# Heterogeneity of Economic Expectations - Dissecting the Role of Socioeconomic Status

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## Abstract

Economic decisions depend on economic expectations. Using Hungarian monthly survey data between 2000 and 2009, we show that the relationship between expectations (both at the macroeconomic and household levels) and socioeconomic status (SES), as represented by income rank and education level, is non-linear. In many instances, there is no significant difference in expectations between the two lower quintiles. However, individuals in the upper (fourth and top) quintiles exhibit significantly more positive expectations than those in the lower quintiles. There is also a clear difference in expectations between the fourth and the top quintiles. In terms of education level, individuals with a high-school degree have significantly more positive expectations compared to their peers without one. Significant differences in economic expectations are also observed between high-school graduates and individuals with a university diploma, particularly regarding inflation, savings expectations, and the assessment of the household's future financial situation. Disparities in household-level expectations based on SES are more pronounced than those in macroeconomic expectations. Past experiences and household-level optimism seem to be key factors influencing macroeconomic expectations. Furthermore, we document that both macroeconomic and household-level expectations predict the intention for significant expenditures, even after controlling for SES variables.

*Keywords:* Education, Household-level expectations, Income,

Macroeconomic expectations, Socioeconomic Status
*JEL:* D12, D14, D84, G11

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## 1. Introduction

Important economic decisions such as consumption, saving, and investment, are shaped by individuals' expectations regarding future macroeconomic conditions. A growing body of literature indicates a substantial heterogeneity in these expectations, which are closely associated with socio-demographic characteristics. For example, Dominitz and Manski (2004) analyze the Michigan Index of Consumer Sentiment, and find that macroeconomic expectations correlate negatively with age, with males tending to be more optimistic, and higher levels of education being associated with more positive expectations. In the same vein, Das et al. (2020) report significant correlations between socioeconomic status (SES) and macroeconomic expectations, including economic outlook, business conditions, unemployment, and stock returns. Notably, higher income or higher education levels are generally associated with more favorable expectations. Similar patterns have been observed regarding inflation expectations where findings show that females, individuals with lower levels of education, and those with lower income tend to hold consistently higher inflation expectations (Lombardelli, 2003; Blanchflower and MacCoille, 2009; Bruine de Bruin et al., 2010; Angelico and Di Giacomo, 2019; D'Acunto et al., 2021b).

Furthermore, differences in macroeconomic expectations contribute to disparities in investment and consumption patterns among individuals with different socioeconomic statuses, even after accounting for socio-demographic characteristics. Positive macroeconomic expectations are associated with a greater propensity to contemplate purchasing homes, durable goods, or cars (Carroll and Dunn, 1997; Das et al., 2020; Roth and Wohlfart, 2020; Hanspal et al., 2021). Higher inflation expectations often prompt individuals to advance their consumption (Bachmann et al., 2015; D'Acunto et al., 2019a, 2022a), increase their expenditure on durable goods (D'Acunto et al., 2016; D'Acunto et al., 2018), and save less (Vellekoop et al., 2019). These patterns highlight the impact of macroeconomic expectations on decision-making and the potential consequences for economic outcomes among different socioeconomic groups.

In this study, we build upon previous findings of the literature about the association between macroeconomic expectations and SES in three ways.

First, in the study closest to ours, Das et al. (2020) find a sizable and persistent difference in macroeconomic expectations between individuals in the lowest and highest quintiles of the income distribution, as well as between those with and without a university degree.[2] Our analysis seeks to provide a more nuanced approach by examining all income quintiles to see if differences in the association between the quintiles and expectations are similar or uneven. In their regression analysis, Das et al. (2020) assume a linear relationship between income quintiles and economic expectations. However, our descriptive analysis indicates a possible non-linear association. In order to analyze this, and to conduct our analysis without the imposing of linear connection, we utilize quintile dummies to account for potential non-linearities. Regarding education, contrary to the binary distinction (diploma vs. no diploma) in Das et al. (2020), we provide a more detailed investigation by considering three education levels: individuals without a high-school degree, those with a high-school degree, and those with a university diploma. Our aim is to find out where exactly on the education ladder the differences in expectations materialize. Second, while most previous studies, including Das et al. (2020), primarily focus on expectations at the macroeconomic level, we extend our analysis to thoroughly examine household-level expectations. Third, we examine the role of two factors identified in the literature through which SES may influence expectations: personal experience and optimism. We use respondents' assessment of their own household's financial situation over the previous 12 months as a proxy for personal experience. Additionally, we utilize household-level expectations as a proxy to capture optimism, which represents another potential factor underlying the relationship between SES and macroeconomic expectations.

Apart from gaining a deeper understanding of the relationship between socioeconomic status and macroeconomic expectations, in line with the existing literature, we also investigate whether these expectations influence economic decisions. Specifically, we examine the role of these expectations in shaping the intention to purchase durable goods such as homes and cars, as well as the decision to spend a substantial amount of money on home improvement.

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[2]Similarly, Bruine de Bruin et al. (2010) use a simple distinction based on the median split to investigate the relationship between inflation expectation and income/education, reporting a negative association.

In line with Das et al. (2020), we find that macroeconomic expectations differ significantly between the top and the bottom income quintiles, and also between individuals without a high-school degree and those with a university diploma. In addition, we document important non-linearities. Regarding income quintiles, individuals in the upper (that is, fourth and top) quintiles hold significantly more positive macroeconomic expectations than those in the lower quintiles. The bottom two quintiles - and in some cases, the bottom three - however, are not significantly different from each other. Additionally, there is a significant difference in expectations between individuals in the fourth and the top quintiles. Imposing linearity yields that income quintile has a significant and positive coefficient, similarly to Das et al. (2020), but our analysis reveals that the picture is more nuanced, with no obvious differences in the lower quintiles, but clear disparities at the higher and lower end. This nuanced understanding is further validated by additional analysis, specifically running regressions on a more granular, decile-by-decile level.

Turning to education levels, we offer a more detailed analysis than Das et al. (2020) by considering three categories: individuals with less than a high-school degree, those with a high-school degree, and those with a university diploma, as opposed to their binary classification of without/with a university diploma. We find significant differences in economic expectations between those without and with a high-school degree in several cases, indicating that this distinction matters. Individuals with a high-school degree hold significantly more positive economic expectations than their counterparts without it. Differences in macroeconomic expectations between individuals with a high-school degree and with a university diploma only materialize in inflation expectations, suggesting that disparities in macroeconomic expectations are more pronounced at the lower end of the educational spectrum.

Our study significantly contributes to the literature by offering a more comprehensive analysis of the link between socio-economic status and expectations. Since the introduction of the Phillips curve, economists have recognized the impact of expectations on various economic indicators, such as inflation. Consequently, understanding the heterogeneous effects of expectations on consumer sentiment holds substantial importance for policymakers. Furthermore, we broaden the scope of our analysis by incorporating household-level expectations. When considering income quintiles, we observe a similar pattern to macroeconomic expectations, but the differences in household-level expectations (especially, for saving expectations) seem to be more noticeable. In terms of education levels, there are clear differences

in household-level expectations between education levels: higher levels of education are associated with more positive expectations.

In addition, we investigate the role of two factors that have been identified in the literature as potential determinants of macroeconomic expectations: personal experiences (specifically, experiences of recessions and events in the past year) and optimism (proxied by household-level expectations). Consistent with findings in Das et al. (2020), we observe that during recessions, the gaps in macroeconomic expectations decrease when considering education levels. However, we do not find a similar pattern when analyzing income quintiles. Macroeconomic expectations are positively associated with experiences during the past year and also with household-level expectations. Furthermore, when examining household-level expectations, we find that during recessions the differences in expectations diminish when considering income quintiles (but not when investigating education levels). Experiences from the past year have a significant and positive influence on household-level expectations.

Finally, our findings indicate a robust association between macroeconomic and household-level expectations and economic decisions, such as the intention to purchase a home or a car, as well as the intent to spend on home improvement. Importantly, these associations remain significant in most cases even after controlling for socioeconomic variables, suggesting that these expectations play a crucial role beyond their socioeconomic determinants. Therefore, the heterogeneity in expectations is relevant, because low-SES households make different choices compared to their high-SES counterparts. As a consequence, economic policy should take into account the heterogeneity of expectations and how those expectations shape economic decisions across the socioeconomic spectrum.

The remainder of the study is organized as follows. In section 2, we review the existing literature on expectations and their connection with SES, and summarize the mechanisms through which SES can affect macroeconomic and household-level expectations. In section 3, we present the data used for our analysis. Section 4 contains the results, and section 5 concludes.

