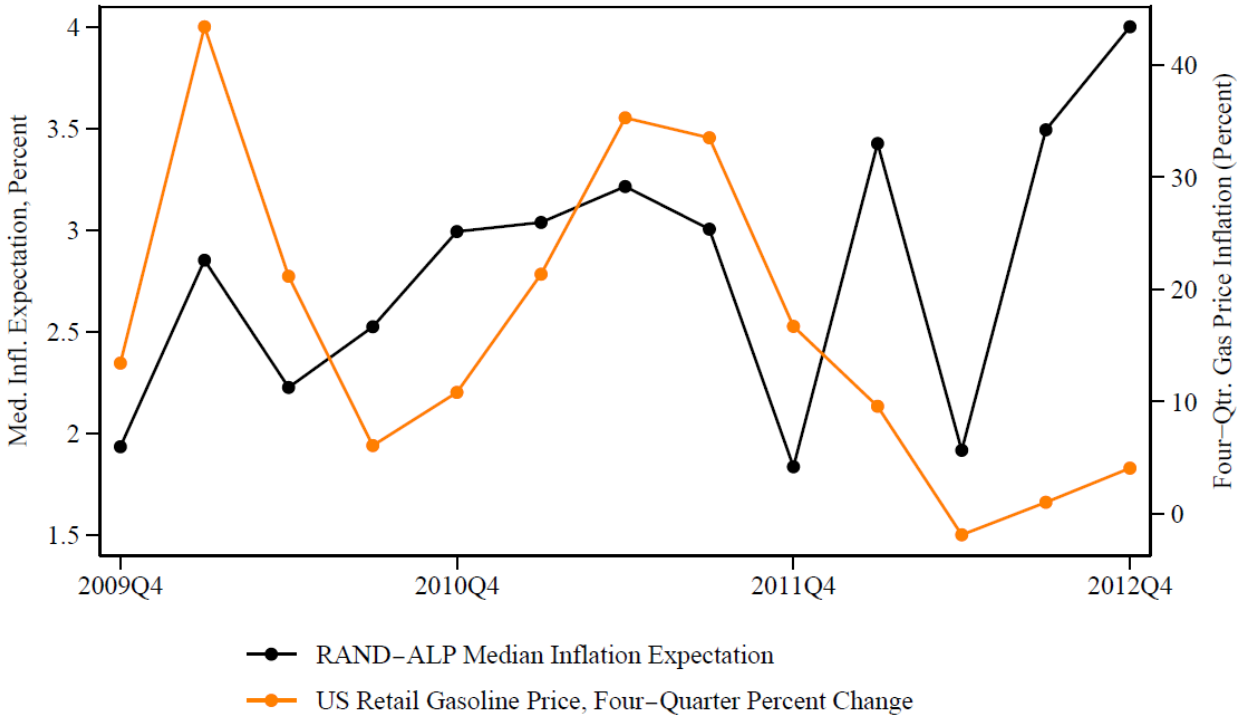
Note: A given marginal effect estimate indicates the population average relative change in the probability of purchasing durable goods for a 1-percentage-point increase in expected inflation, assuming the given characteristics. (Percentage changes are obtained by multiplying each value by 100.)

Figure A5. Marginal Effects of Inflation Expectation on Chance of Purchasing Durable Goods by College Status and Mortgage Balance Percentile, Mortgagor Sample



Note: A given marginal effect estimate indicates the population average relative change in the probability of purchasing durable goods for a 1-percentage-point increase in expected inflation, assuming the given characteristics. (Percentage changes are obtained by multiplying each value by 100.)

Figure A6. RAND-ALP Inflation Expectations vs. Gas Price Inflation (Durables Spending Sample)



Note: Median inflation expectation refers to the median inflation expectation for the given quarter, based on the dates on which subjects completed the expectations surveys. Gas price inflation is four-quarter percent change in average U.S. price of regular grade gasoline.
Source: Average gas price from U.S. Energy Information Administration.

Table A5: Real Durable Goods Spending vs. Year-Ahead Expectations, Baseline Sample, GEE estimation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Inflation Expectation	0.191**	0.158*	0.140**	0.190**	0.166*	0.203**	0.193**	0.172*
	(0.089)	(0.083)	(0.065)	(0.092)	(0.090)	(0.102)	(0.088)	(0.099)
Inflation Uncertainty	0.075	0.072	0.135	0.068	0.114	0.126	0.098	0.040
	(0.091)	(0.086)	(0.098)	(0.089)	(0.089)	(0.100)	(0.093)	(0.084)
Household Income (Log)	–1.128	–0.908	–1.053	–1.150	–1.187	–1.112	–1.239	–1.398*
	(0.839)	(0.754)	(0.867)	(0.847)	(0.916)	(0.869)	(0.833)	(0.833)
Expects Unemployment Increase	–1.232***	–1.353***	–1.233***	–1.093***	–1.240***	–0.999**	–1.216***	–1.232***
	(0.409)	(0.459)	(0.380)	(0.391)	(0.407)	(0.448)	(0.420)	(0.440)
Expects Unemployment Decrease	–0.103	–0.149	–0.179	0.104	–0.091	–0.324	–0.087	–0.168
	(0.284)	(0.271)	(0.260)	(0.381)	(0.287)	(0.323)	(0.290)	(0.326)
Mean Inflation Expectation (within-subject)	–0.248*	–0.240**	–0.250**	–0.239*	–0.170	–0.229	–0.258**	–0.232*
	(0.132)	(0.107)	(0.111)	(0.128)	(0.128)	(0.147)	(0.130)	(0.138)
Mean Log Household Income (within-subject)	2.320***	2.048***	2.308**	2.338***	2.466**	2.392***	2.439***	2.569***
	(0.896)	(0.785)	(0.907)	(0.902)	(0.974)	(0.902)	(0.888)	(0.883)
Mean Expects Unemployment Increase (within-subject)	1.276***	1.327***	1.194***	1.268***	1.383***	1.243**	1.316***	1.445***
	(0.416)	(0.413)	(0.412)	(0.393)	(0.404)	(0.526)	(0.431)	(0.475)
Mean Expects Unemployment Decrease (within-subject)	0.225	0.136	0.208	0.128	0.291	0.302	0.208	0.494
	(0.381)	(0.411)	(0.368)	(0.407)	(0.373)	(0.438)	(0.418)	(0.446)
No College	–0.497	–0.250	–0.294	–0.398	–0.410	–0.216	–0.648	–0.488
	(0.375)	(0.378)	(0.478)	(0.431)	(0.375)	(0.368)	(0.442)	(0.403)
No College × Inflation Expectation	–0.355***	–0.331***	–0.248	–0.363***	–0.344***	–0.308***	–0.350***	–0.297***
	(0.087)	(0.077)	(0.152)	(0.091)	(0.088)	(0.088)	(0.086)	(0.104)
No College × Inflation Uncertainty	0.043	0.010	–0.078	0.062	0.021	–0.068	0.137	0.007
	(0.120)	(0.117)	(0.181)	(0.129)	(0.119)	(0.125)	(0.156)	(0.133)
Mean Log Household Income × Inflation Expectation	–0.169***	–0.159***	–0.134***	–0.160***	–0.168***	–0.174***	–0.176***	–0.143***
	(0.038)	(0.040)	(0.052)	(0.038)	(0.042)	(0.061)	(0.037)	(0.043)
Regional Gas Price Inflation		0.089**						
		(0.041)						
Lagged Inflation Expectation			0.077**					
			(0.033)					
No College × Lagged Inflation Expectation			–0.208*					
			(0.108)					
Lagged Inflation Uncertainty			–0.139					
			(0.147)					
No College × Lagged Inflation Uncertainty			0.234					
			(0.189)					
No College × Expects Unemployment Increase				–0.331				
				(0.634)				
No College × Expects Unemployment Decrease				–0.438				
				(0.517)				
Correlated Random Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chi^2	2195.88	1925.33	1858.56	1959.62	1965.45	1524.31	1649.52	1024.02
P Value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sample Size	1084	1084	1084	1084	1070	990	1069	1007

Standard errors in parentheses

Note: Model (1) is unaltered.

Model (2) includes gas price inflation and regional controls.

Model (3) includes the lagged inflation expectation and lagged inflation uncertainty and their interactions with the no college indicator.

Model (4) includes the interactions of the unemployment expectations indicators with the no college indicator.

Model (5) restricts to the overlap sample between the durables and nondurables samples.

Model (6) restricts to households in the durables sample with more than 5 observations.

Model (7) excludes months with outlier median inflation expectations: June 2010, March 2011, September 2011, February 2012.

Model (8) excludes observations from 2009, in which the durable sample's spending patterns were most different from the CES.

The full set of coefficients is presented in Table A15.

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

Table A6: Real Durable Goods Spending vs. Year-Ahead Expectations, Mortgagor Sample, GEE estimation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Inflation Expectation	0.571***	0.688***	0.448**	0.555***	0.570***	0.606***	0.541***	0.529***
	(0.183)	(0.182)	(0.176)	(0.189)	(0.183)	(0.181)	(0.179)	(0.170)
Inflation Uncertainty	0.087	0.048	0.165	0.085	0.088	0.113	0.131	0.034
	(0.097)	(0.095)	(0.107)	(0.099)	(0.097)	(0.131)	(0.105)	(0.086)
Mortgage Balance (Log)	0.376	0.548*	0.433	0.383	0.377	0.331	0.366	0.677***
	(0.236)	(0.315)	(0.293)	(0.237)	(0.237)	(0.233)	(0.243)	(0.253)
Household Income (Log)	-1.516	-0.300	-1.693*	-1.501	-1.515	-1.992*	-1.498	-1.511
	(1.213)	(1.196)	(1.004)	(1.203)	(1.213)	(1.129)	(1.140)	(1.113)
Expects Unemployment Increase	-1.225**	-1.508**	-1.215**	-1.305***	-1.224**	-0.885	-1.195**	-1.525**
	(0.586)	(0.675)	(0.579)	(0.487)	(0.586)	(0.696)	(0.551)	(0.612)
Expects Unemployment Decrease	-0.129	-0.268	-0.216	-0.028	-0.129	-0.075	-0.122	-0.143
	(0.274)	(0.280)	(0.246)	(0.319)	(0.275)	(0.351)	(0.260)	(0.275)
Mean Inflation Expectation (within-subject)	-0.438***	-0.398***	-0.360***	-0.427***	-0.436***	-0.314**	-0.448***	-0.323***
	(0.156)	(0.136)	(0.138)	(0.154)	(0.156)	(0.153)	(0.157)	(0.123)
Mean Log Mortgage Balance (within-subject)	-0.249	-0.393	-0.256	-0.237	-0.250	-0.077	-0.199	-0.505
	(0.314)	(0.386)	(0.361)	(0.316)	(0.315)	(0.268)	(0.352)	(0.322)
Mean Log Household Income (within-subject)	2.431*	1.389	2.216**	2.387*	2.429*	3.036***	2.352*	2.219*
	(1.311)	(1.233)	(1.129)	(1.279)	(1.311)	(1.167)	(1.258)	(1.220)
Mean Expects Unemployment Increase (within-subject)	0.756	0.943*	0.374	0.762	0.755	1.465**	0.803*	1.188**
	(0.474)	(0.537)	(0.515)	(0.505)	(0.474)	(0.650)	(0.441)	(0.524)
Mean Expects Unemployment Decrease (within-subject)	-0.284	-0.260	-0.345	-0.315	-0.284	-0.284	-0.395	-0.252
	(0.487)	(0.490)	(0.450)	(0.486)	(0.487)	(0.523)	(0.487)	(0.510)
No College	0.004	0.193	0.522	0.073	0.006	-0.128	-0.183	0.016
	(0.473)	(0.497)	(0.597)	(0.535)	(0.474)	(0.487)	(0.524)	(0.490)
No College × Inflation Expectation	-0.271**	-0.326**	-0.188	-0.269*	-0.270**	-0.278**	-0.250**	-0.218
	(0.131)	(0.153)	(0.192)	(0.138)	(0.131)	(0.140)	(0.127)	(0.151)
No College × Inflation Uncertainty	0.016	0.062	-0.126	0.004	0.016	-0.025	0.145	-0.010
	(0.150)	(0.147)	(0.206)	(0.167)	(0.150)	(0.174)	(0.198)	(0.159)
Mean Log Mortgage Balance × Inflation Expectation	0.160***	0.156***	0.134**	0.150***	0.160***	0.115**	0.160***	0.159***
	(0.055)	(0.057)	(0.052)	(0.055)	(0.055)	(0.052)	(0.055)	(0.055)
Mean Log Household Income × Inflation Expectation	-0.118	-0.023	-0.104	-0.120	-0.117	-0.007	-0.159	-0.044
	(0.103)	(0.112)	(0.083)	(0.106)	(0.103)	(0.111)	(0.099)	(0.105)
Regional Gas Price Inflation		0.141***						
		(0.039)						
Lagged Inflation Expectation			0.004					
			(0.041)					
No College × Lagged Inflation Expectation			0.129					
			(0.165)					
Lagged Inflation Uncertainty			-0.344***					
			(0.082)					
No College × Lagged Inflation Uncertainty			0.304*					
			(0.173)					
No College × Expects Unemployment Increase				0.147				
				(0.772)				
No College × Expects Unemployment Decrease				-0.275				
				(0.533)				
Correlated Random Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chi^2	5094.23	18938.88	9967.90	6067.31	5114.90	17802.12	5830.05	7926.80
P Value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sample Size	671	671	671	671	666	600	665	622

Standard errors in parentheses

Note: Model (1) is unaltered.

Model (2) includes gas price inflation and regional controls.

Model (3) includes the lagged inflation expectation and lagged inflation uncertainty and their interactions with the no college indicator.

Model (4) includes the interactions of the unemployment expectations indicators with the no college indicator.

Model (5) restricts to the overlap sample between the durables and nondurables samples.

Model (6) restricts to households in the durables mortgagor sample with more than 5 observations.

Model (7) excludes months with outlier median inflation expectations: June 2010, March 2011, September 2011, February 2012.

Model (8) excludes observations from 2009, in which the durable sample's spending patterns were most different from the CES.

The full set of coefficients is presented in Table A16.

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

Table A7: Bought Durables Indicator vs. Year-Ahead Expectations, Baseline Sample, GEE Logit estimation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Inflation Expectation	0.118	0.096	0.090	0.120	0.102	0.125	0.116	0.120
	(0.082)	(0.076)	(0.080)	(0.083)	(0.083)	(0.093)	(0.083)	(0.084)
Inflation Uncertainty	-0.067	-0.051	-0.051	-0.062	-0.028	-0.082	-0.078	-0.093
	(0.126)	(0.125)	(0.134)	(0.126)	(0.135)	(0.131)	(0.126)	(0.137)
Household Income (Log)	-0.628	-0.571	-0.653	-0.583	-0.546	-0.564	-0.583	-1.160
	(0.894)	(0.891)	(0.909)	(0.914)	(0.881)	(0.883)	(0.892)	(0.900)
Expects Unemployment Increase	-1.821***	-1.871***	-1.885***	-2.169***	-1.890***	-1.915***	-1.815***	-1.880***
	(0.420)	(0.449)	(0.436)	(0.470)	(0.433)	(0.437)	(0.431)	(0.407)
Expects Unemployment Decrease	-0.101	-0.078	-0.125	-0.205	-0.019	-0.689*	-0.044	-0.089
	(0.557)	(0.564)	(0.543)	(0.839)	(0.543)	(0.381)	(0.560)	(0.603)
Mean Inflation Expectation (within-subject)	0.064	0.072	0.061	0.076	0.150	-0.063	0.054	0.064
	(0.126)	(0.114)	(0.136)	(0.131)	(0.132)	(0.154)	(0.126)	(0.129)
Mean Log Household Income (within-subject)	1.733*	1.678*	1.851**	1.680*	1.678*	1.863**	1.657*	2.209**
	(0.907)	(0.898)	(0.918)	(0.925)	(0.913)	(0.882)	(0.910)	(0.927)
Mean Expects Unemployment Increase (within-subject)	1.870***	1.833***	1.920***	1.848***	2.034***	1.462**	1.773***	1.957***
	(0.583)	(0.601)	(0.637)	(0.597)	(0.584)	(0.605)	(0.600)	(0.601)
Mean Expects Unemployment Decrease (within-subject)	-0.412	-0.580	-0.415	-0.353	-0.373	-0.505	-0.468	-0.578
	(0.827)	(0.803)	(0.818)	(0.892)	(0.806)	(0.691)	(0.846)	(0.867)
No College	-1.120**	-1.021**	-1.078*	-1.247**	-1.018**	-0.915*	-1.016*	-1.205**
	(0.496)	(0.507)	(0.601)	(0.580)	(0.504)	(0.507)	(0.531)	(0.513)
No College × Inflation Expectation	-0.496***	-0.456***	-0.413***	-0.482***	-0.489***	-0.473***	-0.495***	-0.442***
	(0.112)	(0.114)	(0.156)	(0.111)	(0.111)	(0.109)	(0.113)	(0.102)
No College × Inflation Uncertainty	0.403**	0.366**	0.334	0.373**	0.385**	0.346**	0.340*	0.363**
	(0.163)	(0.162)	(0.225)	(0.159)	(0.170)	(0.159)	(0.195)	(0.157)
Mean Log Household Income × Inflation Expectation	-0.183***	-0.190***	-0.171***	-0.195***	-0.173***	-0.259***	-0.174***	-0.170***
	(0.042)	(0.044)	(0.048)	(0.047)	(0.048)	(0.060)	(0.043)	(0.041)
Mean No Mortgage Indicator × Inflation Expectation	-0.198**	-0.177*	-0.182*	-0.212**	-0.206**	-0.247**	-0.197**	-0.224**
	(0.095)	(0.093)	(0.100)	(0.099)	(0.097)	(0.117)	(0.098)	(0.102)
Regional Gas Price Inflation		0.014						
		(0.054)						
Lagged Inflation Expectation			0.043					
			(0.056)					
No College × Lagged Inflation Expectation			-0.252					
			(0.171)					
Lagged Inflation Uncertainty			-0.045					
			(0.150)					
No College × Lagged Inflation Uncertainty			0.134					
			(0.250)					
No College × Expects Unemployment Increase				0.785				
				(0.661)				
No College × Expects Unemployment Decrease				0.203				
				(0.835)				
Correlated Random Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chi^2	933.21	953.73	1023.29	839.72	836.42	935.00	1134.90	782.13
P Value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sample Size	1084	1084	1084	1084	1070	990	1069	1007

Standard errors in parentheses

Note: Model (1) is unaltered.

Model (2) includes gas price inflation and regional controls.

Model (3) includes the lagged inflation expectation and lagged inflation uncertainty and their interactions with the no college indicator.

Model (4) includes the interactions of the unemployment expectations indicators with the no college indicator.

Model (5) restricts to the overlap sample between the durables and nondurables samples.

Model (6) restricts to households in the durables sample with more than 5 observations.

Model (7) excludes months with outlier median inflation expectations: June 2010, March 2011, September 2011, February 2012.

Model (8) excludes observations from 2009, in which the durable sample's spending patterns were most different from the CES.

The full set of coefficients is presented in Table A17.

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

Table A8: Bought Durables Indicator vs. Year-Ahead Expectations, Mortgagor Sample, GEE Logit estimation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Inflation Expectation	0.454**	0.554**	0.521**	0.417*	0.454**	0.546**	0.529**	0.413**
	(0.218)	(0.228)	(0.221)	(0.224)	(0.218)	(0.212)	(0.236)	(0.206)
Inflation Uncertainty	-0.258	-0.252	-0.264	-0.270	-0.258	-0.360*	-0.320*	-0.253
	(0.169)	(0.168)	(0.173)	(0.180)	(0.169)	(0.218)	(0.172)	(0.174)
Mortgage Balance (Log)	0.701	0.796*	0.699	0.733*	0.701	0.739*	0.665	0.842*
	(0.427)	(0.429)	(0.493)	(0.411)	(0.427)	(0.431)	(0.452)	(0.431)
Household Income (Log)	-3.349**	-3.000**	-3.721**	-3.256**	-3.349**	-4.001***	-3.076**	-3.672***
	(1.394)	(1.488)	(1.480)	(1.346)	(1.395)	(1.475)	(1.357)	(1.417)
Expects Unemployment Increase	-3.137***	-3.295***	-3.190***	-3.393***	-3.136***	-2.929***	-3.149***	-3.179***
	(0.707)	(0.737)	(0.739)	(0.883)	(0.707)	(0.895)	(0.728)	(0.731)
Expects Unemployment Decrease	-1.671***	-1.756***	-1.705***	-1.294**	-1.671***	-1.741***	-1.673***	-1.509***
	(0.457)	(0.508)	(0.478)	(0.613)	(0.457)	(0.537)	(0.462)	(0.453)
Mean Inflation Expectation (within-subject)	-0.204	-0.116	0.011	-0.196	-0.204	-0.115	-0.195	-0.176
	(0.265)	(0.238)	(0.300)	(0.269)	(0.265)	(0.274)	(0.263)	(0.261)
Mean Log Mortgage Balance (within-subject)	-0.662	-0.788	-0.681	-0.635	-0.663	-0.652	-0.639	-0.832*
	(0.473)	(0.503)	(0.505)	(0.459)	(0.473)	(0.528)	(0.488)	(0.483)
Mean Log Household Income (within-subject)	4.887***	4.694***	5.184***	4.749***	4.888***	5.510***	4.686***	5.181***
	(1.359)	(1.440)	(1.471)	(1.316)	(1.359)	(1.420)	(1.310)	(1.375)
Mean Expects Unemployment Increase (within-subject)	1.977**	1.812*	2.205**	2.015**	1.976**	2.609**	1.985**	2.018**
	(0.937)	(0.945)	(1.023)	(0.936)	(0.937)	(1.174)	(0.942)	(0.904)
Mean Expects Unemployment Decrease (within-subject)	-0.814	-0.887	-0.727	-0.931	-0.814	-1.314	-0.531	-1.158
	(0.766)	(0.824)	(0.793)	(0.810)	(0.766)	(0.946)	(0.763)	(0.785)
No College	-1.689***	-1.654**	-1.626**	-1.545**	-1.689***	-2.087***	-1.608**	-1.764***
	(0.634)	(0.729)	(0.639)	(0.703)	(0.635)	(0.773)	(0.643)	(0.666)
No College × Inflation Expectation	-0.688***	-0.788***	-0.754***	-0.683***	-0.688***	-0.704***	-0.703***	-0.711***
	(0.158)	(0.203)	(0.194)	(0.152)	(0.158)	(0.184)	(0.156)	(0.202)
No College × Inflation Uncertainty	0.564***	0.621***	0.574**	0.556**	0.564***	0.644**	0.469**	0.525**
	(0.216)	(0.239)	(0.242)	(0.217)	(0.216)	(0.273)	(0.234)	(0.219)
Mean Log Mortgage Balance × Inflation Expectation	0.004	-0.007	0.007	-0.005	0.004	-0.023	0.026	-0.008
	(0.086)	(0.090)	(0.089)	(0.083)	(0.086)	(0.078)	(0.087)	(0.105)
Mean Log Household Income × Inflation Expectation	-0.218	-0.116	-0.224	-0.243	-0.218	-0.112	-0.093	-0.173
	(0.147)	(0.161)	(0.151)	(0.157)	(0.147)	(0.207)	(0.206)	(0.139)
Regional Gas Price Inflation		0.136**						
		(0.063)						
Lagged Inflation Expectation			-0.305**					
			(0.135)					
No College × Lagged Inflation Expectation			0.245					
			(0.270)					
Lagged Inflation Uncertainty			-0.013					
			(0.180)					
No College × Lagged Inflation Uncertainty			0.017					
			(0.240)					
No College × Expects Unemployment Increase				0.466				
				(1.057)				
No College × Expects Unemployment Decrease				-0.845				
				(0.869)				
Correlated Random Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chi^2	1531.14	4101.52	3779.40	2901.40	1530.50	5505.94	1639.51	2104.48
P Value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sample Size	671	671	671	671	666	600	665	622

Standard errors in parentheses

Note: Model (1) is unaltered.

Model (2) includes gas price inflation and regional controls.

Model (3) includes the lagged inflation expectation and lagged inflation uncertainty and their interactions with the no college indicator.

Model (4) includes the interactions of the unemployment expectations indicators with the no college indicator.

Model (5) restricts to the overlap sample between the durables and nondurables samples.

Model (6) restricts to households in the durables mortgagor sample with more than 5 observations.

Model (7) excludes months with outlier median inflation expectations: June 2010, March 2011, September 2011, February 2012.

Model (8) excludes observations from 2009, in which the durable sample's spending patterns were most different from the CES.

The full set of coefficients is presented in Table A18.

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

Table A9: Real Nondurable Goods Spending vs. Year-Ahead Expectations, Baseline Sample, GEE estimation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Inflation Expectation	0.003	0.005	0.004	0.003	0.011	–0.008	0.002	0.009
	(0.012)	(0.011)	(0.012)	(0.012)	(0.012)	(0.013)	(0.011)	(0.015)
Inflation Uncertainty	0.012	0.005	0.012	0.012	0.007	0.016	0.014	0.019
	(0.011)	(0.009)	(0.011)	(0.010)	(0.010)	(0.012)	(0.011)	(0.015)
Household Income (Log)	0.124	0.115	0.116	0.121	0.134	0.174*	0.120	0.237*
	(0.090)	(0.087)	(0.091)	(0.089)	(0.083)	(0.104)	(0.091)	(0.128)
Expects Unemployment Increase	–0.123***	–0.097***	–0.116***	–0.072	–0.086**	–0.123***	–0.110***	–0.136***
	(0.034)	(0.033)	(0.033)	(0.045)	(0.033)	(0.038)	(0.039)	(0.047)
Expects Unemployment Decrease	–0.028	–0.041	–0.029	–0.004	–0.040	–0.016	–0.009	0.001
	(0.027)	(0.026)	(0.028)	(0.037)	(0.027)	(0.030)	(0.029)	(0.035)
Mean Inflation Expectation (within-subject)	–0.020	–0.043*	–0.025	–0.020	–0.020	0.023	–0.018	–0.017
	(0.021)	(0.022)	(0.022)	(0.021)	(0.024)	(0.036)	(0.021)	(0.022)
Mean Log Household Income (within-subject)	0.419***	0.426***	0.431***	0.419***	0.332***	0.265**	0.414***	0.272**
	(0.113)	(0.115)	(0.116)	(0.112)	(0.112)	(0.133)	(0.114)	(0.139)
Mean Expects Unemployment Increase (within-subject)	0.233	0.206	0.234	0.229	0.350**	0.255	0.180	0.218
	(0.163)	(0.172)	(0.163)	(0.166)	(0.151)	(0.163)	(0.173)	(0.177)
Mean Expects Unemployment Decrease (within-subject)	–0.047	–0.155	–0.045	–0.050	0.217	0.129	–0.070	–0.002
	(0.184)	(0.155)	(0.184)	(0.184)	(0.171)	(0.223)	(0.189)	(0.177)
No College	0.020	0.040	0.018	0.050	0.054	0.147	–0.027	–0.001
	(0.090)	(0.082)	(0.091)	(0.090)	(0.079)	(0.094)	(0.098)	(0.090)
No College × Inflation Expectation	–0.000	–0.002	–0.002	–0.001	–0.011	0.006	–0.001	0.002
	(0.009)	(0.009)	(0.010)	(0.009)	(0.011)	(0.010)	(0.008)	(0.013)
No College × Inflation Uncertainty	–0.026**	–0.020*	–0.025**	–0.024**	–0.014	–0.027**	–0.015	–0.008
	(0.011)	(0.011)	(0.012)	(0.011)	(0.013)	(0.012)	(0.015)	(0.019)
Mean Log Household Income × Inflation Expectation	–0.021**	–0.017**	–0.020***	–0.019**	–0.004	–0.015	–0.010*	–0.017**
	(0.008)	(0.008)	(0.007)	(0.008)	(0.007)	(0.009)	(0.006)	(0.008)
Regional Gas Price Inflation		–0.003						
		(0.004)						
Lagged Inflation Expectation			0.005					
			(0.004)					
No College × Lagged Inflation Expectation			0.007					
			(0.009)					
Lagged Inflation Uncertainty			–0.003					
			(0.014)					
No College × Lagged Inflation Uncertainty			–0.011					
			(0.019)					
No College × Expects Unemployment Increase				–0.120*				
				(0.072)				
No College × Expects Unemployment Decrease				–0.049				
				(0.056)				
Correlated Random Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chi^2	1224.80	1544.41	1646.35	1239.84	1978.49	1714.40	1291.33	1060.47
P Value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sample Size	2010	1984	2010	2010	1721	1790	1928	1431

Standard errors in parentheses

Note: Model (1) is unaltered.

Model (2) includes gas price inflation and regional controls.

Model (3) includes the lagged inflation expectation and lagged inflation uncertainty and their interactions with the no college indicator.

Model (4) includes the interactions of the unemployment expectations indicators with the no college indicator.

Model (5) restricts to the overlap sample between the durables and nondurables samples.

Model (6) restricts to households in the nondurables sample with more than 7 observations.

Model (7) excludes months with outlier median inflation expectations: June 2010, March 2011, September 2011, February 2012.

Model (8) excludes observations from 2012, in which the nondurable sample's spending patterns were most different from the CES.

The full set of coefficients is presented in Table A19.

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

Table A10: Real Nondurable Goods Spending vs. Year-Ahead Expectations, Mortgagor Sample, GEE estimation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Inflation Expectation	0.027	0.030	0.036	0.020	0.023	0.013	0.032	0.023
	(0.021)	(0.021)	(0.023)	(0.019)	(0.021)	(0.020)	(0.022)	(0.024)
Inflation Uncertainty	0.021	0.019	0.022	0.015	0.028*	0.024*	0.022*	0.012
	(0.013)	(0.014)	(0.014)	(0.012)	(0.015)	(0.014)	(0.013)	(0.017)
Mortgage Balance (Log)	0.050	0.055	0.049	0.135***	0.055	0.053	0.052	0.266***
	(0.049)	(0.051)	(0.048)	(0.034)	(0.046)	(0.053)	(0.051)	(0.096)
Household Income (Log)	0.012	-0.023	0.011	-0.114	-0.003	0.004	0.026	0.221
	(0.137)	(0.144)	(0.142)	(0.101)	(0.135)	(0.149)	(0.135)	(0.174)
Expects Unemployment Increase	-0.128**	-0.130**	-0.128**	0.013	-0.151**	-0.127*	-0.122**	-0.092
	(0.064)	(0.065)	(0.063)	(0.042)	(0.063)	(0.074)	(0.062)	(0.065)
Expects Unemployment Decrease	0.001	0.001	0.002	0.013	0.003	-0.013	0.006	0.032
	(0.047)	(0.047)	(0.048)	(0.042)	(0.046)	(0.057)	(0.047)	(0.042)
Mean Inflation Expectation (within-subject)	-0.075**	-0.069**	-0.067**	-0.098***	-0.104***	-0.088***	-0.073**	-0.075**
	(0.031)	(0.028)	(0.031)	(0.032)	(0.029)	(0.032)	(0.031)	(0.030)
Mean Log Mortgage Balance (within-subject)	-0.043	-0.079	-0.039	-0.183***	0.006	-0.112	-0.042	-0.228***
	(0.054)	(0.067)	(0.054)	(0.057)	(0.058)	(0.069)	(0.055)	(0.085)
Mean Log Household Income (within-subject)	0.472***	0.537***	0.468***	0.608***	0.470***	0.549***	0.461***	0.241
	(0.153)	(0.167)	(0.164)	(0.131)	(0.145)	(0.176)	(0.151)	(0.183)
Mean Expects Unemployment Increase (within-subject)	-0.311	-0.347	-0.325	-0.297	0.038	-0.532***	-0.329	-0.333
	(0.226)	(0.218)	(0.224)	(0.233)	(0.206)	(0.200)	(0.231)	(0.248)
Mean Expects Unemployment Decrease (within-subject)	0.039	0.054	0.041	-0.022	0.079	-0.227	0.045	0.016
	(0.158)	(0.156)	(0.154)	(0.177)	(0.135)	(0.192)	(0.158)	(0.166)
No College	-0.112	-0.114	-0.118	-0.008	-0.036	-0.064	-0.155	-0.188
	(0.114)	(0.118)	(0.118)	(0.103)	(0.112)	(0.134)	(0.119)	(0.125)
No College × Inflation Expectation	-0.010	-0.013	-0.015	-0.009	-0.002	-0.021	-0.012	-0.019
	(0.021)	(0.022)	(0.022)	(0.020)	(0.022)	(0.021)	(0.022)	(0.027)
No College × Inflation Uncertainty	0.005	0.008	0.007	0.016	-0.008	0.007	0.015	0.037
	(0.020)	(0.021)	(0.022)	(0.020)	(0.022)	(0.022)	(0.031)	(0.037)
Mean Log Mortgage Balance × Inflation Expectation	0.025**	0.025**	0.027**	0.035***	0.021*	0.023**	0.027**	0.007
	(0.011)	(0.011)	(0.011)	(0.011)	(0.012)	(0.010)	(0.011)	(0.013)
Mean Log Household Income × Inflation Expectation	0.017	0.017	0.022	-0.005	0.021	0.010	0.020	0.012
	(0.015)	(0.015)	(0.019)	(0.013)	(0.014)	(0.017)	(0.016)	(0.019)
Regional Gas Price Inflation		-0.009						
		(0.011)						
Lagged Inflation Expectation			-0.010					
			(0.010)					
No College × Lagged Inflation Expectation			0.011					
			(0.022)					
Lagged Inflation Uncertainty			0.004					
			(0.014)					
No College × Lagged Inflation Uncertainty			0.006					
			(0.025)					
No College × Expects Unemployment Increase				-0.532***				
				(0.076)				
No College × Expects Unemployment Decrease				-0.061				
				(0.078)				
Correlated Random Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chi^2	1468.69	1710.16	1495.11	1559.56	3341.76	4151.33	1365.74	851.82
P Value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sample Size	579	579	579	579	518	507	562	479

Standard errors in parentheses

Note: Model (1) is unaltered.