## 2. Literature Review

In this section, first, we review the most relevant literature on how SES is associated with expectations and how those expectations shape economic decisions. Second, we briefly summarize the mechanisms behind the association

between SES and expectations.

There is a growing body of literature documenting a significant relationship between SES and inflation expectations. Individuals with lower levels of education and income tend to have higher inflation expectations as supported by data from the UK (Lombardelli, 2003; Blanchflower and MacCoille, 2009), the US (Bryan et al., 2001; Bruine de Bruin et al., 2010; Angelico and Di Giacomo, 2019), the European Union (D'Acunto et al., 2022b), or South Africa (Reid et al., 2021).[3] Moreover, individuals tend to act upon their inflation expectations. Higher inflation expectations predict higher current consumption (Burke and Ozdagli, 2014; Bachmann et al., 2015; Ichiue and Nishiguchi, 2015; D'Acunto et al., 2021; Dräger and Nghiem, 2021; Binder and Brunet, 2022). However, this relationship often holds only for specific subsets of individuals. Specifically, the link between inflation expectations and consumer spending is stronger for individuals with more accurate expectations (Bachmann et al., 2015), better cognitive abilities (D'Acunto et al., 2021), more assets (Ichiue and Nishiguchi, 2015), higher education (Burke and Ozdagli, 2014), more income (Coibion et al., 2022). Similarly, inflation expectations often correlate with savings (Arnold et al., 2014; Premik and Stanisławska, 2017; Vellekoop et al., 2019; D'Acunto et al., 2019b): higher inflation expectations are associated with lower levels of savings. In addition, individuals with higher inflation expectations tend to choose fixed-rate mortgage contracts over adjustable-rate ones (Botsch et al., 2020). Experimental evidence (Armantier et al., 2015) also supports the notion that individuals act upon their inflation expectations, although this relationship does not hold for individuals with lower levels of education.

Interestingly, there is a limited amount of literature available on the relationship between macroeconomic expectations (other than inflation) and SES. The study closest to ours is Das et al. (2020) that uses data from the Michigan Survey of Consumers from 1978 to 2014 with about 400 respondents each month to investigate how income rank and having a university diploma are associated with different forms of macroeconomic expectations, including the probability of stock market gain, business conditions in the next 12 months or 5 years, unemployment. Through OLS regressions the study

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[3]The only exception is Jonung (1981) which uses Swedish data and finds that individuals with higher income have higher inflation expectations (in an economy that experienced high inflation at the time).

shows that both income rank and a university diploma are highly significant predictors of all the studied expectations, even after controlling for factors such as age, gender, marital status, and recession. Additionally, instrumental variable regressions reveal that the optimism captured by the expectations is positively and significantly associated with household choices, such as investment decisions and intentions to purchase a home, durable goods, or a car, even when considering income rank and having a university diploma. In line with Das et al. (2020), Dominitz and Manski (2004) also document that respondents with higher education tend to have more positive expectations about the economic outlook. However, a related study by Roth and Wohlfart (2020) does not find a significant association between recession expectations and education/income.

Macroeconomic expectations may be intricately related. According to the Euler equation, higher inflation expectations should lead to increased current spending. However, higher inflation expectations may make individuals more pessimistic about the overall economic outlook and their future income that, in turn, may result in precautionary savings and reduced current consumption, as shown in Coibion et al. (2019). This finding suggests that it is advisable to study macroeconomic expectations together (rather than solely focusing, for instance, on inflation expectations), as we do in this study.

We turn now to review the main mechanisms behind the relationship between SES and macroeconomic expectations. First, SES can be related to economic or financial optimism, which in turn may be associated with macroeconomic expectations. Evidence is provided by Brown and Taylor (2006) who report a positive correlation between education and financial optimism, assessed through the question 'Looking ahead, how do you think you will be financially a year from now?'. This is an individual-level assessment that according to the authors synthesizes elements of individual factors (e.g. salary, job prospects) and also elements of a broader economic outlook, demonstrating the intertwined nature of economic/financial optimism and macroeconomic expectations. Experimental evidence also supports this mechanism. Studies by Kuhnen and Miu (2017) and Das et al. (2020) indicate that individuals from lower socioeconomic backgrounds tend to exhibit more pessimism regarding the payoff distribution of risky assets. In this study, we proxy optimism by household-level expectations concerning the economic situation within the next 12 months.

Second, systematic differences in personal experiences and characteristics

also contribute to the link between SES and the heterogeneity of macroeconomic expectations. Past experiences about unemployment, changes in net worth, or prices paid in the grocery store may shape macroeconomic expectations (Malmendier and Nagel, 2011, 2016; Kuchler and Zafar, 2019; D'Acunto et al., 2021a). Additionally, personal characteristics including economic preferences, financial literacy, and the length of one's financial planning horizon can also influence macroeconomic expectations (Zikmund-Fisher and Parker, 1999; Lusardi and Mitchell, 2011; Van Rooij et al., 2012; Li and Huang, 2020).[4] As a proxy to account for past experiences, our data include self-assessments of changes in the household's economic situation in the past year. By using these data we can (at least partially) take into account personal experiences.

If, after accounting for household-level optimism and/or personal experiences the relationship between SES and macroeconomic expectations weakens or vanishes, it suggests that the related factor is behind the association.

Similarly to optimism and personal experiences, there may be other omitted variables that act as confounders in the relationship between SES and macroeconomic expectations. IQ may be such a confounder as it correlates with a host of factors such as financial decision-making (Grinblatt et al., 2011, 2012; Agarwal and Mazumder, 2013; Grinblatt et al., 2016), or economic preferences (Burks et al., 2009; Falk et al., 2018) that are related to both SES and macroeconomic expectations. Moreover, IQ is directly associated to educational attainment (Neisser et al., 1996; Herrnstein and Murray, 2010), SES (Hackman and Farah, 2009; Larson et al., 2015) and expectations (D'Acunto et al., 2021). Exogenous shocks, such as the COVID-19 pandemic or recessions may also impact households of different SES differently. Furthermore, these shocks may also affect expectations in a diverse manners (Das et al., 2020; Binder, 2020). Overall, it is important to acknowledge that omitted variables remain a challenge. To the extent that these omitted variables correlate with optimism and personal experiences, we control for those omitted variables. It also implies that through the correlations those factors pick up the effect of the omitted variables.

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[4]Similarly, media consumption may play some role in expectation formation, and if individuals with different SES have distinct news consumption habits, it could lead to heterogeneous expectations. However, the literature generally finds no (Coibion et al., 2020) or only a small effect (Dräger, 2015), so media consumption is less likely to be the prime driver of divergent inflation expectations according to SES.

## 3. Data

In our study, we utilize survey data obtained from GKI Economic Research Co. GKI has been conducting monthly household surveys since 1993, employing EU methodology to analyze the economic expectations of the Hungarian population (GKI, 2022). The database contains pooled cross-sectional data. GKI provided monthly observations from June 2000 until the end of 2009.

The survey contains information on the expectations regarding three macroeconomic variables, as outlined in Table 2. The first variable is about the expected evolution of the general macroeconomic outlook of the country in the next 12 months (referred to as ECON-macro). The second variable concerns inflation expectations for the upcoming 12 months (denoted as INF). The third variable captures expectations about the evolution of unemployment over the next 12 months (referred to as UNEMP). In the survey, responses were coded on a scale ranging from -2 to +2, where -2 corresponds to "it will be much worse", 0 represents "will remain approximately the same", and +2 indicates "it will improve significantly".

The survey also includes household-level expectations. Respondents provide their expectations regarding the economic situation of their household in the next 12 months (referred to as ECON-hh). The survey also queries respondents about their household's ability to save during the upcoming 12 months (denoted as SAV). Furthermore, there is a question regarding the household's ability to purchase durable goods in the following year (referred to as DUR). For these questions, respondents were presented with various response options, including: 'will improve considerably' (+2), 'will improve somewhat' (+1), 'no change expected' (0), 'will worsen somewhat' (-1), and 'will worsen considerably' (-2).

Apart from the previous items, the survey also captures respondents' purchase intentions. Therefore, we know whether the household intends to purchase a car or a home, as well as whether they plan to make significant expenditures on their house (denoted as CAR/HOME/HOME-exp, respectively). Finally, the subjects were asked whether it is worth buying durables at the time of the question asked (DUR-worth). When inquiring about intentions, the available options were 'for certain' (+2), 'probably' (+1), 'probably not' (-1), and 'certainly not' (-2). The option of zero (0) was excluded from the choices by the pollster.