Model (2) includes gas price inflation and regional controls.

Model (3) includes the lagged inflation expectation and lagged inflation uncertainty and their interactions with the no college indicator.

Model (4) includes the interactions of the unemployment expectations indicators with the no college indicator.

Model (5) restricts to the overlap sample between the durables and nondurables samples.

Model (6) restricts to households in the nondurables mortgagor sample with more than 4 observations.

Model (7) excludes months with outlier median inflation expectations: June 2010, March 2011, September 2011, February 2012.

Model (8) excludes observations from 2012, in which the nondurable sample's spending patterns were most different from the CES.

The full set of coefficients is presented in Table A20.

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

Table A11: Full Specification for Table 2, Real Durable Goods Spending vs. Year-Ahead Expectations, Baseline Sample (Columns 1-6), Mortgagor Sample (Column 7), GEE estimation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Inflation Expectation	0.038	–0.006	–0.012	0.080	0.179*	0.191**	0.571***
	(0.038)	(0.045)	(0.052)	(0.109)	(0.095)	(0.089)	(0.183)
Inflation Uncertainty	–0.009	0.068	0.087	–0.003	0.101	0.075	0.087
	(0.043)	(0.053)	(0.055)	(0.068)	(0.093)	(0.091)	(0.097)
Household Income (Log)		0.836***	0.802***	–1.344*	–1.473*	–1.128	–1.516
		(0.260)	(0.237)	(0.795)	(0.821)	(0.839)	(1.213)
Monthly Payments (Log)		0.001	0.013	0.006	0.040	0.038	–0.779***
		(0.061)	(0.064)	(0.179)	(0.181)	(0.179)	(0.203)
Expects Interest Rate Increase		0.233	0.223	0.116	0.129	0.135	0.394
		(0.247)	(0.229)	(0.319)	(0.310)	(0.299)	(0.306)
Expects Interest Rate Decrease		–0.151	–0.185	0.072	–0.024	0.080	–0.102
		(0.371)	(0.343)	(0.404)	(0.366)	(0.373)	(0.485)
Real Wage Expectation		0.007	0.003	0.020	0.025	0.033	0.100
		(0.019)	(0.017)	(0.066)	(0.063)	(0.066)	(0.064)
Wage Uncertainty		–0.065	–0.071	–0.001	–0.028	–0.017	0.084
		(0.056)	(0.051)	(0.099)	(0.094)	(0.095)	(0.058)
No Mortgage Indicator		0.348	0.411	–0.003	0.397	0.387	
		(0.327)	(0.357)	(0.694)	(0.692)	(0.673)	
Age		0.028	0.026	0.024	0.004	0.012	0.036*
		(0.019)	(0.018)	(0.020)	(0.020)	(0.018)	(0.019)
Non-White		0.592*	0.578*	0.564	0.279	0.315	0.277
		(0.308)	(0.311)	(0.350)	(0.322)	(0.349)	(0.398)
Female		0.130	0.115	0.149	0.288	0.295	0.308
		(0.276)	(0.229)	(0.235)	(0.212)	(0.210)	(0.248)
Retired		–0.144	–0.132	–0.239	–0.125	–0.211	–0.627**
		(0.353)	(0.328)	(0.269)	(0.253)	(0.237)	(0.306)
Homeowner		1.455**	1.534***	0.151	0.420	0.590	
		(0.570)	(0.588)	(0.722)	(0.690)	(0.731)	
House Price Expectation		0.010	0.008	–0.008	–0.007	–0.008	–0.017
		(0.015)	(0.015)	(0.024)	(0.023)	(0.022)	(0.024)
Expects Unemployment Increase			–0.481*	–1.092***	–1.160***	–1.232***	–1.225**
			(0.256)	(0.384)	(0.391)	(0.409)	(0.586)
Expects Unemployment Decrease			0.074	–0.118	–0.070	–0.103	–0.129
			(0.277)	(0.276)	(0.275)	(0.284)	(0.274)
Mean Inflation Expectation (within-subject)				–0.141	–0.211	–0.248*	–0.438***
				(0.153)	(0.141)	(0.132)	(0.156)
Mean Inflation Uncertainty (within-subject)				0.145	0.063	0.068	0.176*
				(0.115)	(0.105)	(0.092)	(0.103)
Mean Log Household Income (within-subject)				2.310***	2.589***	2.320***	2.431*
				(0.866)	(0.890)	(0.896)	(1.311)
Mean Log Monthly Payments (within-subject)				–0.012	–0.067	–0.054	1.027***
				(0.184)	(0.183)	(0.178)	(0.355)
Mean Expects Interest Rate Increase (within-subject)				0.102	0.212	0.171	0.165
				(0.469)	(0.457)	(0.432)	(0.531)
Mean Expects Interest Rate Decrease (within-subject)				–0.326	–0.487	–0.431	0.000
				(0.594)	(0.498)	(0.538)	(0.637)
Mean Real Wage Expectation (within-subject)				0.001	0.004	–0.019	–0.061
				(0.075)	(0.069)	(0.072)	(0.083)
Mean Wage Uncertainty (within-subject)				–0.145	–0.202	–0.193	–0.478***
				(0.155)	(0.142)	(0.132)	(0.133)
Mean No Mortgage Indicator (within-subject)				0.487	0.113	0.056	
				(0.662)	(0.684)	(0.659)	
Mean Homeowner (within-subject)				1.503	1.383	1.115	
				(0.932)	(0.924)	(0.925)	
Mean House Price Expectation (within-subject)				0.010	0.031	0.045	0.117***
				(0.032)	(0.032)	(0.030)	(0.040)
Mean Expects Unemployment Increase (within-subject)				1.301**	1.164**	1.276***	0.756
				(0.514)	(0.463)	(0.416)	(0.474)
Mean Expects Unemployment Decrease (within-subject)				0.540	0.280	0.225	–0.284
				(0.456)	(0.414)	(0.381)	(0.487)
No College					–0.621*	–0.497	0.004
					(0.362)	(0.375)	(0.473)
No College × Inflation Expectation					–0.360***	–0.355***	–0.271**
					(0.079)	(0.087)	(0.131)
No College × Inflation Uncertainty					0.048	0.043	0.016
					(0.115)	(0.120)	(0.150)
Mean Log Household Income × Inflation Expectation						–0.169***	–0.118
						(0.038)	(0.103)
Mean Log Monthly Payments × Inflation Expectation						0.019	–0.130

						(0.013)	(0.094)
Mean No Mortgage Indicator × Inflation Expectation						–0.052	
						(0.065)	
Mean Log Mortgage Balance (within-subject)							–0.249
							(0.314)
Inflation Expectation × Mean Log Mortgage Balance (within-subject)							0.160***
							(0.055)
Mortgage Balance (Log)							0.376
							(0.236)
Constant	5.752***	2.592*	2.779**	2.616*	3.711***	3.268***	3.341***
	(0.591)	(1.412)	(1.360)	(1.418)	(1.270)	(1.193)	(1.288)
Correlated Random Effects	No	No	No	Yes	Yes	Yes	Yes
Chi^2	29.55	214.18	253.17	788.30	967.82	2195.88	5094.23
P Value	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Sample Size	1084	1084	1084	1084	1084	1084	671

Standard errors in parentheses

Note: Each column includes time fixed effects. Robust standard errors are clustered at the level of the individual.

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

Table A12: Full Specification for Table 4, Real Nondurable Goods Spending vs. Year-Ahead Expectations, Baseline Sample (Columns 1-6), Mortgagor Sample (Column 7), GEE estimation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Inflation Expectation	0.002	0.002	0.003	0.003	–0.001	0.003	0.027
	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.012)	(0.021)
Inflation Uncertainty	–0.004	–0.002	–0.000	–0.003	0.016	0.012	0.021
	(0.007)	(0.008)	(0.007)	(0.008)	(0.010)	(0.011)	(0.013)
Household Income (Log)		0.419***	0.409***	0.116	0.118	0.124	0.012
		(0.056)	(0.056)	(0.089)	(0.089)	(0.090)	(0.137)
Monthly Payments (Log)		–0.003	–0.004	–0.001	–0.000	–0.000	–0.009
		(0.012)	(0.012)	(0.006)	(0.006)	(0.006)	(0.033)
Expects Interest Rate Increase		0.009	0.007	0.004	0.009	0.011	0.112***
		(0.029)	(0.028)	(0.029)	(0.029)	(0.029)	(0.043)
Expects Interest Rate Decrease		–0.059	–0.053	–0.018	–0.016	–0.017	0.103
		(0.047)	(0.048)	(0.052)	(0.055)	(0.056)	(0.073)
Real Wage Expectation		0.002	0.002	–0.001	–0.001	–0.002	0.009
		(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.007)
Wage Uncertainty		–0.003	–0.003	–0.003	–0.003	–0.002	–0.002
		(0.006)	(0.006)	(0.007)	(0.007)	(0.008)	(0.011)
No Mortgage Indicator		0.057	0.043	0.031	0.036	0.039	
		(0.066)	(0.073)	(0.076)	(0.079)	(0.080)	
Age		–0.003	–0.003	–0.007	–0.009	–0.009	–0.006
		(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)
Non-White		–0.029	–0.025	0.075	0.064	0.057	0.067
		(0.146)	(0.150)	(0.141)	(0.144)	(0.141)	(0.128)
Female		0.054	0.064	0.069	0.075	0.081	0.206**
		(0.089)	(0.090)	(0.084)	(0.083)	(0.082)	(0.087)
Retired		–0.146	–0.149	–0.095	–0.115	–0.106	0.145
		(0.118)	(0.115)	(0.099)	(0.095)	(0.092)	(0.128)
Homeowner		0.199**	0.187*	0.046	0.048	0.059	
		(0.096)	(0.100)	(0.075)	(0.077)	(0.079)	
House Price Expectation		0.002	0.001	0.000	0.001	0.001	0.000
		(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)
Expects Unemployment Increase			–0.124***	–0.125***	–0.123***	–0.123***	–0.128**
			(0.034)	(0.033)	(0.034)	(0.034)	(0.064)
Expects Unemployment Decrease			–0.023	–0.027	–0.028	–0.028	0.001
			(0.027)	(0.027)	(0.027)	(0.027)	(0.047)
Mean Inflation Expectation (within-subject)				–0.012	–0.011	–0.020	–0.075**
				(0.022)	(0.022)	(0.021)	(0.031)
Mean Inflation Uncertainty (within-subject)				0.031	0.020	0.018	0.108***
				(0.033)	(0.033)	(0.031)	(0.033)
Mean Log Household Income (within-subject)				0.409***	0.404***	0.419***	0.472***
				(0.108)	(0.108)	(0.113)	(0.153)
Mean Log Monthly Payments (within-subject)				–0.035	–0.036	–0.037	0.071
				(0.041)	(0.040)	(0.040)	(0.069)
Mean Expects Interest Rate Increase (within-subject)				–0.045	–0.064	–0.048	0.255**
				(0.137)	(0.135)	(0.131)	(0.115)
Mean Expects Interest Rate Decrease (within-subject)				–0.725***	–0.708***	–0.739***	–0.870***
				(0.267)	(0.261)	(0.247)	(0.331)
Mean Real Wage Expectation (within-subject)				0.014**	0.013*	0.013*	–0.006
				(0.007)	(0.007)	(0.007)	(0.014)
Mean Wage Uncertainty (within-subject)				0.029	0.028	0.026	0.006
				(0.026)	(0.026)	(0.026)	(0.030)
Mean No Mortgage Indicator (within-subject)				–0.118	–0.125	–0.134	
				(0.220)	(0.218)	(0.222)	
Mean Homeowner (within-subject)				0.121	0.123	0.081	
				(0.233)	(0.232)	(0.238)	
Mean House Price Expectation (within-subject)				0.004	0.005	0.007	–0.009
				(0.009)	(0.009)	(0.009)	(0.013)
Mean Expects Unemployment Increase (within-subject)				0.201	0.206	0.233	–0.311
				(0.170)	(0.168)	(0.163)	(0.226)
Mean Expects Unemployment Decrease (within-subject)				–0.039	–0.045	–0.047	0.039
				(0.190)	(0.185)	(0.184)	(0.158)
No College					0.011	0.020	–0.112
					(0.090)	(0.090)	(0.114)
No College × Inflation Expectation					0.006	–0.000	–0.010
					(0.009)	(0.009)	(0.021)
No College × Inflation Uncertainty					–0.030**	–0.026**	0.005
					(0.012)	(0.011)	(0.020)
Mean Log Household Income × Inflation Expectation						–0.021**	0.017
						(0.008)	(0.015)
Mean Log Monthly Payments × Inflation Expectation						–0.002	–0.028*

						(0.002)	(0.017)
Mean No Mortgage Indicator × Inflation Expectation						–0.008	
						(0.014)	
Mean Log Mortgage Balance (within-subject)							–0.043
							(0.054)
Inflation Expectation × Mean Log Mortgage Balance (within-subject)							0.025**
							(0.011)
Mortgage Balance (Log)							0.050
							(0.049)
Constant	7.270***	7.307***	7.370***	7.580***	7.659***	7.651***	7.229***
	(0.133)	(0.374)	(0.365)	(0.455)	(0.444)	(0.439)	(0.459)
Correlated Random Effects	No	No	No	Yes	Yes	Yes	Yes
Chi^2	168.47	317.43	417.65	773.60	930.76	1224.80	1468.69
P Value	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sample Size	2010	2010	2010	2010	2010	2010	579

Standard errors in parentheses
Note: Each column includes time fixed effects. Robust standard errors are clustered at the level of the individual.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A13: Full Specification for Table A3, Bought Durables Indicator vs. Year-Ahead Expectations, Baseline Sample, GEE Logit estimation

	(1)	(2)	(3)	(4)	(5)	(6)
Inflation Expectation	0.041	0.030	0.026	-0.078	0.047	0.118
	(0.044)	(0.051)	(0.053)	(0.083)	(0.085)	(0.082)
Inflation Uncertainty	0.003	0.055	0.068	0.021	-0.058	-0.067
	(0.058)	(0.066)	(0.066)	(0.092)	(0.135)	(0.126)
Household Income (Log)		0.661**	0.641**	-0.952	-1.050	-0.628
		(0.292)	(0.291)	(0.821)	(0.911)	(0.894)
Monthly Payments (Log)		-0.080	-0.073	-0.145	-0.127	-0.120
		(0.074)	(0.080)	(0.232)	(0.231)	(0.233)
Expects Interest Rate Increase		0.409	0.411	0.214	0.144	0.166
		(0.257)	(0.265)	(0.359)	(0.377)	(0.391)
Expects Interest Rate Decrease		0.505	0.489	0.469	0.497	0.552
		(0.682)	(0.706)	(0.904)	(0.896)	(0.922)
Real Wage Expectation		0.014	0.011	-0.083	-0.088	-0.086
		(0.015)	(0.015)	(0.059)	(0.061)	(0.063)
Wage Uncertainty		0.044	0.041	0.223**	0.209**	0.203**
		(0.056)	(0.057)	(0.087)	(0.091)	(0.093)
No Mortgage Indicator		-0.134	-0.100	-0.596	-0.367	-0.226
		(0.423)	(0.457)	(0.619)	(0.652)	(0.648)
Age		0.010	0.011	0.001	0.004	0.004
		(0.020)	(0.020)	(0.021)	(0.025)	(0.025)
Non-White		0.661	0.644	0.881*	0.637	0.706
		(0.423)	(0.452)	(0.470)	(0.442)	(0.477)
Female		0.195	0.240	0.190	0.470*	0.474**
		(0.241)	(0.258)	(0.234)	(0.251)	(0.237)
Retired		-0.137	-0.172	0.055	0.108	-0.004
		(0.449)	(0.439)	(0.438)	(0.424)	(0.399)
Homeowner		0.153	0.250	-0.912	-0.657	-0.427
		(0.612)	(0.635)	(1.471)	(1.551)	(1.454)
House Price Expectation		0.034**	0.032**	0.009	0.013	0.012
		(0.014)	(0.016)	(0.022)	(0.021)	(0.021)
Expects Unemployment Increase			-0.552	-1.579***	-1.729***	-1.821***
			(0.365)	(0.407)	(0.422)	(0.420)
Expects Unemployment Decrease			-0.215	-0.140	-0.069	-0.101
			(0.378)	(0.545)	(0.543)	(0.557)
Mean Inflation Expectation (within-subject)				0.141	0.134	0.064
				(0.124)	(0.121)	(0.126)
Mean Inflation Uncertainty (within-subject)				0.084	0.077	0.111
				(0.163)	(0.164)	(0.166)
Mean Log Household Income (within-subject)				1.781**	2.073**	1.733*
				(0.822)	(0.871)	(0.907)
Mean Log Monthly Payments (within-subject)				0.038	-0.020	-0.022
				(0.244)	(0.240)	(0.241)
Mean Expects Interest Rate Increase (within-subject)				0.173	0.543	0.318
				(0.496)	(0.548)	(0.541)
Mean Expects Interest Rate Decrease (within-subject)				-0.104	-0.132	-0.042
				(1.143)	(1.052)	(1.045)
Mean Real Wage Expectation (within-subject)				0.113*	0.114*	0.107
				(0.063)	(0.069)	(0.070)
Mean Wage Uncertainty (within-subject)				-0.237**	-0.300***	-0.310***
				(0.118)	(0.107)	(0.106)
Mean No Mortgage Indicator (within-subject)				0.342	0.121	0.102
				(0.824)	(0.822)	(0.851)
Mean Homeowner (within-subject)				1.147	0.856	0.841
				(1.589)	(1.708)	(1.626)
Mean House Price Expectation (within-subject)				0.051	0.063*	0.071**
				(0.033)	(0.034)	(0.033)
Mean Expects Unemployment Increase (within-subject)				2.046***	1.706***	1.870***
				(0.609)	(0.608)	(0.583)
Mean Expects Unemployment Decrease (within-subject)				-0.194	-0.375	-0.412
				(0.801)	(0.829)	(0.827)

No College					-1.138**	-1.120**
					(0.469)	(0.496)
No College × Inflation Expectation					-0.497***	-0.496***
					(0.106)	(0.112)
No College × Inflation Uncertainty					0.427***	0.403**
					(0.157)	(0.163)
Mean Log Household Income × Inflation Expectation						-0.183***
						(0.042)
Mean Log Monthly Payments × Inflation Expectation						-0.013
						(0.016)
Mean No Mortgage Indicator × Inflation Expectation						-0.198**
						(0.095)
Constant	-0.816*	-2.103	-1.994	-1.434	-1.433	-1.653
	(0.495)	(1.581)	(1.662)	(1.517)	(1.719)	(1.688)
Correlated Random Effects	No	No	No	Yes	Yes	Yes
Chi^2	10.35	101.18	108.12	772.42	873.30	933.21
P Value	0.66	0.00	0.00	0.00	0.00	0.00
Sample Size	1084	1084	1084	1084	1084	1084

Standard errors in parentheses

Note: Each column includes time fixed effects. Robust standard errors are clustered at the level of the individual.

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

Table A14: Full Specification for Table A4, Bought Durables Indicator vs. Year-Ahead Expectations, Mortgagor Sample, GEE Logit estimation

	(1)	(2)	(3)	(4)	(5)	(6)
Inflation Expectation	0.067	-0.056	-0.120	0.027	0.337**	0.454**
	(0.071)	(0.093)	(0.111)	(0.119)	(0.148)	(0.218)
Inflation Uncertainty	0.008	0.054	0.108	-0.046	-0.265	-0.258
	(0.064)	(0.084)	(0.077)	(0.098)	(0.179)	(0.169)
Mortgage Balance (Log)		0.205*	0.212	0.849**	0.676	0.701
		(0.120)	(0.142)	(0.415)	(0.426)	(0.427)
Household Income (Log)		1.050***	1.126***	-3.991***	-3.472**	-3.349**
		(0.338)	(0.323)	(1.343)	(1.411)	(1.394)
Monthly Payments (Log)		-0.380**	-0.393**	-1.298***	-1.343***	-1.446***
		(0.176)	(0.159)	(0.353)	(0.356)	(0.337)
Expects Interest Rate Increase		0.718**	0.804**	1.111**	0.900*	0.938*
		(0.319)	(0.347)	(0.477)	(0.521)	(0.546)
Expects Interest Rate Decrease		-0.254	-0.415	-0.142	-0.100	-0.163
		(0.932)	(0.968)	(1.252)	(1.246)	(1.286)
Real Wage Expectation		-0.083	-0.103	-0.061	-0.072	-0.062
		(0.068)	(0.076)	(0.082)	(0.084)	(0.091)
Wage Uncertainty		0.086	0.076	0.257**	0.264**	0.258**
		(0.096)	(0.099)	(0.103)	(0.110)	(0.115)
Age		-0.006	-0.003	0.042	0.034	0.024
		(0.037)	(0.037)	(0.036)	(0.038)	(0.039)
Non-White		0.329	-0.034	0.342	-0.152	-0.148
		(0.749)	(0.902)	(0.580)	(0.638)	(0.644)
Female		0.418	0.626	0.021	0.432	0.340
		(0.456)	(0.505)	(0.360)	(0.389)	(0.367)
Retired		0.285	0.159	-1.064	-0.641	-0.628
		(0.743)	(0.732)	(0.791)	(0.783)	(0.741)
House Price Expectation		0.027	0.039	-0.014	0.001	0.003
		(0.022)	(0.026)	(0.034)	(0.035)	(0.036)
Expects Unemployment Increase			-1.232***	-2.765***	-3.095***	-3.137***
			(0.410)	(0.649)	(0.733)	(0.707)
Expects Unemployment Decrease			-1.322***	-1.599***	-1.623***	-1.671***
			(0.312)	(0.432)	(0.432)	(0.457)
Mean Inflation Expectation (within-subject)				0.004	-0.154	-0.204
				(0.238)	(0.263)	(0.265)
Mean Inflation Uncertainty (within-subject)				0.638***	0.668***	0.672***
				(0.191)	(0.204)	(0.217)
Mean Log Mortgage Balance (within-subject)				-0.704	-0.452	-0.662
				(0.440)	(0.460)	(0.473)
Mean Log Household Income (within-subject)				4.701***	4.733***	4.887***
				(1.359)	(1.427)	(1.359)
Mean Log Monthly Payments (within-subject)				1.803***	1.486***	1.598***
				(0.509)	(0.518)	(0.488)
Mean Expects Interest Rate Increase (within-subject)				-1.048	-0.289	-0.756
				(0.808)	(0.883)	(0.870)
Mean Expects Interest Rate Decrease (within-subject)				1.200	0.452	1.170
				(1.411)	(1.342)	(1.432)
Mean Real Wage Expectation (within-subject)				0.153	0.152	0.120
				(0.117)	(0.111)	(0.113)
Mean Wage Uncertainty (within-subject)				-0.639***	-0.748***	-0.677***
				(0.183)	(0.167)	(0.171)
Mean House Price Expectation (within-subject)				0.104**	0.088*	0.084
				(0.047)	(0.051)	(0.051)
Mean Expects Unemployment Increase (within-subject)				1.902**	1.596*	1.977**
				(0.929)	(0.958)	(0.937)
Mean Expects Unemployment Decrease (within-subject)				-0.617	-0.998	-0.814
				(0.717)	(0.774)	(0.766)
No College					-1.679***	-1.689***
					(0.628)	(0.634)
No College × Inflation Expectation					-0.787***	-0.688***
					(0.178)	(0.158)

No College × Inflation Uncertainty					0.641***	0.564***
					(0.221)	(0.216)
Mean Log Mortgage Balance × Inflation Expectation						0.004
						(0.086)
Mean Log Household Income × Inflation Expectation						-0.218
						(0.147)
Mean Log Monthly Payments × Inflation Expectation						-0.123
						(0.132)
Constant	-0.845	-0.946	-0.626	-3.163	-2.081	-1.493
	(0.535)	(2.101)	(2.131)	(2.304)	(2.474)	(2.503)
Correlated Random Effects	No	No	No	Yes	Yes	Yes
Chi^2	12.22	239.58	255.13	677.84	902.65	1531.14
P Value	0.51	0.00	0.00	0.00	0.00	0.00
Sample Size	671	671	671	671	671	671

Standard errors in parentheses

Note: Each column includes time fixed effects. Robust standard errors are clustered at the level of the individual.

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

Table A15: Full Specification for Table A5, Real Durable Goods Spending vs. Year-Ahead Expectations, Baseline Sample, GEE estimation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Inflation Expectation	0.191**	0.158*	0.140**	0.190**	0.166*	0.203**	0.193**	0.172*
	(0.089)	(0.083)	(0.065)	(0.092)	(0.090)	(0.102)	(0.088)	(0.099)
Inflation Uncertainty	0.075	0.072	0.135	0.068	0.114	0.126	0.098	0.040
	(0.091)	(0.086)	(0.098)	(0.089)	(0.089)	(0.100)	(0.093)	(0.084)
Household Income (Log)	–1.128	–0.908	–1.053	–1.150	–1.187	–1.112	–1.239	–1.398*
	(0.839)	(0.754)	(0.867)	(0.847)	(0.916)	(0.869)	(0.833)	(0.833)
Monthly Payments (Log)	0.038	–0.005	0.031	0.041	0.024	0.023	0.031	0.044
	(0.179)	(0.171)	(0.186)	(0.185)	(0.187)	(0.175)	(0.180)	(0.170)
Expects Interest Rate Increase	0.135	0.249	0.166	0.128	0.063	0.288	0.186	0.113
	(0.299)	(0.283)	(0.301)	(0.295)	(0.303)	(0.363)	(0.305)	(0.333)
Expects Interest Rate Decrease	0.080	0.266	–0.027	0.020	0.072	–0.127	0.090	0.286
	(0.373)	(0.386)	(0.367)	(0.388)	(0.389)	(0.397)	(0.380)	(0.361)
Real Wage Expectation	0.033	0.003	0.036	0.032	0.033	0.038	0.039	0.006
	(0.066)	(0.054)	(0.057)	(0.065)	(0.066)	(0.061)	(0.065)	(0.074)
Wage Uncertainty	–0.017	–0.004	–0.021	–0.019	–0.014	–0.043	–0.017	0.046
	(0.095)	(0.080)	(0.084)	(0.092)	(0.096)	(0.098)	(0.091)	(0.093)
No Mortgage Indicator	0.387	0.056	0.376	0.405	0.383	0.307	0.387	0.220
	(0.673)	(0.572)	(0.708)	(0.668)	(0.658)	(0.764)	(0.648)	(0.660)
Age	0.012	0.017	0.012	0.010	0.005	0.015	0.015	0.008
	(0.018)	(0.017)	(0.018)	(0.018)	(0.018)	(0.021)	(0.018)	(0.020)
Non-White	0.315	0.393	0.193	0.278	0.590*	0.320	0.317	0.097
	(0.349)	(0.332)	(0.329)	(0.369)	(0.317)	(0.452)	(0.373)	(0.404)
Female	0.295	0.253	0.380*	0.321	0.233	0.340*	0.373	0.262
	(0.210)	(0.198)	(0.195)	(0.231)	(0.210)	(0.204)	(0.239)	(0.248)
Retired	–0.211	–0.141	–0.213	–0.240	–0.161	–0.174	–0.248	–0.191
	(0.237)	(0.325)	(0.233)	(0.241)	(0.245)	(0.324)	(0.244)	(0.264)
Homeowner	0.590	–0.166	0.546	0.526	0.293	0.593	0.477	0.531
	(0.731)	(0.926)	(0.711)	(0.685)	(0.680)	(0.751)	(0.707)	(0.771)
House Price Expectation	–0.008	–0.009	–0.006	–0.009	–0.006	–0.016	–0.011	–0.004
	(0.022)	(0.022)	(0.022)	(0.023)	(0.022)	(0.024)	(0.022)	(0.021)
Expects Unemployment Increase	–1.232***	–1.353***	–1.233***	–1.093***	–1.240***	–0.999**	–1.216***	–1.232***
	(0.409)	(0.459)	(0.380)	(0.391)	(0.407)	(0.448)	(0.420)	(0.440)
Expects Unemployment Decrease	–0.103	–0.149	–0.179	0.104	–0.091	–0.324	–0.087	–0.168
	(0.284)	(0.271)	(0.260)	(0.381)	(0.287)	(0.323)	(0.290)	(0.326)
Mean Inflation Expectation (within-subject)	–0.248*	–0.240**	–0.250**	–0.239*	–0.170	–0.229	–0.258**	–0.232*
	(0.132)	(0.107)	(0.111)	(0.128)	(0.128)	(0.147)	(0.130)	(0.138)
Mean Inflation Uncertainty (within-subject)	0.068	0.106	0.115	0.078	0.036	0.075	0.033	0.140
	(0.092)	(0.092)	(0.123)	(0.089)	(0.092)	(0.108)	(0.101)	(0.100)
Mean Log Household Income (within-subject)	2.320***	2.048***	2.308**	2.338***	2.466**	2.392***	2.439***	2.569***
	(0.896)	(0.785)	(0.907)	(0.902)	(0.974)	(0.902)	(0.888)	(0.883)
Mean Log Monthly Payments (within-subject)	–0.054	0.014	–0.049	–0.068	–0.055	–0.058	–0.045	–0.051
	(0.178)	(0.174)	(0.186)	(0.189)	(0.185)	(0.172)	(0.179)	(0.178)
Mean Expects Interest Rate Increase (within-subject)	0.171	0.314	0.244	0.156	0.066	–0.118	0.092	0.109
	(0.432)	(0.451)	(0.447)	(0.433)	(0.478)	(0.452)	(0.442)	(0.467)
Mean Expects Interest Rate Decrease (within-subject)	–0.431	–0.845	–0.218	–0.360	–0.334	–0.362	–0.364	–0.239
	(0.538)	(0.623)	(0.499)	(0.558)	(0.564)	(0.551)	(0.538)	(0.585)
Mean Real Wage Expectation (within-subject)	–0.019	0.019	–0.015	–0.018	–0.008	0.048	–0.026	0.007
	(0.072)	(0.057)	(0.060)	(0.070)	(0.072)	(0.082)	(0.071)	(0.080)
Mean Wage Uncertainty (within-subject)	–0.193	–0.203**	–0.176	–0.188	–0.188	–0.173	–0.195	–0.276*
	(0.132)	(0.099)	(0.118)	(0.126)	(0.133)	(0.140)	(0.129)	(0.150)
Mean No Mortgage Indicator (within-subject)	0.056	0.451	0.081	–0.014	0.020	0.022	0.142	0.410
	(0.659)	(0.588)	(0.700)	(0.684)	(0.639)	(0.750)	(0.636)	(0.719)
Mean Homeowner (within-subject)	1.115	1.766	1.089	1.144	1.944**	0.819	1.333	1.153
	(0.925)	(1.099)	(0.917)	(0.922)	(0.802)	(0.982)	(0.913)	(0.974)
Mean House Price Expectation (within-subject)	0.045	0.046*	0.044*	0.043	0.047	0.071**	0.047	0.040
	(0.030)	(0.027)	(0.027)	(0.028)	(0.031)	(0.031)	(0.029)	(0.028)
Mean Expects Unemployment Increase (within-subject)	1.276***	1.327***	1.194***	1.268***	1.383***	1.243**	1.316***	1.445***
	(0.416)	(0.413)	(0.412)	(0.393)	(0.404)	(0.526)	(0.431)	(0.475)
Mean Expects Unemployment Decrease (within-subject)	0.225	0.136	0.208	0.128	0.291	0.302	0.208	0.494
	(0.381)	(0.411)	(0.368)	(0.407)	(0.373)	(0.438)	(0.418)	(0.446)
No College	–0.497	–0.250	–0.294	–0.398	–0.410	–0.216	–0.648	–0.488
	(0.375)	(0.378)	(0.478)	(0.431)	(0.375)	(0.368)	(0.442)	(0.403)
No College × Inflation Expectation	–0.355***	–0.331***	–0.248	–0.363***	–0.344***	–0.308***	–0.350***	–0.297***
	(0.087)	(0.077)	(0.152)	(0.091)	(0.088)	(0.088)	(0.086)	(0.104)
No College × Inflation Uncertainty	0.043	0.010	–0.078	0.062	0.021	–0.068	0.137	0.007
	(0.120)	(0.117)	(0.181)	(0.129)	(0.119)	(0.125)	(0.156)	(0.133)
Mean Log Household Income × Inflation Expectation	–0.169***	–0.159***	–0.134***	–0.160***	–0.168***	–0.174***	–0.176***	–0.143***
	(0.038)	(0.040)	(0.052)	(0.038)	(0.042)	(0.061)	(0.037)	(0.043)
Mean Log Monthly Payments × Inflation Expectation	0.019	0.022*	0.019	0.016	0.018	0.008	0.021	0.022