Similarly to Das et al. (2020), we calculate our own macroeconomic expec-

tation index. We create an index for macroeconomic expectations (referred to as OPT-macro) by taking the average of the expectations regarding the change in the general economic outlook, unemployment, and inflation levels. Hence, OPT-macro = (ECON-macro + INF + UNEMP)/3. We also compute a household-level expectation index (referred to as OPT-hh) based on the expectations concerning the household's economic prospect in the next 12 months (denoted as ECON-hh), the household's perceived ability to save in the upcoming 12 months (referred to as SAV), and the household's ability to purchase durables (denoted as DUR). Hence, OPT-hh = (ECON-hh + SAV + DUR) / 3.

Table 1: Summary statistics of key variables

| Statistic | N | Mean | St. Dev. | Min | Pctl(25) | Median | Pctl(75) | Max |
|---|---|---|---|---|---|---|---|---|
| Age | 75,713 | 46.285 | 17.132 | 17 | 32 | 46 | 59 | 99 |
| Household Income | 75,716 | 114,667 | 115,361 | 0 | 66,000 | 100,000 | 150,000 | 12,000,000 |
| Quintile 1 | 14,647 | 32,092 | 23,042 | 0 | 1,000 | 38,000 | 50,000 | 92,000 |
| Quintile 2 | 15,014 | 74,185 | 13,592 | 35,000 | 65,000 | 75,000 | 84,000 | 110,000 |
| Quintile 3 | 15,187 | 101,406 | 19,067 | 56,000 | 90,000 | 100,000 | 116,000 | 150,000 |
| Quintile 4 | 15,382 | 135,514 | 27,991 | 75,000 | 120,000 | 140,000 | 150,000 | 210,000 |
| Quintile 5 | 15,486 | 224,313 | 206,371 | 100,000 | 170,000 | 200,000 | 250,000 | 12,000,000 |
| Has University Diploma | 8,437 | 12.1% | | | | | | |
| Has High-School Degree | 8,135 | 11.7% | | | | | | |
| Less Than High School | 53,126 | 76.2% | | | | | | |
| ECON-macro | 75,716 | −0.347 | 1.083 | −2 | −1 | 0 | 1 | 2 |
| INF | 75,716 | −1.167 | 0.745 | −2 | −2 | −1 | −1 | 2 |
| UNEMP | 75,716 | −0.797 | 0.946 | −2 | −2 | −1 | 0 | 2 |
| ECON-hh | 75,716 | −0.414 | 1.022 | −2 | −1 | 0 | 0 | 2 |
| SAV | 75,716 | −1.030 | 1.132 | −2 | −2 | −1 | −1 | 2 |
| DUR | 75,716 | −0.687 | 0.972 | −2 | −2 | −1 | 0 | 2 |
| OPT-macro | 75,716 | −0.770 | 0.722 | −2.000 | −1.333 | −0.667 | −0.333 | 2.000 |
| OPT-hh | 75,716 | −0.710 | 0.835 | −2.000 | −1.333 | −0.667 | −0.333 | 2.000 |
| HH-Prev.Year | 75,622 | −0.617 | 0.972 | −2 | −1 | −1 | 0 | 2 |
| CAR | 27,772 | −1.635 | 0.833 | −2 | −2 | −2 | −2 | 2 |
| HOME | 27,798 | −1.744 | 0.726 | −2 | −2 | −2 | −2 | 2 |
| DUR.worth | 72,346 | −0.857 | 0.355 | −1 | −1 | −1 | −1 | 1 |
| HOME-exp | 27,724 | −1.315 | 1.145 | −2 | −2 | −2 | −1 | 2 |

OPT-macro = (ECON-macro + INF + UNEMP)/3
OPT-hh = (ECON-hh + SAV + DUR) / 3

Table 2: Key questions used in the analysis

| Variable | Range of answers | Wording of the question |
|---|---|---|
| Economic outlook of the country (ECON-macro) | (-2) to (+2) | In your opinion, how will the country's economic situation evolve over the next 12 months? |
| Inflation (INF) | (-2) to (+2) | In your opinion, how will inflation evolve over the next 12 months? |
| Unemployment (UNEMP) | (-2) to (+2) | In your opinion, how will unemployment evolve over the next 12 months? |
| Economic outlook of the household (ECON-hh) | (-2) to (+2) | In your opinion, how will your household's financial situation evolve over the next 12 months? |
| Economic change of the household (HH-Prev.Year) | (-2) to (+2) | How did the economic situation of your household change in the last 12 months? |
| Ability to save (SAV) | (-2) to (+2) | In your opinion, how will your household's savings change over the next 12 months? |
| Ability to buy durables (DUR) | (-2) to (+2) | Do you think your household will be able to save enough to buy high-value consumer goods in the next 12 months? |
| Intention to buy a new car (CAR) | (-2) to (+2) (excluding zero as an option) | How probable it is that your household will buy a new car in the next 12 months? |
| Intention to buy a new home (HOME) | (-2) to (+2) (excluding zero as an option) | How probable it is that your household buys or builds a house or apartment in the next 12 months? |
| Worth to purchase durables (DUR-worth) | (-2) to (+2) (excluding zero as an option) | Do you think it makes sense to buy high-value consumer goods (furniture, washing machine, TV, etc.) these days? |
| Intended expenditure on housing (HOME-exp) | (-2) to (+2) (excluding zero as an option) | How probable it is that your household spends more on your house or apartment in the next year or two? |

The range of answers are coded from -2 to +2, with -2 meaning "it will become a lot worse" and +2 meaning "it will become much better" compared to last year. As such, a general rule for the analysis is the higher the value, the "better" the expectation (for example: +2 onf $INF$ and $UNEMP$ indicates that inflation will be much better ("lower") compared to last year).

Following Das et al. (2020), throughout the analysis, we use household income levels and age (with roughly ten-year groups; between 18-30, 31-40, 41-50, 51-65, and 65 and above) to define income ranks for each month.[5] Descriptive statistics for the variables of interest are presented in Table 1. Note that for nearly all expectation-related questions, both the mean and the median values are negative, with a right-skewed distribution. The median is zero only in two cases: ECON-macro and ECON-hh. Overall, respondents exhibited a general pessimism regarding the future. This negative outlook is also evident in their intention to purchase durable goods, particularly when it comes to buying a car or a house. However, it should be noted that Table 1 provides pooled data spanning the whole period under consideration. Thus, it does not allow us to discern whether specific periods were characterized by generalized optimism or economic gloom. To address the external validity of these qualitative findings, we conducted an analysis using actual data, the details of which can be found in Appendix A.3.

Regarding the SES variables, the increases between the lower quintiles appear to be of approximately the same magnitude, while a larger jump is observed when transitioning from the fourth to the fifth quintile.[6]

The share of respondents without high-school degree seems to be high, but it aligns with official statistics. In 2001 / 2011 (the two census years around our data range), the proportion of the population without a high-school degree was 67.5% / 56.9%. 20.5% / 25% of the population had at most a high-school degree, respectively. The share of those with a university degree was 12% / 18.1% in 2001 / 2011. Overall, our sample slightly over-represents individuals with lower educational attainment.

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[5]In some cases, where an individual's income was greater than their indicated family income, observations were filtered out. If the family income was zero, but the individual's income was non-zero, we imputed that value as the family income.

[6]Note that since we have income data spanning 10 years and quintiles are formed based on each month, there may be instances where the upper percentiles in a lower income quintile are larger than the lower percentiles in an upper quintile. Therefore, there are overlaps between the income distributions of adjacent quintiles.

## 4. Results

### 4.1. Descriptive statistics

As a first step, we examine the correlations between our main variables in Table 3.[7] As expected, there is a positive correlation between income and holding a university diploma. However, the correlation between income and expectations is relatively weak. The association between having a university diploma and expectations is larger, but generally below 0.1, indicating a modest relationship. Furthermore, age does not exhibit a strong correlation with expectations. The negative sign suggests that higher age is associated with more pessimistic expectations. The correlation between economic expectations is positive and of considerable magnitude. We document the highest associations between OPT-macro and OPT-hh (in both the limited and full data it is approximately 0.6). This finding is consistent with the results reported in Dominitz and Manski (2004) which also reports a strong correlation between macroeconomic and household-level expectations. It suggests that these two types of expectations are intertwined and difficult to separate.

As for consumption decisions, variables such as CAR, HOME, HOME-exp, and DUR-worth exhibit higher correlations with OPT-hh compared to OPT-macro (see Table A.8 in Appendix A.2), suggesting that while macroeconomic expectations are important, household-level expectations tend to have an even greater influence on these decisions. Finally, the self-assessed change in the household's economic situation in the last year (HH-Prev.Year) displays a high correlation with both macroeconomic and household-level expectations, as well as with consumption decisions. This indicates that individuals' perceptions of their own economic situation in the past year strongly relate to their expectations and subsequent consumption choices.

To see how expectations evolve over time, we plot the monthly average values of macroeconomic and household-level expectations, by quintiles based on household income. As in Das et al. (2020), quintiles are defined within year-age groups. However, while Das et al. (2020) focus solely on the top and bottom income quintiles, we also include the middle quintile to get a first impression of whether the relationship between the income rank and expectations is gradual.

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[7]Note that Table 3 does not contain the variables for which we have considerably fewer observations (CAR, HOME and HOME-exp, see Table 1). For a comprehensive view including all variables of interest, please refer to Appendix A.2.

Table 3: Correlation table for macroeconomic expectations and other relevant variables

| | Income | Age | ECON-macro | INFL | UNEMP | ECON-hh | Hh.Prev.Year | SAV | DUR | OPT-macro | OPT-hh | Diploma |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Income | 1 | | | | | | | | | | | |
| Age | −0.024 | 1 | | | | | | | | | | |
| ECON-macro | 0.004 | −0.039 | 1 | | | | | | | | | |
| INFL | 0.041 | 0.013 | 0.352 | 1 | | | | | | | | |
| UNEMP | 0.00001 | 0.012 | 0.469 | 0.381 | 1 | | | | | | | |
| ECON-hh | 0.018 | −0.104 | 0.644 | 0.328 | 0.410 | 1 | | | | | | |
| HH.Prev.Year | 0.065 | −0.060 | 0.456 | 0.255 | 0.340 | 0.566 | 1 | | | | | |
| SAV | 0.102 | −0.103 | 0.384 | 0.247 | 0.308 | 0.434 | 0.434 | 1 | | | | |
| DUR | 0.049 | −0.092 | 0.450 | 0.289 | 0.363 | 0.504 | 0.470 | 0.457 | 1 | | | |
| OPT-macro | 0.016 | −0.010 | 0.826 | 0.686 | 0.803 | 0.614 | 0.464 | 0.412 | 0.483 | 1 | | |
| OPT-hh | 0.073 | −0.125 | 0.610 | 0.358 | 0.447 | 0.799 | 0.609 | 0.806 | 0.800 | 0.624 | 1 | |
| Diploma | 0.187 | 0.010 | 0.051 | 0.070 | 0.063 | 0.057 | 0.088 | 0.150 | 0.083 | 0.077 | 0.123 | 1 |

OPT-macro = (ECON-macro + INF + UNEMP) / 3
OPT-hh = (ECON-hh + SAV + DUR) / 3

In Figure 1, macroeconomic expectations are presented on the left, while household-level expectations are shown on the right. Shaded areas represent periods of recession, defined by two consecutive quarters of GDP decrease. Consistent with Das et al. (2020), differences between the top and bottom quintiles are clearly evident in most instances, with the former displaying greater optimism than the latter. When it comes to macroeconomic expectations, the disparity between these two groups is most notable in terms of inflation expectations.[8] At the household level, disparities are more pronounced, especially in savings expectations and the intention to purchase durable goods.

The picture becomes much less clear when we consider the middle income quintile. In some cases, the expectations of respondents in the middle quintile are clearly positioned between those of the top and bottom quintiles. However, expectations are often jumbled and difficult to distinguish. Generally, the middle quintile tends to be closer to the bottom quintile rather than the top one, suggesting that differences in expectations between income quintiles are not linear. Moreover, in certain instances (such as the case of inflation during 2007-2009), respondents belonging to the middle quintile seem to have even lower macroeconomic expectations than those in the bottom quintile.

In line with Das et al. (2020), differences in expectations tend to diminish and often disappear during recessions, which is clearly visible in Figure 1 during the Great Recession (and also when the austerity package was introduced in 2006). The only exception is savings expectations where recessions

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[8]We observe a significant decline in all macroeconomic expectations in 2006, which can be attributed to an economic austerity package announced in June of that year.
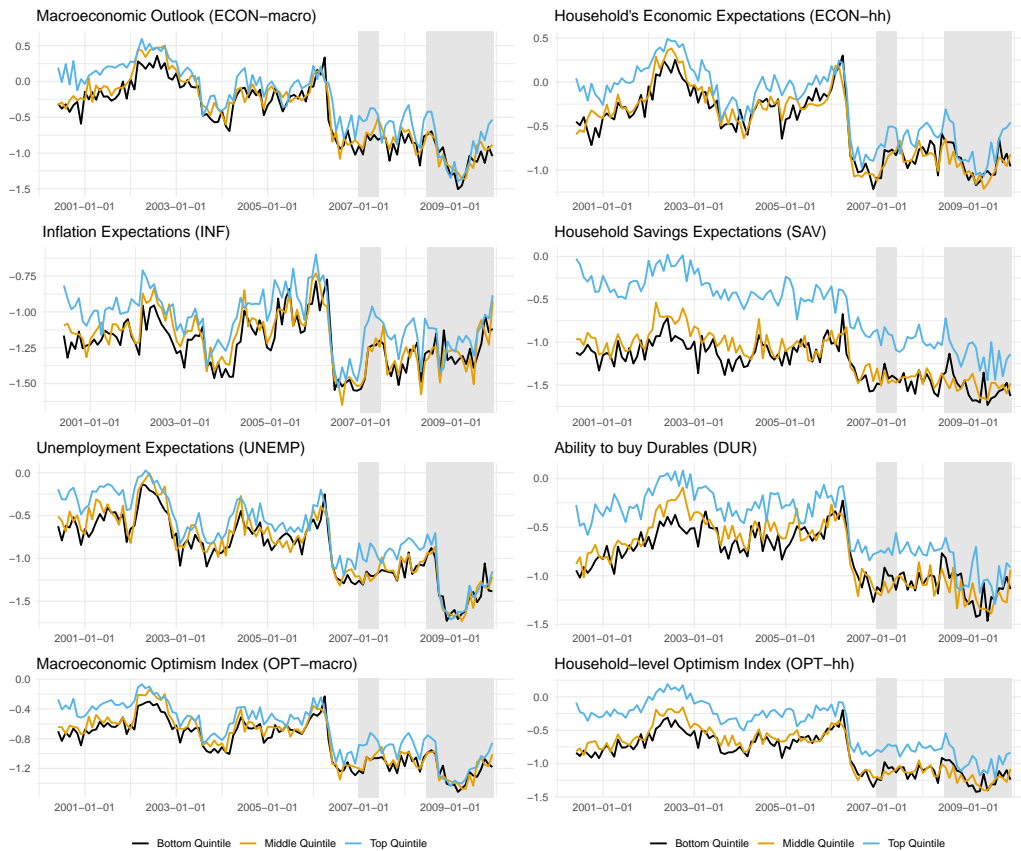
Figure 1: Average scores in the first, third and fifth income quintiles for macroeconomic (left) and household-level (right) expectations. Note: Higher values mean a more optimistic expectation. The grey area marks quarters when the economy was in recession.

do not seem to cause as much turmoil as in the case of other expectations.

Figure 2 shows the analysis for the same variables, by education level. There is a clear distinction between the lower and higher ends, that is, between people without a high-school degree and those with a diploma. This finding is consistent with Das et al. (2020), who only distinguish two categories by education level (those with and without a university diploma). Expectations for people with high-school degree generally fluctuate between the two groups, as exemplified by inflation expectations. However, in general, the expectations of those with a high-school degree appear to be closer

to those with a diploma. Similar to the case of income quintiles, differences in the expectations are clearly discernible in the case of household-level savings expectations. There seems to be an equal distance between the savings expectations of the different groups formed based on education level throughout the observation period. Similarly to what we have observed previously, differences in macroeconomic expectations diminish during recessions, particularly during the Great Recession. Household-level expectations based on education levels appear to be less sensitive to recessions. Note that similarities in expectations based on income quintiles and education level may stem from the strong correlation between the two factors.