	(0.013)	(0.013)	(0.014)	(0.013)	(0.014)	(0.016)	(0.014)	(0.014)
Mean No Mortgage Indicator × Inflation Expectation	–0.052	–0.049	–0.044	–0.044	–0.046	–0.062	–0.057	–0.063
	(0.065)	(0.063)	(0.069)	(0.065)	(0.075)	(0.078)	(0.063)	(0.078)
Regional Gas Price Inflation		0.089**						
		(0.041)						
Lagged Inflation Expectation			0.077**					
			(0.033)					
No College × Lagged Inflation Expectation			–0.208*					
			(0.108)					
Lagged Inflation Uncertainty			–0.139					
			(0.147)					
No College × Lagged Inflation Uncertainty			0.234					
			(0.189)					
No College × Expects Unemployment Increase				–0.331				
				(0.634)				
No College × Expects Unemployment Decrease				–0.438				
				(0.517)				
Correlated Random Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chi^2	2195.88	1925.33	1858.56	1959.62	1965.45	1524.31	1649.52	1024.02
P Value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sample Size	1084	1084	1084	1084	1070	990	1069	1007

Standard errors in parentheses
Note: Model (1) is unaltered.
Model (2) includes gas price inflation and regional controls. Regional controls are omitted.
Model (3) includes the lagged inflation expectation and lagged inflation uncertainty and their interactions with the no college indicator.
Model (4) includes the interactions of the unemployment expectations indicators with the no college indicator.
Model (5) restricts to the overlap sample between the durables and nondurables samples.
Model (6) restricts to households in the durables sample with more than 5 observations.
Model (7) excludes months with outlier median inflation expectations: June 2010, March 2011, September 2011, February 2012.
Model (8) excludes observations from 2009, in which the durable sample's spending patterns were most different from the CES.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A16: Full Specification for Table A6, Real Durable Goods Spending vs. Year-Ahead Expectations, Mortgagor Sample, GEE estimation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Inflation Expectation	0.571***	0.688***	0.448**	0.555***	0.570***	0.606***	0.541***	0.529***
	(0.183)	(0.182)	(0.176)	(0.189)	(0.183)	(0.181)	(0.179)	(0.170)
Inflation Uncertainty	0.087	0.048	0.165	0.085	0.088	0.113	0.131	0.034
	(0.097)	(0.095)	(0.107)	(0.099)	(0.097)	(0.131)	(0.105)	(0.086)
Mortgage Balance (Log)	0.376	0.548*	0.433	0.383	0.377	0.331	0.366	0.677***
	(0.236)	(0.315)	(0.293)	(0.237)	(0.237)	(0.233)	(0.243)	(0.253)
Household Income (Log)	-1.516	-0.300	-1.693*	-1.501	-1.515	-1.992*	-1.498	-1.511
	(1.213)	(1.196)	(1.004)	(1.203)	(1.213)	(1.129)	(1.140)	(1.113)
Monthly Payments (Log)	-0.779***	-0.718***	-0.805***	-0.787***	-0.778***	-0.882***	-0.790***	-0.685***
	(0.203)	(0.205)	(0.182)	(0.205)	(0.203)	(0.205)	(0.209)	(0.195)
Expects Interest Rate Increase	0.394	0.472	0.507*	0.398	0.393	0.317	0.427	0.308
	(0.306)	(0.288)	(0.295)	(0.307)	(0.306)	(0.327)	(0.305)	(0.309)
Expects Interest Rate Decrease	-0.102	-0.018	-0.058	-0.134	-0.103	-0.147	-0.160	0.089
	(0.485)	(0.479)	(0.456)	(0.500)	(0.485)	(0.497)	(0.505)	(0.481)
Real Wage Expectation	0.100	0.073	0.083	0.099	0.100	0.095	0.100	0.063
	(0.064)	(0.063)	(0.057)	(0.063)	(0.064)	(0.058)	(0.062)	(0.047)
Wage Uncertainty	0.084	0.106**	0.051	0.083	0.084	0.071	0.087	0.177***
	(0.058)	(0.050)	(0.052)	(0.057)	(0.058)	(0.061)	(0.058)	(0.056)
Age	0.036*	0.030	0.051**	0.035*	0.036*	0.039*	0.040**	0.030
	(0.019)	(0.023)	(0.022)	(0.020)	(0.019)	(0.021)	(0.019)	(0.019)
Non-White	0.277	0.212	0.295	0.271	0.280	0.769*	0.231	-0.002
	(0.398)	(0.390)	(0.406)	(0.404)	(0.400)	(0.413)	(0.415)	(0.463)
Female	0.308	0.396	0.050	0.263	0.308	0.135	0.380	0.201
	(0.248)	(0.244)	(0.276)	(0.311)	(0.248)	(0.195)	(0.275)	(0.260)
Retired	-0.627**	-0.302	-0.897**	-0.646**	-0.626**	-0.717**	-0.746**	-0.668**
	(0.306)	(0.419)	(0.350)	(0.311)	(0.306)	(0.337)	(0.314)	(0.308)
House Price Expectation	-0.017	-0.023	-0.015	-0.017	-0.017	-0.028	-0.018	-0.001
	(0.024)	(0.021)	(0.021)	(0.024)	(0.024)	(0.025)	(0.023)	(0.025)
Expects Unemployment Increase	-1.225**	-1.508**	-1.215**	-1.305***	-1.224**	-0.885	-1.195**	-1.525**
	(0.586)	(0.675)	(0.579)	(0.487)	(0.586)	(0.696)	(0.551)	(0.612)
Expects Unemployment Decrease	-0.129	-0.268	-0.216	-0.028	-0.129	-0.075	-0.122	-0.143
	(0.274)	(0.280)	(0.246)	(0.319)	(0.275)	(0.351)	(0.260)	(0.275)
Mean Inflation Expectation (within-subject)	-0.438***	-0.398***	-0.360***	-0.427***	-0.436***	-0.314**	-0.448***	-0.323***
	(0.156)	(0.136)	(0.138)	(0.154)	(0.156)	(0.153)	(0.157)	(0.123)
Mean Inflation Uncertainty (within-subject)	0.176*	0.185*	0.374***	0.175*	0.175*	0.121	0.129	0.278***
	(0.103)	(0.108)	(0.107)	(0.102)	(0.103)	(0.137)	(0.114)	(0.105)
Mean Log Mortgage Balance (within-subject)	-0.249	-0.393	-0.256	-0.237	-0.250	-0.077	-0.199	-0.505
	(0.314)	(0.386)	(0.361)	(0.316)	(0.315)	(0.268)	(0.352)	(0.322)
Mean Log Household Income (within-subject)	2.431*	1.389	2.216**	2.387*	2.429*	3.036***	2.352*	2.219*
	(1.311)	(1.233)	(1.129)	(1.279)	(1.311)	(1.167)	(1.258)	(1.220)
Mean Log Monthly Payments (within-subject)	1.027***	0.855**	1.222***	1.050***	1.025***	1.111***	1.073***	1.034***
	(0.355)	(0.344)	(0.391)	(0.367)	(0.355)	(0.346)	(0.367)	(0.351)
Mean Expects Interest Rate Increase (within-subject)	0.165	0.172	-0.077	0.194	0.163	-0.150	0.097	0.030
	(0.531)	(0.475)	(0.552)	(0.520)	(0.534)	(0.484)	(0.541)	(0.570)
Mean Expects Interest Rate Decrease (within-subject)	0.000	-0.342	0.059	0.131	-0.001	-0.267	0.149	0.191
	(0.637)	(0.664)	(0.659)	(0.717)	(0.638)	(0.605)	(0.603)	(0.736)
Mean Real Wage Expectation (within-subject)	-0.061	-0.023	-0.048	-0.061	-0.061	0.051	-0.059	0.009
	(0.083)	(0.084)	(0.075)	(0.082)	(0.083)	(0.086)	(0.080)	(0.064)
Mean Wage Uncertainty (within-subject)	-0.478***	-0.508***	-0.476***	-0.462***	-0.478***	-0.508***	-0.512***	-0.564***
	(0.133)	(0.108)	(0.120)	(0.131)	(0.133)	(0.144)	(0.135)	(0.125)
Mean House Price Expectation (within-subject)	0.117***	0.145***	0.086**	0.113***	0.117***	0.135***	0.122***	0.116***
	(0.040)	(0.040)	(0.038)	(0.040)	(0.040)	(0.041)	(0.039)	(0.037)
Mean Expects Unemployment Increase (within-subject)	0.756	0.943*	0.374	0.762	0.755	1.465**	0.803*	1.188**
	(0.474)	(0.537)	(0.515)	(0.505)	(0.474)	(0.650)	(0.441)	(0.524)
Mean Expects Unemployment Decrease (within-subject)	-0.284	-0.260	-0.345	-0.315	-0.284	-0.284	-0.395	-0.252
	(0.487)	(0.490)	(0.450)	(0.486)	(0.487)	(0.523)	(0.487)	(0.510)
No College	0.004	0.193	0.522	0.073	0.006	-0.128	-0.183	0.016
	(0.473)	(0.497)	(0.597)	(0.535)	(0.474)	(0.487)	(0.524)	(0.490)
No College × Inflation Expectation	-0.271**	-0.326**	-0.188	-0.269*	-0.270**	-0.278**	-0.250**	-0.218
	(0.131)	(0.153)	(0.192)	(0.138)	(0.131)	(0.140)	(0.127)	(0.151)
No College × Inflation Uncertainty	0.016	0.062	-0.126	0.004	0.016	-0.025	0.145	-0.010
	(0.150)	(0.147)	(0.206)	(0.167)	(0.150)	(0.174)	(0.198)	(0.159)
Mean Log Mortgage Balance × Inflation Expectation	0.160***	0.156***	0.134**	0.150***	0.160***	0.115**	0.160***	0.159***
	(0.055)	(0.057)	(0.052)	(0.055)	(0.055)	(0.052)	(0.055)	(0.055)
Mean Log Household Income × Inflation Expectation	-0.118	-0.023	-0.104	-0.120	-0.117	-0.007	-0.159	-0.044
	(0.103)	(0.112)	(0.083)	(0.106)	(0.103)	(0.111)	(0.099)	(0.105)
Mean Log Monthly Payments × Inflation Expectation	-0.130	-0.230**	-0.102	-0.121	-0.130	-0.190*	-0.116	-0.115
	(0.094)	(0.097)	(0.102)	(0.099)	(0.094)	(0.106)	(0.094)	(0.095)
Regional Gas Price Inflation		0.141***						

		(0.039)						
Lagged Inflation Expectation			0.004					
			(0.041)					
No College × Lagged Inflation Expectation			0.129					
			(0.165)					
Lagged Inflation Uncertainty			-0.344***					
			(0.082)					
No College × Lagged Inflation Uncertainty			0.304*					
			(0.173)					
No College × Expects Unemployment Increase				0.147				
				(0.772)				
No College × Expects Unemployment Decrease				-0.275				
				(0.533)				
Constant	3.341***	2.875	2.039	3.323**	3.350***	3.417***	3.110**	3.870***
	(1.288)	(1.810)	(1.507)	(1.306)	(1.287)	(1.243)	(1.331)	(1.329)
Correlated Random Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chi^2	5094.23	18938.88	9967.90	6067.31	5114.90	17802.12	5830.05	7926.80
P Value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sample Size	671	671	671	671	666	600	665	622