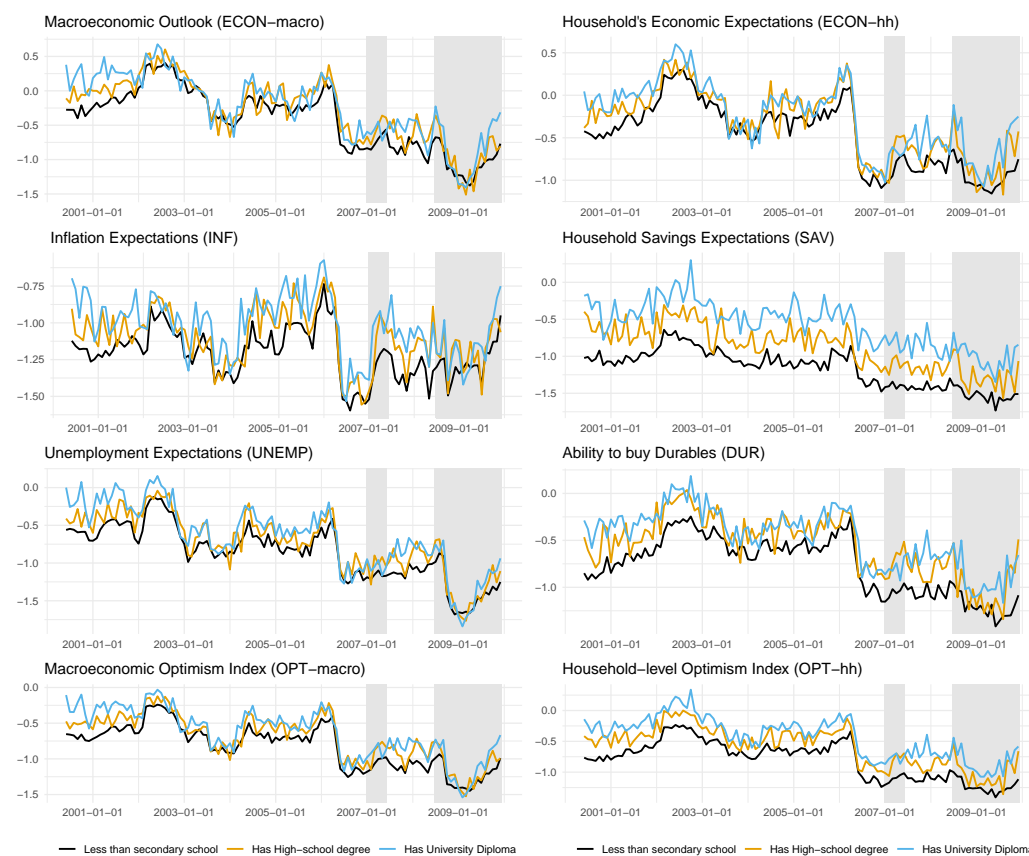Figure 2: Average per education level for macroeconomic (left) and household-level expectations (right). Note: Higher values mean a more optimistic expectation. The grey area marks quarters when the economy was in recession.

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## 4.2. Regression analysis

### 4.2.1. Non-linear associations

While the previous figures provide suggestive evidence of differences in expectations based on income rank and education, we now present a more formal and rigorous analysis. Table 4 displays the results of ordinary least squares (OLS) regressions, with the dependent variables being expectations at both the macroeconomic and household levels. Note that higher values in the table indicate a more optimistic expectation.

Table 4: Regression results for economic expectations based on separate quintiles

|  | Dependent variable: | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | ECON-macro | INF | UNEMP | OPT-macro | ECON-hh | SAV | DUR | OPT-hh |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Quintile 2 | 0.038*** | 0.0001 | 0.003 | 0.014* | 0.030*** | 0.022* | 0.028** | 0.027*** |
|  | (0.012) | (0.009) | (0.010) | (0.008) | (0.011) | (0.013) | (0.011) | (0.009) |
| Quintile 3 | 0.090*** | 0.037*** | 0.045*** | 0.057*** | 0.067*** | 0.145*** | 0.091*** | 0.101*** |
|  | (0.012) | (0.009) | (0.010) | (0.008) | (0.011) | (0.013) | (0.011) | (0.009) |
| Quintile 4 | 0.157*** | 0.087*** | 0.105*** | 0.116*** | 0.139*** | 0.318*** | 0.185*** | 0.214*** |
|  | (0.012) | (0.009) | (0.010) | (0.008) | (0.011) | (0.013) | (0.011) | (0.009) |
| Quintile 5 | 0.220*** | 0.148*** | 0.193*** | 0.187*** | 0.232*** | 0.587*** | 0.328*** | 0.382*** |
|  | (0.012) | (0.009) | (0.011) | (0.008) | (0.011) | (0.013) | (0.011) | (0.009) |
| Has University Diploma | 0.122*** | 0.133*** | 0.142*** | 0.132*** | 0.133*** | 0.373*** | 0.173*** | 0.226*** |
|  | (0.012) | (0.009) | (0.011) | (0.008) | (0.011) | (0.013) | (0.011) | (0.009) |
| Has High-School Degree | 0.101*** | 0.092*** | 0.113*** | 0.102*** | 0.074*** | 0.165*** | 0.137*** | 0.125*** |
|  | (0.012) | (0.009) | (0.010) | (0.008) | (0.011) | (0.013) | (0.011) | (0.009) |
| Recession | −0.007 | 0.326*** | −0.200*** | 0.040 | −0.026 | −0.152** | −0.118* | −0.099** |
|  | (0.066) | (0.048) | (0.058) | (0.043) | (0.063) | (0.071) | (0.061) | (0.050) |
| Constant | −0.929*** | −1.469*** | −1.312*** | −1.237*** | −0.697*** | −1.571*** | −1.042*** | −1.103*** |
|  | (0.050) | (0.037) | (0.044) | (0.033) | (0.048) | (0.054) | (0.047) | (0.038) |
| Observations | 75,713 | 75,713 | 75,713 | 75,713 | 75,713 | 75,713 | 75,713 | 75,713 |
| $R^2$ | 0.169 | 0.066 | 0.161 | 0.193 | 0.162 | 0.124 | 0.124 | 0.195 |
| Adjusted $R^2$ | 0.167 | 0.065 | 0.159 | 0.192 | 0.161 | 0.123 | 0.122 | 0.194 |
| Residual Std. Error (df = 75588) | 0.988 | 0.720 | 0.868 | 0.649 | 0.936 | 1.060 | 0.910 | 0.750 |
| F Statistic (df = 124; 75588) | 123.548*** | 43.262*** | 116.630*** | 145.980*** | 118.163*** | 86.452*** | 85.931*** | 147.601*** |

Standard errors in parentheses.
*/**/*** denotes significance at 1 / 5 / 10 % level.
All regressions include time-year dummies, age, gender, family status.
OPT-macro = (ECON-macro + INF + UNEMP)/3
OPT-hh = (ECON-hh + SAV + DUR) / 3

All regressions include quintile dummies (with the bottom quintile as the baseline) and education level dummies (with no high-school degree as the baseline). Therefore, while in the descriptive analysis income quintiles may

have picked up the association between education and expectations (and vice versa), here we control for income and education as well. The use of dummies allows us to examine whether the relationship between the quintiles (or education levels) and expectations changes gradually as we move to higher quintiles (or education levels). All regressions include the following additional controls: dummies for year-month, age, gender, and marital status. Standard errors, shown in parentheses, are clustered at the individual level. The negative constants observed across the regressions reflect the predominantly pessimistic expectations, as already observed in Table 1. In general, recessions tend to worsen expectations. However, this effect is not statistically significant when considering the economic outlook variables (ECON-macro and ECON-hh). Interestingly, during recessions, inflation expectations show a more optimistic trend. There was a noticeable shift towards greater optimism in 2007, following the significant decrease in general economic expectations in the latter half of 2006.[9] Another explanation could be that at the onset of a recession, expectations initially worsen, but as the shock subsides, people may become relatively more optimistic, giving rise to a "the worst is over" sentiment.

Turning to the SES variables, when comparing the upper quintiles (3-5), we observe that respondents in these quintiles hold significantly more optimistic expectations compared to respondents in the bottom quintile. Moreover, the coefficients in these quintiles show a clear upward trend, indicating that moving up a quintile is associated with increased optimism. For the second quintile, we also observe a positive deviation compared to the first quintile, however, in some cases, these differences are rather small, and even insignificant in the case of INF and UNEMP (and as a consequence, the coefficient of OPT-macro is only marginally significant).

For certain variables, there appears to be a linear relationship between income quintiles and the dependent variable. For instance, when considering ECON-macro, moving up a quintile from quintile 2 onwards is associated with an increase of approximately 0.06-0.07 points in optimistic views. However, for other variables, the changes between quintiles are more erratic. Taking UNEMP as an example, individuals in quintile 2 expect approximately the same levels of unemployment compared to those in the bottom quintile.

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[9]The decline in 2006 is more likely to be attributed to political discontent against the government rather than actual macroeconomic foundations.

However, the unemployment expectations of individuals in the top quintile is significantly better than those at the fourth quintile, doubling their differences compared to quintile 1. This is also the case with other variables as the difference relative to the bottom quintile becomes more pronounced in the upper quintiles. For instance, in the case of SAV or DUR, the coefficients of the top quintile are considerably larger than the coefficients of quintile 4, indicating a non-linear relationship between the income quintile and the dependent variable. This non-linearity may also arise from the right-skewed distribution of income, which results in income levels in the bottom quintiles being closer to each other (see Table 1).[10]

To gain further insight into the differences between quintiles and education levels, we represent in Figure 3 the estimated coefficients for each quintile in Table 4 along with the corresponding 95% confidence intervals. Consistent with the findings in Table 4, we observe that expectations of individuals in quintile 2 are very close to bottom quintile in the case of macroeconomic expectations. It is notable that macroeconomic expectations tend to be increasing linearly with income quintiles (with the exception of UNEMP and quintile 5). As we move to the higher quintiles, the coefficients become significantly different from each other at the 1% level, as well as from the lower quintiles. Hence, at the upper end of the income distribution, higher quintiles are associated with significantly greater optimism. On the other hand, the increase tends to be non-linear in the case of ECON-hh, SAV and DUR (and OPT-hh, by extension). Note also that differences in expectations between quintiles 4 and 5 tend to be larger than the differences between the subsequent lower quintiles.

As a robustness check, we ran the regression using income decile dummies, which can be found in Appendix Appendix A.8. This also confirmed the our results, with the additional information of the jump at the top quintile is not restricted to the top 10 percent of the income-distribution.

Turning to education levels, Figure 4 presents the estimates and confidence intervals of the education dummies derived from the regressions in

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[10]Our analysis assumes a linear relationship in the responses. That is, regarding expectations moving from -2 to -1 is the same as moving from 1 to 2. To allow for non-linear associations, we use ordinal logit models, see Appendix A.6. The findings of this analysis are qualitatively similar to the results reported in Table 4.
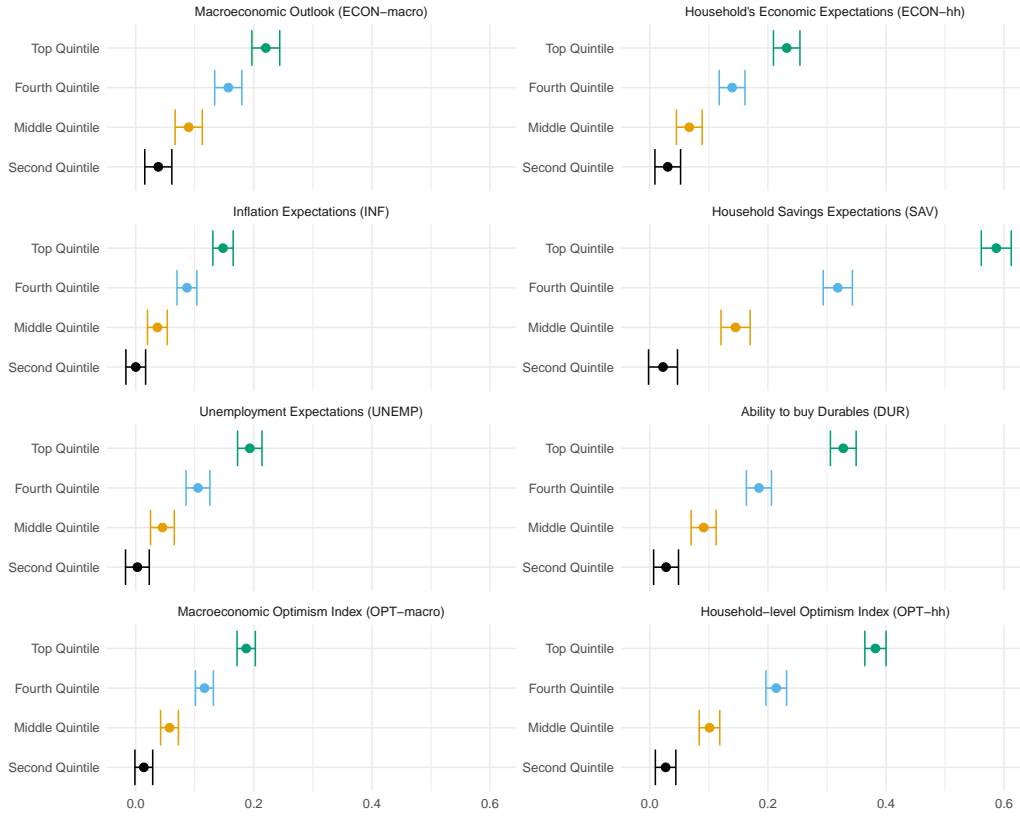
Figure 3: Estimates and corresponding 95% confidence intervals of the income quintile dummies compared to the bottom income quintile. Note: Higher values mean a more optimistic expectation

Table 4. In all cases, individuals with a high-school degree exhibit noticeably more optimistic expectations compared to those without one. Additionally, the difference in expectations between individuals with a high-school degree and those with a university diploma is also significant in most cases, with the exception of ECON-macro and UNEMP. Hence, differences in expectations do not only materialize if we use a binary classification based on a university diploma but there are also clear disparities in expectations at lower education levels. Similar to income ranks, differences between the different education groups tend to be larger when considering expectations on the household level. It is evident that a higher level of education correlates positively with a higher income level (Bryan et al., 2001), but by including both income

quintiles and education levels in the regressions, we account for these correlations. Comparing the differences in macroeconomic expectations between individuals without a high-school degree and those with one, and the differences between the latter group and those with a university diploma, we find that in most cases, the disparities at the lower end are greater than those at the higher end. That is, there are larger shifts in expectations when we move from no high-school degree to a high-school degree compared to when we move from a high-school degree to a university diploma. This pattern holds for macroeconomic expectations and their components. For household-level expectations, we observe roughly equal increases for ECON-hh and OPT-hh, while for savings the jump between a high-school degree and a university diploma is larger compared to when we move from no high-school degree to a high-school degree.

To compare the influence of each variable, we use the standardized coefficients presented in Table A.11 of Appendix A.5. When considering macroeconomic expectations, the difference in expectations between individuals with a university diploma and those without a high-school degree is smaller compared to the difference between individuals in the bottom and the top income quintile. The same pattern holds for all other expectations, except inflation. If we take the influence of a recession as a reference, then in the case of ECON-macro, ECON-hh, SAV and DUR, we observe that for ECON-macro, ECON-hh, SAV, and DUR, the differences in expectations based on income quintiles or education level are often larger than the influence of a recession on expectations (except for INF and UNEMP). This suggests that the variation in expectations resulting from SES is significant.

Since income quintiles and education levels are positively correlated, there is a potential concern regarding multicollinearity. In Tables A.9 and A.10 of Appendix A.4, we run separate regressions for all the expectations variables, considering the income quintiles and the education levels separately. The signs and the magnitudes of the coefficients change in the expected way due to the positive correlation between income and education. Nevertheless, the qualitative findings regarding the non-linearity of the coefficients for income quintiles and education levels still hold true. It is important to note that there was an increase in the proportion of individuals with a university diploma in the population during the time period covered by our data, which suggests a composition effect.
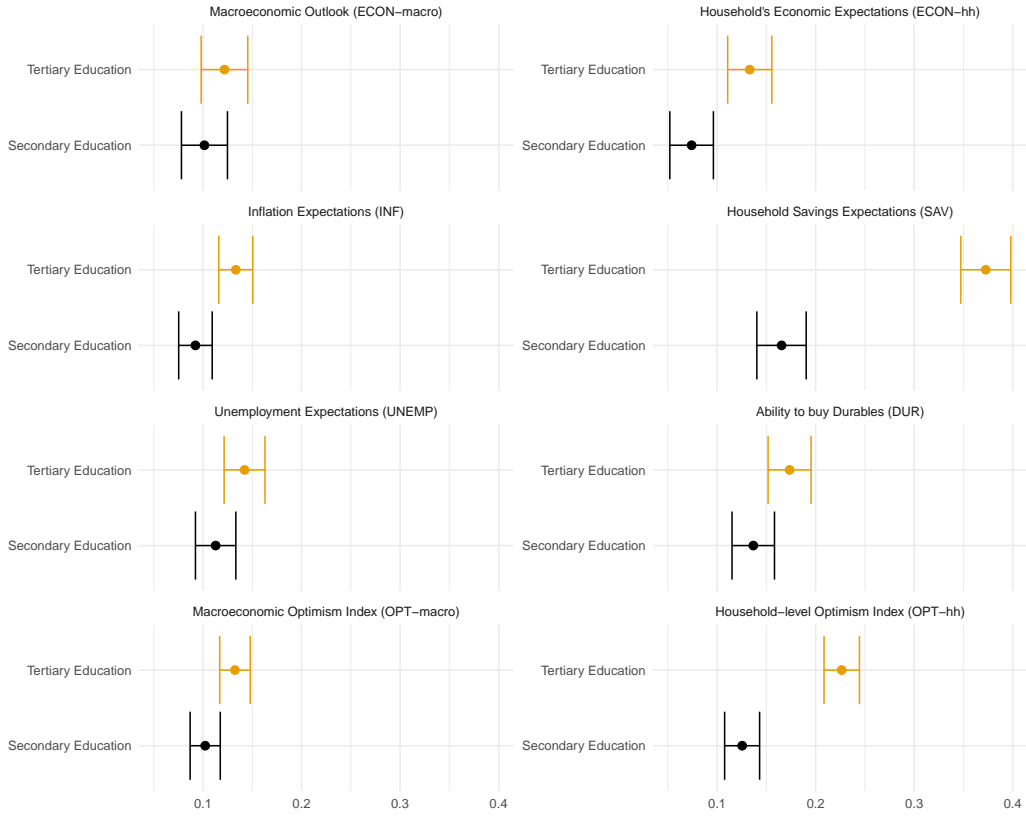
Figure 4: Estimates and corresponding 95% confidence intervals of education level dummies compared to education levels lower than secondary grade. Note: Higher values mean a more optimistic expectation