Standard errors in parentheses
Note: Model (1) is unaltered.
Model (2) includes gas price inflation and regional controls. Regional controls are omitted.
Model (3) includes the lagged inflation expectation and lagged inflation uncertainty and their interactions with the no college indicator.
Model (4) includes the interactions of the unemployment expectations indicators with the no college indicator.
Model (5) restricts to the overlap sample between the durables and nondurables samples.
Model (6) restricts to households in the durables mortgagor sample with more than 5 observations.
Model (7) excludes months with outlier median inflation expectations: June 2010, March 2011, September 2011, February 2012.
Model (8) excludes observations from 2009, in which the durable sample's spending patterns were most different from the CES.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A17: Full Specification for Table A7, Bought Durables Indicator vs. Year-Ahead Expectations, Baseline Sample, GEE Logit estimation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Inflation Expectation	0.118	0.096	0.090	0.120	0.102	0.125	0.116	0.120
	(0.082)	(0.076)	(0.080)	(0.083)	(0.083)	(0.093)	(0.083)	(0.084)
Inflation Uncertainty	-0.067	-0.051	-0.051	-0.062	-0.028	-0.082	-0.078	-0.093
	(0.126)	(0.125)	(0.134)	(0.126)	(0.135)	(0.131)	(0.126)	(0.137)
Household Income (Log)	-0.628	-0.571	-0.653	-0.583	-0.546	-0.564	-0.583	-1.160
	(0.894)	(0.891)	(0.909)	(0.914)	(0.881)	(0.883)	(0.892)	(0.900)
Monthly Payments (Log)	-0.120	-0.144	-0.129	-0.126	-0.142	-0.154	-0.124	-0.123
	(0.233)	(0.239)	(0.238)	(0.230)	(0.232)	(0.245)	(0.236)	(0.218)
Expects Interest Rate Increase	0.166	0.176	0.216	0.184	-0.027	0.241	0.187	0.165
	(0.391)	(0.415)	(0.381)	(0.398)	(0.371)	(0.456)	(0.406)	(0.413)
Expects Interest Rate Decrease	0.552	0.556	0.518	0.578	0.557	-0.470	0.517	0.729
	(0.922)	(0.966)	(0.907)	(0.903)	(0.933)	(0.925)	(0.910)	(0.945)
Real Wage Expectation	-0.086	-0.081	-0.085	-0.087	-0.086	-0.122*	-0.088	-0.096
	(0.063)	(0.064)	(0.066)	(0.064)	(0.064)	(0.068)	(0.063)	(0.074)
Wage Uncertainty	0.203**	0.203**	0.217**	0.215**	0.198**	0.125	0.198**	0.243**
	(0.093)	(0.090)	(0.094)	(0.094)	(0.092)	(0.099)	(0.092)	(0.104)
No Mortgage Indicator	-0.226	-0.306	-0.283	-0.243	-0.176	-0.439	-0.158	-0.483
	(0.648)	(0.683)	(0.673)	(0.632)	(0.648)	(0.618)	(0.645)	(0.669)
Age	0.004	0.005	0.005	0.005	-0.002	0.014	0.002	-0.003
	(0.025)	(0.026)	(0.026)	(0.024)	(0.023)	(0.027)	(0.024)	(0.026)
Non-White	0.706	1.083**	0.518	0.795*	0.990**	0.220	0.666	0.670
	(0.477)	(0.504)	(0.475)	(0.481)	(0.498)	(0.467)	(0.479)	(0.495)
Female	0.474**	0.510*	0.586**	0.406	0.375	0.570**	0.432*	0.403*
	(0.237)	(0.261)	(0.236)	(0.256)	(0.237)	(0.243)	(0.234)	(0.242)
Retired	-0.004	-0.155	-0.021	-0.006	0.060	-0.607	0.024	-0.083
	(0.399)	(0.400)	(0.409)	(0.401)	(0.391)	(0.497)	(0.388)	(0.406)
Homeowner	-0.427	-0.662	-0.381	-0.369	-0.685	-0.425	-0.519	-0.420
	(1.454)	(1.628)	(1.497)	(1.401)	(1.459)	(1.317)	(1.462)	(1.453)
House Price Expectation	0.012	0.012	0.013	0.012	0.016	0.006	0.008	0.012
	(0.021)	(0.022)	(0.021)	(0.022)	(0.022)	(0.025)	(0.021)	(0.021)
Expects Unemployment Increase	-1.821***	-1.871***	-1.885***	-2.169***	-1.890***	-1.915***	-1.815***	-1.880***
	(0.420)	(0.449)	(0.436)	(0.470)	(0.433)	(0.437)	(0.431)	(0.407)
Expects Unemployment Decrease	-0.101	-0.078	-0.125	-0.205	-0.019	-0.689*	-0.044	-0.089
	(0.557)	(0.564)	(0.543)	(0.839)	(0.543)	(0.381)	(0.560)	(0.603)
Mean Inflation Expectation (within-subject)	0.064	0.072	0.061	0.076	0.150	-0.063	0.054	0.064
	(0.126)	(0.114)	(0.136)	(0.131)	(0.132)	(0.154)	(0.126)	(0.129)
Mean Inflation Uncertainty (within-subject)	0.111	0.121	0.122	0.079	0.065	0.346**	0.165	0.184
	(0.166)	(0.150)	(0.160)	(0.171)	(0.170)	(0.150)	(0.172)	(0.182)
Mean Log Household Income (within-subject)	1.733*	1.678*	1.851**	1.680*	1.678*	1.863**	1.657*	2.209**
	(0.907)	(0.898)	(0.918)	(0.925)	(0.913)	(0.882)	(0.910)	(0.927)
Mean Log Monthly Payments (within-subject)	-0.022	0.017	-0.015	0.002	-0.007	-0.046	-0.031	-0.005
	(0.241)	(0.246)	(0.245)	(0.241)	(0.238)	(0.250)	(0.243)	(0.228)
Mean Expects Interest Rate Increase (within-subject)	0.318	0.424	0.482	0.280	0.380	0.000	0.264	0.032
	(0.541)	(0.582)	(0.558)	(0.553)	(0.560)	(0.607)	(0.546)	(0.549)
Mean Expects Interest Rate Decrease (within-subject)	-0.042	-0.313	0.096	0.019	0.008	1.203	-0.123	0.113
	(1.045)	(1.108)	(1.008)	(1.050)	(1.058)	(1.114)	(1.050)	(1.018)
Mean Real Wage Expectation (within-subject)	0.107	0.113	0.107	0.107	0.114	0.100	0.107	0.105
	(0.070)	(0.069)	(0.074)	(0.071)	(0.072)	(0.094)	(0.069)	(0.080)
Mean Wage Uncertainty (within-subject)	-0.310***	-0.319***	-0.324***	-0.308***	-0.303***	-0.256**	-0.321***	-0.365***
	(0.106)	(0.100)	(0.108)	(0.109)	(0.107)	(0.124)	(0.105)	(0.125)
Mean No Mortgage Indicator (within-subject)	0.102	0.289	0.165	0.287	0.007	-0.189	-0.036	0.490
	(0.851)	(0.837)	(0.866)	(0.895)	(0.828)	(0.765)	(0.849)	(0.921)
Mean Homeowner (within-subject)	0.841	1.153	0.728	0.927	1.355	0.235	0.882	0.904
	(1.626)	(1.710)	(1.676)	(1.581)	(1.687)	(1.430)	(1.622)	(1.618)
Mean House Price Expectation (within-subject)	0.071**	0.060*	0.078**	0.073**	0.071**	0.085**	0.074**	0.089***
	(0.033)	(0.035)	(0.035)	(0.035)	(0.034)	(0.033)	(0.033)	(0.034)
Mean Expects Unemployment Increase (within-subject)	1.870***	1.833***	1.920***	1.848***	2.034***	1.462**	1.773***	1.957***
	(0.583)	(0.601)	(0.637)	(0.597)	(0.584)	(0.605)	(0.600)	(0.601)
Mean Expects Unemployment Decrease (within-subject)	-0.412	-0.580	-0.415	-0.353	-0.373	-0.505	-0.468	-0.578
	(0.827)	(0.803)	(0.818)	(0.892)	(0.806)	(0.691)	(0.846)	(0.867)
No College	-1.120**	-1.021**	-1.078*	-1.247**	-1.018**	-0.915*	-1.016*	-1.205**
	(0.496)	(0.507)	(0.601)	(0.580)	(0.504)	(0.507)	(0.531)	(0.513)
No College × Inflation Expectation	-0.496***	-0.456***	-0.413***	-0.482***	-0.489***	-0.473***	-0.495***	-0.442***
	(0.112)	(0.114)	(0.156)	(0.111)	(0.111)	(0.109)	(0.113)	(0.102)
No College × Inflation Uncertainty	0.403**	0.366**	0.334	0.373**	0.385**	0.346**	0.340*	0.363**
	(0.163)	(0.162)	(0.225)	(0.159)	(0.170)	(0.159)	(0.195)	(0.157)
Mean Log Household Income × Inflation Expectation	-0.183***	-0.190***	-0.171***	-0.195***	-0.173***	-0.259***	-0.174***	-0.170***
	(0.042)	(0.044)	(0.048)	(0.047)	(0.048)	(0.060)	(0.043)	(0.041)
Mean Log Monthly Payments × Inflation Expectation	-0.013	-0.008	-0.019	-0.014	-0.016	-0.018	-0.016	-0.015

	(0.016)	(0.017)	(0.016)	(0.018)	(0.016)	(0.018)	(0.017)	(0.017)
Mean No Mortgage Indicator × Inflation Expectation	-0.198**	-0.177*	-0.182*	-0.212**	-0.206**	-0.247**	-0.197**	-0.224**
	(0.095)	(0.093)	(0.100)	(0.099)	(0.097)	(0.117)	(0.098)	(0.102)
Regional Gas Price Inflation		0.014						
		(0.054)						
Lagged Inflation Expectation			0.043					
			(0.056)					
No College × Lagged Inflation Expectation			-0.252					
			(0.171)					
Lagged Inflation Uncertainty			-0.045					
			(0.150)					
No College × Lagged Inflation Uncertainty			0.134					
			(0.250)					
No College × Expects Unemployment Increase				0.785				
				(0.661)				
No College × Expects Unemployment Decrease				0.203				
				(0.835)				
Constant	-1.653	-1.979	-1.761	-1.765	-1.546	-1.608	-1.454	-0.680
	(1.688)	(1.808)	(1.736)	(1.670)	(1.618)	(1.860)	(1.676)	(1.684)
Correlated Random Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chi^2	933.21	953.73	1023.29	839.72	836.42	935.00	1134.90	782.13
P Value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sample Size	1084	1084	1084	1084	1070	990	1069	1007

Standard errors in parentheses
Note: Model (1) is unaltered.
Model (2) includes gas price inflation and regional controls. Regional controls are omitted.
Model (3) includes the lagged inflation expectation and lagged inflation uncertainty and their interactions with the no college indicator.
Model (4) includes the interactions of the unemployment expectations indicators with the no college indicator.
Model (5) restricts to the overlap sample between the durables and nondurables samples.
Model (6) restricts to households in the durables sample with more than 5 observations.
Model (7) excludes months with outlier median inflation expectations: June 2010, March 2011, September 2011, February 2012.
Model (8) excludes observations from 2009, in which the durable sample's spending patterns were most different from the CES.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A18: Full Specification for Table A8, Bought Durables Indicator vs. Year-Ahead Expectations, Mortgagor Sample, GEE Logit estimation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Inflation Expectation	0.454**	0.554**	0.521**	0.417*	0.454**	0.546**	0.529**	0.413**
	(0.218)	(0.228)	(0.221)	(0.224)	(0.218)	(0.212)	(0.236)	(0.206)
Inflation Uncertainty	-0.258	-0.252	-0.264	-0.270	-0.258	-0.360*	-0.320*	-0.253
	(0.169)	(0.168)	(0.173)	(0.180)	(0.169)	(0.218)	(0.172)	(0.174)
Mortgage Balance (Log)	0.701	0.796*	0.699	0.733*	0.701	0.739*	0.665	0.842*
	(0.427)	(0.429)	(0.493)	(0.411)	(0.427)	(0.431)	(0.452)	(0.431)
Household Income (Log)	-3.349**	-3.000**	-3.721**	-3.256**	-3.349**	-4.001***	-3.076**	-3.672***
	(1.394)	(1.488)	(1.480)	(1.346)	(1.395)	(1.475)	(1.357)	(1.417)
Monthly Payments (Log)	-1.446***	-1.455***	-1.394***	-1.465***	-1.446***	-1.444***	-1.433***	-1.311***
	(0.337)	(0.360)	(0.316)	(0.346)	(0.337)	(0.334)	(0.337)	(0.327)
Expects Interest Rate Increase	0.938*	0.849	0.917*	0.987*	0.938*	0.915	0.943*	0.862*
	(0.546)	(0.560)	(0.521)	(0.558)	(0.546)	(0.660)	(0.539)	(0.511)
Expects Interest Rate Decrease	-0.163	-0.155	-0.328	-0.162	-0.163	-0.070	-0.079	-0.041
	(1.286)	(1.201)	(1.311)	(1.327)	(1.286)	(1.317)	(1.240)	(1.295)
Real Wage Expectation	-0.062	-0.074	-0.085	-0.070	-0.062	-0.082	-0.060	-0.093
	(0.091)	(0.101)	(0.096)	(0.092)	(0.091)	(0.090)	(0.092)	(0.089)
Wage Uncertainty	0.258**	0.278**	0.281**	0.275**	0.258**	0.247**	0.255**	0.342***
	(0.115)	(0.123)	(0.113)	(0.113)	(0.115)	(0.120)	(0.115)	(0.126)
Age	0.024	0.017	0.034	0.021	0.024	0.056	0.015	0.018
	(0.039)	(0.045)	(0.040)	(0.040)	(0.039)	(0.039)	(0.038)	(0.036)
Non-White	-0.148	-0.283	-0.059	-0.193	-0.149	0.094	-0.134	-0.199
	(0.644)	(0.847)	(0.659)	(0.609)	(0.645)	(0.674)	(0.625)	(0.648)
Female	0.340	0.443	0.189	0.234	0.340	0.209	0.213	0.356
	(0.367)	(0.426)	(0.399)	(0.419)	(0.368)	(0.308)	(0.368)	(0.375)
Retired	-0.628	-0.544	-0.754	-0.651	-0.628	-1.959**	-0.456	-0.699
	(0.741)	(0.870)	(0.766)	(0.721)	(0.741)	(0.774)	(0.708)	(0.753)
House Price Expectation	0.003	-0.009	0.001	0.011	0.003	-0.026	0.005	0.015
	(0.036)	(0.037)	(0.038)	(0.039)	(0.036)	(0.033)	(0.035)	(0.035)
Expects Unemployment Increase	-3.137***	-3.295***	-3.190***	-3.393***	-3.136***	-2.929***	-3.149***	-3.179***
	(0.707)	(0.737)	(0.739)	(0.883)	(0.707)	(0.895)	(0.728)	(0.731)
Expects Unemployment Decrease	-1.671***	-1.756***	-1.705***	-1.294**	-1.671***	-1.741***	-1.673***	-1.509***
	(0.457)	(0.508)	(0.478)	(0.613)	(0.457)	(0.537)	(0.462)	(0.453)
Mean Inflation Expectation (within-subject)	-0.204	-0.116	0.011	-0.196	-0.204	-0.115	-0.195	-0.176
	(0.265)	(0.238)	(0.300)	(0.269)	(0.265)	(0.274)	(0.263)	(0.261)
Mean Inflation Uncertainty (within-subject)	0.672***	0.596***	0.664**	0.665***	0.672***	0.587**	0.716***	0.659***
	(0.217)	(0.229)	(0.275)	(0.218)	(0.217)	(0.274)	(0.212)	(0.211)
Mean Log Mortgage Balance (within-subject)	-0.662	-0.788	-0.681	-0.635	-0.663	-0.652	-0.639	-0.832*
	(0.473)	(0.503)	(0.505)	(0.459)	(0.473)	(0.528)	(0.488)	(0.483)
Mean Log Household Income (within-subject)	4.887***	4.694***	5.184***	4.749***	4.888***	5.510***	4.686***	5.181***
	(1.359)	(1.440)	(1.471)	(1.316)	(1.359)	(1.420)	(1.310)	(1.375)
Mean Log Monthly Payments (within-subject)	1.598***	1.492***	1.665***	1.642***	1.598***	1.851***	1.505***	1.343***
	(0.488)	(0.520)	(0.498)	(0.530)	(0.489)	(0.609)	(0.501)	(0.472)
Mean Expects Interest Rate Increase (within-subject)	-0.756	-0.881	-0.885	-0.658	-0.755	-1.394	-0.597	-0.850
	(0.870)	(0.841)	(0.869)	(0.860)	(0.870)	(0.955)	(0.866)	(0.837)
Mean Expects Interest Rate Decrease (within-subject)	1.170	0.815	1.686	1.496	1.171	1.461	1.089	1.116
	(1.432)	(1.390)	(1.525)	(1.506)	(1.432)	(1.477)	(1.351)	(1.382)
Mean Real Wage Expectation (within-subject)	0.120	0.136	0.147	0.124	0.120	0.222	0.106	0.150
	(0.113)	(0.124)	(0.123)	(0.116)	(0.113)	(0.140)	(0.112)	(0.114)
Mean Wage Uncertainty (within-subject)	-0.677***	-0.781***	-0.676***	-0.648***	-0.677***	-0.658***	-0.631***	-0.715***
	(0.171)	(0.200)	(0.171)	(0.171)	(0.171)	(0.188)	(0.174)	(0.173)
Mean House Price Expectation (within-subject)	0.084	0.109*	0.077	0.071	0.084	0.134**	0.078	0.099**
	(0.051)	(0.062)	(0.051)	(0.059)	(0.051)	(0.055)	(0.050)	(0.050)
Mean Expects Unemployment Increase (within-subject)	1.977**	1.812*	2.205**	2.015**	1.976**	2.609**	1.985**	2.018**
	(0.937)	(0.945)	(1.023)	(0.936)	(0.937)	(1.174)	(0.942)	(0.904)
Mean Expects Unemployment Decrease (within-subject)	-0.814	-0.887	-0.727	-0.931	-0.814	-1.314	-0.531	-1.158
	(0.766)	(0.824)	(0.793)	(0.810)	(0.766)	(0.946)	(0.763)	(0.785)
No College	-1.689***	-1.654**	-1.626**	-1.545**	-1.689***	-2.087***	-1.608**	-1.764***
	(0.634)	(0.729)	(0.639)	(0.703)	(0.635)	(0.773)	(0.643)	(0.666)
No College × Inflation Expectation	-0.688***	-0.788***	-0.754***	-0.683***	-0.688***	-0.704***	-0.703***	-0.711***
	(0.158)	(0.203)	(0.194)	(0.152)	(0.158)	(0.184)	(0.156)	(0.202)
No College × Inflation Uncertainty	0.564***	0.621***	0.574**	0.556**	0.564***	0.644**	0.469**	0.525**
	(0.216)	(0.239)	(0.242)	(0.217)	(0.216)	(0.273)	(0.234)	(0.219)
Mean Log Mortgage Balance × Inflation Expectation	0.004	-0.007	0.007	-0.005	0.004	-0.023	0.026	-0.008
	(0.086)	(0.090)	(0.089)	(0.083)	(0.086)	(0.078)	(0.087)	(0.105)
Mean Log Household Income × Inflation Expectation	-0.218	-0.116	-0.224	-0.243	-0.218	-0.112	-0.093	-0.173
	(0.147)	(0.161)	(0.151)	(0.157)	(0.147)	(0.207)	(0.206)	(0.139)
Mean Log Monthly Payments × Inflation Expectation	-0.123	-0.208	-0.157	-0.108	-0.123	-0.206	-0.185	-0.084
	(0.132)	(0.140)	(0.129)	(0.131)	(0.132)	(0.140)	(0.146)	(0.135)
Regional Gas Price Inflation		0.136**						