Additionally, one might argue that taking the average of various variables on expectations might not result in proper "optimism-indicies". In Appendix A.1, we rerun the most important specifications of our analysis for a dependent variable constructed using Principal Component Analysis (PCA). Our argument is that using all the variables, we can also construct a latent "expectations" variable. however, using these specifications do not change our results.

Overall, in line with the study closest to ours (Das et al., 2020), we document significant differences in macroeconomic expectations based on income and education levels. However, our study also reveals novel findings. Importantly, the associations between the socioeconomic variables and expectations

do not seem to be linear in all cases. Regarding income, we observe minimal or negligible differences in expectations within the lower quintiles, but substantial disparities between these lower quintiles and the upper two quintiles. There are also noticeable differences between the two highest quintiles. In terms of education levels, we observe not only between individuals with and without university diploma differences, but also between those without and with high-school degree, which is a finding not previously documented in the existing literature. We also show that these patterns are more pronounced in the case of household-level expectations.

### 4.2.2. The role of past experiences and optimism

As a further step, we extend the analysis by considering potential factors identified in previous literature that may influence macroeconomic expectations. In this section, we focus on the optimism indices that we have constructed. Based on the literature review, we concentrate on three factors closely related to personal experiences and optimism. Two factors, recessions and experiences in the past year, capture personal experiences, while optimism is proxied by household-level expectations. Recessions generally result in negative personal experiences, leading to worse expectations as indicated in Table 4. Following Das et al. (2020), we study whether income quintiles and education levels are associated differently with expectations during recessions than in other times, using interaction terms. To account for past experiences in general (not only focusing on recessions), we also explore the role of the self-assessed change in the household's economic situation in the last year (HH-Prev.Year). According to the literature, it may be correlated with macroeconomic expectations (Malmendier and Nagel, 2011, 2016; Kuchler and Zafar, 2019; D'Acunto et al., 2021a). To capture optimism that may be related to more optimistic macroeconomic expectations we include the household-level expectation. More optimistic households may have more positive macroeconomic expectations. Conversely, when the dependent variable is household-level expectation, then we add macroeconomic expectations as the latter may influence the former: gloomier macroeconomic expectations may cast a shadow on household-level optimism. We study the role of these variables separately and then jointly, as shown in Table 5.[11]

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[11]We acknowledge that including both macroeconomic and household-level economic expectations, as well as previous experience, in the model might reveal a multicollinearity issue. However, we have included these specifications because the literature remains

Starting with macroeconomic expectations, in line with Das et al. (2020), figures 1-2 suggest that during recessions, the difference in macroeconomic expectations narrows. However, for the income quintiles, we do not observe such a pattern as the coefficients of the interaction terms involving the upper quintiles are not significantly negative. In fact, once we control for past experiences in specifications (2), (3), and (4), the interactions become positive and significant, indicating that differences in macroeconomic expectations increase during recessions. Regarding education levels, the interaction terms are negative and significant, indicating that during recessions the difference in macroeconomic expectations diminishes between individuals without a high-school degree and those with one. Interestingly, once we take into account past experiences and household-level expectations, the effect of these interactions changes very little. Experiences of the past year (HH.Prev.Year) and household-level optimism have a consistently positive and significant coefficient, indicating that more optimistic households and households with better past experiences have more positive macroeconomic expectations, *ceteris paribus*. Note that when household-level optimism is included in the regression, the significance of the income quintiles almost vanishes, while the education dummies remain significant (though the magnitude of the coefficient decreases considerably). This finding suggests that household-level optimism reflects to a large extent the income ranking of the household, and once we take it into account, income quintiles do not play a role anymore.

Turning to household-level expectations, we observe that differences in expectations decrease during recessions when considering the income quintiles. However, we do not find the same for education levels, as during recessions, the differences in expectations between individuals without a high-school degree and those with a university diploma actually become larger in some specifications. Similar to the previous findings, experiences of the past year and macroeconomic expectations show a consistently positive and significant coefficient. However, even after including past experiences and macroeconomic expectations, both income ranks and education levels retain

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unclear on the causal direction of expectations. Arguments can be made for both macroeconomic expectations causing household-level expectations and vice versa. Additionally, past experiences strongly influence our current outlook. Nonetheless, it is possible that a latent variable, such as 'general optimism,' affects all these factors. Therefore, to gain a better understanding of the effects, we controlled for possible unwanted mechanisms.

their significance.[12]

One pertinent question is whether past experiences differentially influence economic expectations across various income levels. To explore this, we conducted regressions on $Opt - macro$ and $Opt - HH$, using interactions with income quintiles. The findings, detailed in Table A.17 in the Appendix, present a nuanced picture. For macroeconomic expectations, the interaction effects are somewhat inconsistent, initially increasing and then decreasing. Notably, at higher income levels, a positive previous experience correlates with a slight decrease in expectations, though the effect is marginal. Conversely, for household-level expectations, the relationship is more straightforward: individuals with higher income levels and favorable experiences from the previous year exhibit a progressively positive effect on their expectations.

### 4.2.3. Expectations, SES, and economic decisions

So far, we investigated the relationship between SES and macroeconomic and household-level expectations, and we studied the role of potential factors. However, it is natural to ask whether these expectations have an impact on economic decision-making. While we cannot test the direct effect of expectations on actual purchasing decisions, following Das et al. (2020), we can assess whether there is a connection between macroeconomic expectations and the intention of the household to purchase a car, or a home, or make major expenditures related to the home. In the regression analysis, we also include $DUR - worth$, as respondents' subjective evaluation of whether it is worth buying durable goods can be informative.[13] Table 6 contains the results of OLS regressions.

Similarly to our previous results, the coefficients of income quintiles (particularly for the top quintiles) and education levels (primarily for individuals with a university diploma) are significant, indicating that SES is associated with these economic decisions. Experiences in the past year show a con-

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[12]We also replicate the regression specification of Das et al. (2020) (see Table A.15 in Appendix A.7). When we do not control for experiences during the past year, similar to their results, we observe a significant linear association between quintiles and macroeconomic expectations. We obtain the same results for household-level expectations, even after accounting for experiences during the past year and macroeconomic expectations. The interaction terms related to recessions reproduce Das et al. (2020)'s findings concerning income rank, but not for education.

[13]We acknowledge that $DUR - worth$ may be also related to respondents' ability and not only their intent.

sistently positive and significant association with the dependent variable in all specifications. It is crucial to highlight, however, that the belief channel—namely, the OPT indices and the confounding past experiences—exerts a substantial influence on economic decisions. The magnitude of their coefficients is comparable to the impact of being in the top 20 percent of the income distribution.