		(0.063)						
Lagged Inflation Expectation			-0.305**					
			(0.135)					
No College × Lagged Inflation Expectation			0.245					
			(0.270)					
Lagged Inflation Uncertainty			-0.013					
			(0.180)					
No College × Lagged Inflation Uncertainty			0.017					
			(0.240)					
No College × Expects Unemployment Increase				0.466				
				(1.057)				
No College × Expects Unemployment Decrease				-0.845				
				(0.869)				
Correlated Random Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chi^2	1531.14	4101.52	3779.40	2901.40	1530.50	5505.94	1639.51	2104.48
P Value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sample Size	671	671	671	671	666	600	665	622

Standard errors in parentheses
Note: Model (1) is unaltered.
Model (2) includes gas price inflation and regional controls. Regional controls are omitted.
Model (3) includes the lagged inflation expectation and lagged inflation uncertainty and their interactions with the no college indicator.
Model (4) includes the interactions of the unemployment expectations indicators with the no college indicator.
Model (5) restricts to the overlap sample between the durables and nondurables samples.
Model (6) restricts to households in the durables mortgagor sample with more than 5 observations.
Model (7) excludes months with outlier median inflation expectations: June 2010, March 2011, September 2011, February 2012.
Model (8) excludes observations from 2009, in which the durable sample's spending patterns were most different from the CES.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A19: Full Specification for Table A9, Real Nondurable Goods Spending vs. Year-Ahead Expectations, Baseline Sample, GEE estimation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Inflation Expectation	0.003	0.005	0.004	0.003	0.011	–0.008	0.002	0.009
	(0.012)	(0.011)	(0.012)	(0.012)	(0.012)	(0.013)	(0.011)	(0.015)
Inflation Uncertainty	0.012	0.005	0.012	0.012	0.007	0.016	0.014	0.019
	(0.011)	(0.009)	(0.011)	(0.010)	(0.010)	(0.012)	(0.011)	(0.015)
Household Income (Log)	0.124	0.115	0.116	0.121	0.134	0.174*	0.120	0.237*
	(0.090)	(0.087)	(0.091)	(0.089)	(0.083)	(0.104)	(0.091)	(0.128)
Monthly Payments (Log)	–0.000	–0.000	–0.002	0.002	–0.002	0.001	0.000	–0.001
	(0.006)	(0.006)	(0.007)	(0.007)	(0.006)	(0.007)	(0.007)	(0.009)
Expects Interest Rate Increase	0.011	0.007	0.013	0.007	0.001	–0.005	0.008	0.005
	(0.029)	(0.027)	(0.028)	(0.029)	(0.028)	(0.032)	(0.029)	(0.031)
Expects Interest Rate Decrease	–0.017	–0.028	–0.021	–0.022	–0.037	–0.021	–0.023	–0.041
	(0.056)	(0.053)	(0.053)	(0.058)	(0.050)	(0.058)	(0.054)	(0.046)
Real Wage Expectation	–0.002	–0.002	–0.002	–0.001	–0.002	–0.002	–0.000	0.001
	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)
Wage Uncertainty	–0.002	–0.009	–0.002	–0.002	–0.014	0.002	–0.005	–0.004
	(0.008)	(0.009)	(0.007)	(0.008)	(0.009)	(0.007)	(0.008)	(0.007)
No Mortgage Indicator	0.039	0.051	0.019	0.035	0.023	–0.000	0.058	0.135
	(0.080)	(0.080)	(0.067)	(0.086)	(0.074)	(0.082)	(0.082)	(0.089)
Age	–0.009	–0.004	–0.009	–0.009	–0.001	–0.013*	–0.010	–0.006
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Non-White	0.057	0.025	0.061	0.048	0.248**	0.145	0.077	0.134
	(0.141)	(0.134)	(0.140)	(0.142)	(0.123)	(0.149)	(0.144)	(0.142)
Female	0.081	0.123	0.072	0.085	0.064	–0.109	0.062	0.042
	(0.082)	(0.076)	(0.083)	(0.081)	(0.086)	(0.078)	(0.087)	(0.082)
Retired	–0.106	–0.062	–0.089	–0.106	0.004	0.057	–0.121	–0.193**
	(0.092)	(0.089)	(0.090)	(0.094)	(0.086)	(0.157)	(0.090)	(0.092)
Homeowner	0.059	0.071	0.042	0.038	0.011	0.042	0.076	0.124
	(0.079)	(0.080)	(0.074)	(0.086)	(0.074)	(0.094)	(0.075)	(0.137)
House Price Expectation	0.001	0.001	–0.000	0.001	0.002	0.000	–0.000	–0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Expects Unemployment Increase	–0.123***	–0.097***	–0.116***	–0.072	–0.086**	–0.123***	–0.110***	–0.136***
	(0.034)	(0.033)	(0.033)	(0.045)	(0.033)	(0.038)	(0.039)	(0.047)
Expects Unemployment Decrease	–0.028	–0.041	–0.029	–0.004	–0.040	–0.016	–0.009	0.001
	(0.027)	(0.026)	(0.028)	(0.037)	(0.027)	(0.030)	(0.029)	(0.035)
Mean Inflation Expectation (within-subject)	–0.020	–0.043*	–0.025	–0.020	–0.020	0.023	–0.018	–0.017
	(0.021)	(0.022)	(0.022)	(0.021)	(0.024)	(0.036)	(0.021)	(0.022)
Mean Inflation Uncertainty (within-subject)	0.018	0.042	0.026	0.021	–0.005	–0.004	0.027	0.024
	(0.031)	(0.032)	(0.030)	(0.031)	(0.037)	(0.032)	(0.032)	(0.032)
Mean Log Household Income (within-subject)	0.419***	0.426***	0.431***	0.419***	0.332***	0.265**	0.414***	0.272**
	(0.113)	(0.115)	(0.116)	(0.112)	(0.112)	(0.133)	(0.114)	(0.139)
Mean Log Monthly Payments (within-subject)	–0.037	–0.033	–0.035	–0.040	–0.048	–0.055	–0.038	–0.033
	(0.040)	(0.034)	(0.041)	(0.041)	(0.039)	(0.043)	(0.040)	(0.041)
Mean Expects Interest Rate Increase (within-subject)	–0.048	0.082	–0.048	–0.037	–0.004	0.034	–0.042	–0.008
	(0.131)	(0.130)	(0.130)	(0.132)	(0.172)	(0.152)	(0.135)	(0.126)
Mean Expects Interest Rate Decrease (within-subject)	–0.739***	–0.847***	–0.738***	–0.742***	–1.023***	–0.726**	–0.729***	–0.682***
	(0.247)	(0.243)	(0.246)	(0.248)	(0.262)	(0.315)	(0.262)	(0.245)
Mean Real Wage Expectation (within-subject)	0.013*	0.017**	0.014*	0.013*	0.006	0.018	0.012*	0.009
	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.025)	(0.007)	(0.008)
Mean Wage Uncertainty (within-subject)	0.026	0.024	0.024	0.026	0.062**	0.021	0.014	0.009
	(0.026)	(0.028)	(0.026)	(0.026)	(0.030)	(0.033)	(0.028)	(0.027)
Mean No Mortgage Indicator (within-subject)	–0.134	–0.144	–0.114	–0.146	–0.188	–0.059	–0.154	–0.208
	(0.222)	(0.185)	(0.224)	(0.225)	(0.186)	(0.228)	(0.208)	(0.227)
Mean Homeowner (within-subject)	0.081	–0.016	0.099	0.093	–0.057	0.130	0.058	0.024
	(0.238)	(0.198)	(0.240)	(0.244)	(0.215)	(0.262)	(0.229)	(0.261)
Mean House Price Expectation (within-subject)	0.007	0.010	0.008	0.007	0.003	–0.002	0.008	0.009
	(0.009)	(0.008)	(0.009)	(0.009)	(0.010)	(0.010)	(0.009)	(0.009)
Mean Expects Unemployment Increase (within-subject)	0.233	0.206	0.234	0.229	0.350**	0.255	0.180	0.218
	(0.163)	(0.172)	(0.163)	(0.166)	(0.151)	(0.163)	(0.173)	(0.177)
Mean Expects Unemployment Decrease (within-subject)	–0.047	–0.155	–0.045	–0.050	0.217	0.129	–0.070	–0.002
	(0.184)	(0.155)	(0.184)	(0.184)	(0.171)	(0.223)	(0.189)	(0.177)
No College	0.020	0.040	0.018	0.050	0.054	0.147	–0.027	–0.001
	(0.090)	(0.082)	(0.091)	(0.090)	(0.079)	(0.094)	(0.098)	(0.090)
No College × Inflation Expectation	–0.000	–0.002	–0.002	–0.001	–0.011	0.006	–0.001	0.002
	(0.009)	(0.009)	(0.010)	(0.009)	(0.011)	(0.010)	(0.008)	(0.013)
No College × Inflation Uncertainty	–0.026**	–0.020*	–0.025**	–0.024**	–0.014	–0.027**	–0.015	–0.008
	(0.011)	(0.011)	(0.012)	(0.011)	(0.013)	(0.012)	(0.015)	(0.019)
Mean Log Household Income × Inflation Expectation	–0.021**	–0.017**	–0.020***	–0.019**	–0.004	–0.015	–0.010*	–0.017**
	(0.008)	(0.008)	(0.007)	(0.008)	(0.007)	(0.009)	(0.006)	(0.008)
Mean Log Monthly Payments × Inflation Expectation	–0.002	–0.002	–0.002	–0.002	–0.005*	–0.000	–0.002	–0.004

	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)	(0.003)
Mean No Mortgage Indicator × Inflation Expectation	–0.008	–0.010	–0.010	–0.006	–0.024**	–0.001	–0.006	–0.026*
	(0.014)	(0.012)	(0.014)	(0.014)	(0.012)	(0.015)	(0.009)	(0.015)
Regional Gas Price Inflation		–0.003						
		(0.004)						
Lagged Inflation Expectation			0.005					
			(0.004)					
No College × Lagged Inflation Expectation			0.007					
			(0.009)					
Lagged Inflation Uncertainty			–0.003					
			(0.014)					
No College × Lagged Inflation Uncertainty			–0.011					
			(0.019)					
No College × Expects Unemployment Increase				–0.120*				
				(0.072)				
No College × Expects Unemployment Decrease				–0.049				
				(0.056)				
Constant	7.651***	7.178***	7.678***	7.649***	7.305***	7.513***	7.763***	7.508***
	(0.439)	(0.431)	(0.443)	(0.443)	(0.451)	(0.514)	(0.443)	(0.456)
Correlated Random Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chi^2	1224.80	1544.41	1646.35	1239.84	1978.49	1714.40	1291.33	1060.47
P Value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sample Size	2010	1984	2010	2010	1721	1790	1928	1431

Standard errors in parentheses
Note: Model (1) is unaltered.
Model (2) includes gas price inflation and regional controls. Regional controls are omitted.
Model (3) includes the lagged inflation expectation and lagged inflation uncertainty and their interactions with the no college indicator.
Model (4) includes the interactions of the unemployment expectations indicators with the no college indicator.
Model (5) restricts to the overlap sample between the durables and nondurables samples.
Model (6) restricts to households in the nondurables sample with more than 7 observations.
Model (7) excludes months with outlier median inflation expectations: June 2010, March 2011, September 2011, February 2012.
Model (8) excludes observations from 2012, in which the nondurable sample's spending patterns were most different from the CES.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A20: Full Specification for Table A10, Real Nondurable Goods Spending vs. Year-Ahead Expectations, Mortgagor Sample, GEE estimation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Inflation Expectation	0.027	0.030	0.036	0.020	0.023	0.013	0.032	0.023
	(0.021)	(0.021)	(0.023)	(0.019)	(0.021)	(0.020)	(0.022)	(0.024)
Inflation Uncertainty	0.021	0.019	0.022	0.015	0.028*	0.024*	0.022*	0.012
	(0.013)	(0.014)	(0.014)	(0.012)	(0.015)	(0.014)	(0.013)	(0.017)
Mortgage Balance (Log)	0.050	0.055	0.049	0.135***	0.055	0.053	0.052	0.266***
	(0.049)	(0.051)	(0.048)	(0.034)	(0.046)	(0.053)	(0.051)	(0.096)
Household Income (Log)	0.012	-0.023	0.011	-0.114	-0.003	0.004	0.026	0.221
	(0.137)	(0.144)	(0.142)	(0.101)	(0.135)	(0.149)	(0.135)	(0.174)
Monthly Payments (Log)	-0.009	-0.011	-0.002	-0.014	-0.016	0.009	-0.023	-0.038
	(0.033)	(0.034)	(0.035)	(0.034)	(0.033)	(0.027)	(0.039)	(0.037)
Expects Interest Rate Increase	0.112***	0.107***	0.114***	0.111***	0.106**	0.105**	0.114***	0.117**
	(0.043)	(0.040)	(0.042)	(0.036)	(0.043)	(0.043)	(0.044)	(0.055)
Expects Interest Rate Decrease	0.103	0.098	0.093	0.085	0.088	0.114	0.099	0.087
	(0.073)	(0.073)	(0.070)	(0.065)	(0.072)	(0.093)	(0.071)	(0.078)
Real Wage Expectation	0.009	0.009	0.010	0.009	0.009	0.009	0.010	0.008
	(0.007)	(0.006)	(0.007)	(0.006)	(0.008)	(0.009)	(0.007)	(0.006)
Wage Uncertainty	-0.002	-0.001	-0.004	0.000	-0.005	0.000	-0.004	-0.005
	(0.011)	(0.011)	(0.011)	(0.009)	(0.013)	(0.011)	(0.011)	(0.011)
Age	-0.006	-0.004	-0.005	-0.003	-0.001	-0.004	-0.007	-0.007
	(0.008)	(0.008)	(0.008)	(0.008)	(0.007)	(0.008)	(0.008)	(0.008)
Non-White	0.067	0.146	0.073	0.051	0.205*	0.119	0.067	0.081
	(0.128)	(0.176)	(0.131)	(0.146)	(0.112)	(0.168)	(0.127)	(0.130)
Female	0.206**	0.189**	0.205**	0.255***	0.209***	0.006	0.208**	0.186**
	(0.087)	(0.091)	(0.090)	(0.093)	(0.075)	(0.115)	(0.087)	(0.090)
Retired	0.145	0.186	0.131	0.146	0.157	-0.120	0.143	0.130
	(0.128)	(0.153)	(0.127)	(0.141)	(0.125)	(0.151)	(0.129)	(0.143)
House Price Expectation	0.000	0.001	0.000	-0.001	-0.000	-0.000	0.001	0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Expects Unemployment Increase	-0.128**	-0.130**	-0.128**	0.013	-0.151**	-0.127*	-0.122**	-0.092
	(0.064)	(0.065)	(0.063)	(0.042)	(0.063)	(0.074)	(0.062)	(0.065)
Expects Unemployment Decrease	0.001	0.001	0.002	0.013	0.003	-0.013	0.006	0.032
	(0.047)	(0.047)	(0.048)	(0.042)	(0.046)	(0.057)	(0.047)	(0.042)
Mean Inflation Expectation (within-subject)	-0.075**	-0.069**	-0.067**	-0.098***	-0.104***	-0.088***	-0.073**	-0.075**
	(0.031)	(0.028)	(0.031)	(0.032)	(0.029)	(0.032)	(0.031)	(0.030)
Mean Inflation Uncertainty (within-subject)	0.108***	0.110***	0.103***	0.142***	0.098***	0.075**	0.106***	0.122***
	(0.033)	(0.033)	(0.033)	(0.037)	(0.029)	(0.035)	(0.034)	(0.036)
Mean Log Mortgage Balance (within-subject)	-0.043	-0.079	-0.039	-0.183***	0.006	-0.112	-0.042	-0.228***
	(0.054)	(0.067)	(0.054)	(0.057)	(0.058)	(0.069)	(0.055)	(0.085)
Mean Log Household Income (within-subject)	0.472***	0.537***	0.468***	0.608***	0.470***	0.549***	0.461***	0.241
	(0.153)	(0.167)	(0.164)	(0.131)	(0.145)	(0.176)	(0.151)	(0.183)
Mean Log Monthly Payments (within-subject)	0.071	0.089	0.061	0.112	0.029	0.008	0.074	0.098
	(0.069)	(0.069)	(0.066)	(0.080)	(0.070)	(0.057)	(0.067)	(0.071)
Mean Expects Interest Rate Increase (within-subject)	0.255**	0.233*	0.241**	0.360***	0.230*	0.362***	0.249**	0.227**
	(0.115)	(0.123)	(0.113)	(0.125)	(0.118)	(0.118)	(0.114)	(0.115)
Mean Expects Interest Rate Decrease (within-subject)	-0.870***	-0.852***	-0.850***	-0.835**	-1.238***	-0.093	-0.847***	-0.810***
	(0.331)	(0.315)	(0.327)	(0.357)	(0.285)	(0.383)	(0.317)	(0.313)
Mean Real Wage Expectation (within-subject)	-0.006	-0.002	-0.007	-0.008	-0.018	-0.035	-0.008	-0.005
	(0.014)	(0.015)	(0.014)	(0.016)	(0.016)	(0.022)	(0.015)	(0.014)
Mean Wage Uncertainty (within-subject)	0.006	0.004	0.007	-0.006	0.028	0.034	0.007	0.013
	(0.030)	(0.037)	(0.030)	(0.033)	(0.028)	(0.037)	(0.031)	(0.032)
Mean House Price Expectation (within-subject)	-0.009	-0.013	-0.009	0.002	-0.007	-0.018	-0.010	-0.010
	(0.013)	(0.015)	(0.013)	(0.013)	(0.012)	(0.015)	(0.013)	(0.013)
Mean Expects Unemployment Increase (within-subject)	-0.311	-0.347	-0.325	-0.297	0.038	-0.532***	-0.329	-0.333
	(0.226)	(0.218)	(0.224)	(0.233)	(0.206)	(0.200)	(0.231)	(0.248)
Mean Expects Unemployment Decrease (within-subject)	0.039	0.054	0.041	-0.022	0.079	-0.227	0.045	0.016
	(0.158)	(0.156)	(0.154)	(0.177)	(0.135)	(0.192)	(0.158)	(0.166)
No College	-0.112	-0.114	-0.118	-0.008	-0.036	-0.064	-0.155	-0.188
	(0.114)	(0.118)	(0.118)	(0.103)	(0.112)	(0.134)	(0.119)	(0.125)
No College × Inflation Expectation	-0.010	-0.013	-0.015	-0.009	-0.002	-0.021	-0.012	-0.019
	(0.021)	(0.022)	(0.022)	(0.020)	(0.022)	(0.021)	(0.022)	(0.027)
No College × Inflation Uncertainty	0.005	0.008	0.007	0.016	-0.008	0.007	0.015	0.037
	(0.020)	(0.021)	(0.022)	(0.020)	(0.022)	(0.022)	(0.031)	(0.037)
Mean Log Mortgage Balance × Inflation Expectation	0.025**	0.025**	0.027**	0.035***	0.021*	0.023**	0.027**	0.007
	(0.011)	(0.011)	(0.011)	(0.011)	(0.012)	(0.010)	(0.011)	(0.013)
Mean Log Household Income × Inflation Expectation	0.017	0.017	0.022	-0.005	0.021	0.010	0.020	0.012
	(0.015)	(0.015)	(0.019)	(0.013)	(0.014)	(0.017)	(0.016)	(0.019)
Mean Log Monthly Payments × Inflation Expectation	-0.028*	-0.029*	-0.035*	-0.023	-0.033*	-0.013	-0.032*	-0.019
	(0.017)	(0.016)	(0.018)	(0.016)	(0.019)	(0.017)	(0.017)	(0.016)
Regional Gas Price Inflation		-0.009						

		(0.011)						
Lagged Inflation Expectation			-0.010					
			(0.010)					
No College × Lagged Inflation Expectation			0.011					
			(0.022)					
Lagged Inflation Uncertainty			0.004					
			(0.014)					
No College × Lagged Inflation Uncertainty			0.006					
			(0.025)					
No College × Expects Unemployment Increase				-0.532***				
				(0.076)				
No College × Expects Unemployment Decrease				-0.061				
				(0.078)				
Constant	7.229***	7.022***	7.245***	6.960***	6.695***	7.298***	7.334***	7.320***
	(0.459)	(0.578)	(0.457)	(0.461)	(0.479)	(0.518)	(0.456)	(0.453)
Correlated Random Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Chi^2	1468.69	1710.16	1495.11	1559.56	3341.76	4151.33	1365.74	851.82
P Value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sample Size	579	579	579	579	518	507	562	479

Standard errors in parentheses
Note: Model (1) is unaltered.
Model (2) includes gas price inflation and regional controls. Regional controls are omitted.
Model (3) includes the lagged inflation expectation and lagged inflation uncertainty and their interactions with the no college indicator.
Model (4) includes the interactions of the unemployment expectations indicators with the no college indicator.
Model (5) restricts to the overlap sample between the durables and nondurables samples.
Model (6) restricts to households in the nondurables mortgagor sample with more than 4 observations.
Model (7) excludes months with outlier median inflation expectations: June 2010, March 2011, September 2011, February 2012.
Model (8) excludes observations from 2012, in which the nondurable sample's spending patterns were most different from the CES.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix J. Survey Information

Survey questions eliciting household spending (RAND-ALP Financial Crisis Surveys, 2009-2012)

1. ***Spending on durable goods (elicited at a quarterly frequency in most cases):***

"The next questions are about categories of spending that households tend to have less frequently. We would like to know what your household paid - if anything - for any of these items over the last 3 calendar months." [fill for timeframe].

"Did your household, that is, you or anyone living with you, purchase any of the following items over the last 3 calendar months [fill for timeframe]? Please check all that apply.

1. Automobile or truck
2. Refrigerator
3. Stove and/or oven
4. Washing machine and/or dryer
5. Dishwasher
6. Television
7. Computer
8. None of the above

For each item indicated, subject received a follow-up question specific to each item: What was the purchase price of [e.g. refrigerator].

Also polled at a quarterly frequency and included in our durables spending totals:

Combined spending on any of the following items: "household furnishings and equipment: such as furniture, floor coverings, small appliances, miscellaneous household equipment"

"Durable goods spending" variable constructed as: sum of prices of big-ticket items above, plus reported total spending on household furnishings.

2. ***Spending on nondurable goods, services, and other items elicited at a monthly frequency.***

Spending on these items was elicited using a series screens with a grouped set of related spending categories. The actual screen shot for the first group of items is shown below (from Hurd and Rohwedder 2012). For the remaining groups we show tables that list the items in each group, although the actual screen shots would look like the example. The spending categories that are included in our "nondurable goods and services" spending total are indicated in Table A above. Note that spending on "other transportation expenses" was introduced in November 2010.

Mortgage, rent, utilities, car

Please, provide your best estimate of how much in total your household spent in the following categories. Please include spending by all members of your household, that is, by you or anyone living with you. Even if the amount your household spent last calendar month was unusual, please report that amount.

	Amount spent last month			No money spent on this last month
Mortgage	$	.00	**OR**	☐
Rent	$	.00	**OR**	☐
Electricity	$	.00	**OR**	☐
Water	$	.00	**OR**	☐
Heating fuel for the home	$	.00	**OR**	☐
Telephone, cable, internet	$	.00	**OR**	☐
Car payments: *interest & principle*	$	.00	**OR**	☐

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Screen 1:

Mortgage: interest & principal
Rent
Electricity
Water
Heating fuel for the home
Telephone, cable, Internet
Car payments: interest and principal

Screen 2:

Food and beverages: food and drinks, including alcoholic, that you buy in grocery or other stores
Dining and/or drinking out: items in restaurants, cafes, bars and diners, including take-out food
Gasoline
Other transportation expenses: parking, tolls, public transport, taxi and similar (please exclude spending on trips and vacations)

Screen 3:

Housekeeping supplies: cleaning and laundry products
Housekeeping, dry cleaning and laundry services: hiring costs for housekeeping or home cleaning, and amount spent at dry cleaners and laundries
Gardening and yard supplies: yard, lawn and garden products
Gardening and yard services: hiring costs including materials they provided

Screen 4:

Clothing and apparel: including footwear, outerwear, and products such as watches or jewelry
Personal care products and services: including hair care, shaving and skin products, amount spent at hair dresser, manicure, etc.
Prescription and nonprescription medications: out-of-pocket cost, not including what's covered by insurance
Health care services: out-of-pocket cost of hospital care, doctor services, lab tests, eye, dental, and nursing home care
Medical supplies: out-of-pocket cost, not including what's covered by insurance

Screen 5:

Entertainment: tickets to movies, sporting events, performing arts, etc
Sports: including gym, exercise equipment such as bicycles, skis, boats, etc.
Hobbies and leisure equipment: such as photography, stamps, reading materials, camping, etc.

Screen 6:

Personal services: including cost of care for elderly and/or children, after-school activities
Education: including tuition, room and board, books and supplies
Other child or pet-related spending, not yet reported: including toys, gear, | equipment and veterinarian

3. ***Inflation expectations and other economic expectations: (RAND-ALP New York Fed mini modules 2009-2012):***

Source URL for economic expectations codes (landing page):

https://alpdata.rand.org/index.php?page=data&p=showmodule&syid=108&meid=9

The introduction text to the **inflation expectations** elicitation table reads as follows:

"Now we would like you to think about the percent chance that different things may happen to prices in general during the next 12 months. The percent chance can be thought of as the number of chances out of 100. You can use any number between 0 and 100. For example, numbers like: 2 and 5 percent may be 'almost no chance,' 20 percent or so may mean 'not much chance,' a 45 or 55 percent chance may be a 'pretty even chance,' 80 percent or so may mean a 'very good chance,' and a 95 or 98 percent chance may be 'almost certain.'"

Then the actual elicitation looks as follows:

"During the next 12 months, what do you think is the percent chance that prices in general will:

go up by 12% or more	_____ percent chance
go up by 8–12%	_____ percent chance
go up by 4–8%	_____ percent chance
go up by 2–4%	_____ percent chance
go up by 0–2%	_____ percent chance
go down by 0–2%	_____ percent chance
go down by 2–4%	_____ percent chance
go down by 4–8%	_____ percent chance
go down by 8–12%	_____ percent chance
go down by 12% or more	_____ percent chance
	100% total.

Please note: The numbers need to add up to 100 percent."

[If responses do not add up to 100%, respondent sees message:]

"Your total adds up to [x%]. Please go back and change the numbers in the table so they add up to 100 percent or choose next to continue."

Wage-growth expectations:

Distributional elicitation: "Suppose again that, 12 months from now, you actually are working in the exact same [MAIN] job at the same place you currently work, and working the exact same number of hours. In your view, what would you say is the percent chance that 12 months from now the following things will have happened to your [hour/day/week/two weeks/month/year] earnings on this job, before taxes and other deductions: Please note: The numbers need to add up to 100%."[1]

gone up by 12% or more	_____ percent chance
gone up by 8–12%	_____ percent chance
gone up by 4–8%	_____ percent chance
gone up by 2–4%	_____ percent chance
gone up by 0–2%	_____ percent chance
gone down by 0–2%	_____ percent chance
gone down by 2–4%	_____ percent chance
gone down by 4–8%	_____ percent chance
gone down by 8–12%	_____ percent chance
gone down by 12% or more	_____ percent chance
	100% total.

[If responses do not add up to 100%, respondent sees message:]

"Your total adds up to [x%]. Please go back and change the numbers in the table so they add up to 100 percent or choose next to continue."

House price expectations:

Subjects were first asked: "Twelve months from now, do you expect the average home price nationwide to be higher, lower, or the same as now?"

Subjects who responded either "higher" or "lower" received the follow-up question: "In percentage terms, how much [higher/lower] do you expect the average home price to be twelve months from now?"

Interest rate expectations:

Dataset label	INTEREST RATES NEXT 12 MONTHS
Question text	No one can say for sure, but what do you think will happen to interest rates for borrowing money during **the next 12 months** -- will they go up, stay the same, or go down?
Answer type	**Enumerated**: 1 Go up 2 Stay the same 3 Go down

[1] The text says "Suppose again…" because the same supposition was posed in a previous question in the same survey. Previous questions also asked the number of jobs and defined the "main" job as the one in which the respondent usually worked the most hours.

Unemployment expectations:

Dataset label	UNEMPLOYMENT COMING 12 MONTHS
Question text	How about people out of work during **the coming 12 months** -- do you think that there will be more unemployment than now, about the same, or less?
Answer type	**Enumerated**: 1 More unemployment 2 About the same 3 Less unemployment

4. ***Control variables (RAND-ALP New York Fed mini-modules and RAND-ALP Financial Crisis Surveys, 2009-2012)***

Sociodemographic factors (education, income, etc.), from New York Fed mini-modules: https://alpdata.rand.org/index.php?page=data&p=showmodule&syid=108&meid=2

Household income, part 1:

Dataset label	FAMILY INCOME
Question text	Which category represents the total combined income of all members of your family (living here) during the past 12 months? This includes money from jobs, net income from business, farm or rent, pensions, dividends, interest, social security payments and any other money income received by members of your family who are 15 years of age or older.
Answer type	**Enumerated**: 1 Less than $5,000 2 $5,000 to $7,499 3 $7,500 to $9,999 4 $10,000 to $12,499 5 $12,500 to $14,999 6 $15,000 to $19,999 7 $20,000 to $24,999 8 $25,000 to $29,999 9 $30,000 to $34,999 10 $35,000 to $39,999 11 $40,000 to $49,999 12 $50,000 to $59,999 13 $60,000 to $74,999 14 $75,000 or more

Household income, part 2:

Dataset label	HIGHER INCOME FOLLOW UP CATEGORIES
Question text	You told us that the total combined income of all members of your family (living here) during the preceding 12 months was more than $75,000. Thinking about the total combined income of your family from all sources, approximately how much did members of your family receive during the previous 12 months?
Answer type	**Enumerated**: 1 $75,000-$99,999 2 $100,000-$124,999 3 $125,000-$199,999 4 $200,000 or more

Homeownership, mortgagor status, mortgage balance (from RAND-ALP financial crisis surveys):

"Do you own the home in which you live?" Y/N

"Do you owe any money on your home?" Y/N

"How much money in total do you owe on your home? Please include any mortgages and any other loans taken out against the value of your home."

Dataset label	total money owed on home
Question text	How much money in total do [] owe on your home? Please include any mortgages and any other loans that you have taken out against the value of your home.
Answer type	**Integer**

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