Moreover, when macroeconomic expectations are included separately (specifications (1), (4), (7), and (10)), they are significantly related to the intention to purchase big-ticket items, even after accounting for income rank and education level. Hence, having more positive macroeconomic expectations are positively associated with the purchase intent, beyond the influence of socioeconomic variables. We observe a similar pattern when considering household-level optimism. In specifications (2), (5), (8) and (11), where it is included solely, household-level optimism shows a significant and positive relationship with the dependent variable. Additionally, the coefficient for household-level optimism appears to be substantially larger than the coefficient of macroeconomic expectations. When both expectation measures are included (specifications (3), (6), (9) and (12)), household-level optimism remains consistently positive and significant. However, we do not see a consistent pattern when considering macroeconomic expectations. Since the expectation variables are highly correlated, there seems to be a multicollinearity issue, as the sum of the coefficients of the expectation variables approximately equals the coefficient of the household-level expectation when included separately. The main message from Table 6 is that macroeconomic and household-level expectations do not merely reflect SES, but they are also closely related to economic decisions beyond their relationship with SES.

Table 5: The relationships between past experiences (recession and self-assessed change in economic situation), optimism and macroeconomic expectations

| | Dependent variable: | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | OPT-macro | | | | OPT-hh | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Quintile 2 | 0.008 | −0.011 | −0.002 | −0.007 | 0.021** | −0.009 | 0.016** | −0.004 |
| | (0.008) | (0.008) | (0.007) | (0.007) | (0.010) | (0.008) | (0.008) | (0.007) |
| Quintile 3 | 0.063*** | 0.022*** | 0.008 | 0.001 | 0.114*** | 0.048*** | 0.073*** | 0.038*** |
| | (0.008) | (0.008) | (0.007) | (0.007) | (0.010) | (0.008) | (0.008) | (0.007) |
| Quintile 4 | 0.111*** | 0.043*** | 0.004 | −0.005 | 0.224*** | 0.116*** | 0.152*** | 0.096*** |
| | (0.008) | (0.008) | (0.007) | (0.007) | (0.010) | (0.008) | (0.008) | (0.007) |
| Quintile 5 | 0.190*** | 0.071*** | −0.003 | −0.018** | 0.401*** | 0.212*** | 0.279*** | 0.179*** |
| | (0.009) | (0.008) | (0.007) | (0.007) | (0.010) | (0.008) | (0.008) | (0.008) |
| Rec. × Quintile 2 | 0.031 | 0.036** | 0.018 | 0.021 | 0.029 | 0.036* | 0.009 | 0.019 |
| | (0.020) | (0.018) | (0.017) | (0.016) | (0.023) | (0.019) | (0.019) | (0.017) |
| Rec. × Quintile 3 | −0.034* | −0.008 | 0.004 | 0.008 | −0.080*** | −0.037* | −0.058*** | −0.033* |
| | (0.020) | (0.018) | (0.017) | (0.016) | (0.023) | (0.019) | (0.019) | (0.017) |
| Rec. × Quintile 4 | 0.027 | 0.041** | 0.057*** | 0.058*** | −0.063*** | −0.041** | −0.080*** | −0.060*** |
| | (0.020) | (0.018) | (0.017) | (0.016) | (0.023) | (0.019) | (0.019) | (0.017) |
| Rec. × Quintile 5 | −0.018 | 0.010 | 0.037** | 0.038** | −0.114*** | −0.068*** | −0.103*** | −0.073*** |
| | (0.020) | (0.019) | (0.017) | (0.017) | (0.024) | (0.020) | (0.020) | (0.018) |
| Has University Diploma | 0.142*** | 0.096*** | 0.035*** | 0.033*** | 0.222*** | 0.150*** | 0.131*** | 0.105*** |
| | (0.009) | (0.008) | (0.007) | (0.007) | (0.010) | (0.008) | (0.008) | (0.008) |
| Has High-School Degree | 0.107*** | 0.081*** | 0.048*** | 0.047*** | 0.122*** | 0.081*** | 0.054*** | 0.044*** |
| | (0.009) | (0.008) | (0.007) | (0.007) | (0.010) | (0.008) | (0.008) | (0.007) |
| Rec. × Univ. Diploma | −0.055*** | −0.060*** | −0.067*** | −0.066*** | 0.024 | 0.014 | 0.059*** | 0.042** |
| | (0.021) | (0.019) | (0.018) | (0.017) | (0.024) | (0.020) | (0.020) | (0.018) |
| Rec. × High-School Degree | −0.026 | −0.037* | −0.033* | −0.035** | 0.015 | −0.003 | 0.032 | 0.014 |
| | (0.020) | (0.019) | (0.017) | (0.017) | (0.024) | (0.020) | (0.020) | (0.018) |
| HH.Prev.Year | | 0.283*** | | 0.093*** | | 0.451*** | | 0.320*** |
| | | (0.002) | | (0.003) | | (0.003) | | (0.002) |
| OPT-hh | | | 0.481*** | 0.420*** | | | | |
| | | | (0.003) | (0.003) | | | | |
| OPT-macro | | | | | | | 0.643*** | 0.466*** |
| | | | | | | | (0.003) | (0.003) |
| Recession | 0.045 | 0.095** | 0.072* | 0.085** | −0.056 | 0.023 | −0.085** | −0.021 |
| | (0.045) | (0.042) | (0.038) | (0.037) | (0.052) | (0.044) | (0.043) | (0.039) |
| Constant | −1.238*** | −0.930*** | −0.704*** | −0.670*** | −1.109*** | −0.620*** | −0.313*** | −0.186*** |
| | (0.033) | (0.031) | (0.028) | (0.028) | (0.038) | (0.032) | (0.032) | (0.029) |
| Observations | 75,713 | 75,619 | 75,713 | 75,619 | 75,713 | 75,619 | 75,713 | 75,619 |
| $R^2$ | 0.193 | 0.320 | 0.443 | 0.453 | 0.195 | 0.437 | 0.445 | 0.547 |
| Adjusted $R^2$ | 0.192 | 0.319 | 0.442 | 0.452 | 0.194 | 0.436 | 0.444 | 0.546 |
| F Statistic | 143.523*** | 282.694*** | 475.773*** | 491.633*** | 147.750*** | 469.129*** | 481.823*** | 720.712*** |

*Note:* *p<0.1; **p<0.05; ***p<0.01

Standard errors in parentheses.
*/**/*** denotes significance at 1 / 5 / 10 % level.
All regressions include year-month dummies, age, gender, family status.

Table 6: Expectations, SES, and economic decisions

| | *Dependent variable:* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DUR-worth | | | HOME | | | CAR | | | HOME-exp | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Quintile 2 | −0.001 | −0.001 | −0.001 | 0.001 | 0.002 | 0.002 | −0.004 | −0.002 | −0.002 | 0.049** | 0.053** | 0.053** |
| | (0.004) | (0.004) | (0.004) | (0.014) | (0.014) | (0.014) | (0.015) | (0.015) | (0.015) | (0.021) | (0.021) | (0.021) |
| Quintile 3 | 0.016*** | 0.014*** | 0.014*** | 0.005 | −0.00004 | −0.00002 | 0.018 | 0.008 | 0.008 | 0.091*** | 0.079*** | 0.078*** |
| | (0.004) | (0.004) | (0.004) | (0.014) | (0.014) | (0.014) | (0.015) | (0.015) | (0.015) | (0.021) | (0.021) | (0.021) |
| Quintile 4 | 0.037*** | 0.030*** | 0.030*** | 0.022 | 0.010 | 0.010 | 0.056*** | 0.030** | 0.030** | 0.182*** | 0.147*** | 0.147*** |
| | (0.004) | (0.004) | (0.004) | (0.014) | (0.014) | (0.014) | (0.015) | (0.015) | (0.015) | (0.021) | (0.021) | (0.021) |
| Quintile 5 | 0.064*** | 0.051*** | 0.051*** | 0.151*** | 0.129*** | 0.129*** | 0.270*** | 0.224*** | 0.223*** | 0.362*** | 0.299*** | 0.298*** |
| | (0.004) | (0.004) | (0.004) | (0.014) | (0.014) | (0.014) | (0.016) | (0.016) | (0.016) | (0.022) | (0.022) | (0.022) |
| Has University Diploma | 0.038*** | 0.030*** | 0.029*** | 0.107*** | 0.091*** | 0.091*** | 0.136*** | 0.102*** | 0.103*** | 0.126*** | 0.080*** | 0.081*** |
| | (0.004) | (0.004) | (0.004) | (0.014) | (0.014) | (0.014) | (0.016) | (0.016) | (0.016) | (0.022) | (0.021) | (0.021) |
| Has High-School Degree | 0.009** | 0.007 | 0.006 | 0.001 | −0.005 | −0.005 | 0.066*** | 0.052*** | 0.052*** | 0.034 | 0.014 | 0.015 |
| | (0.004) | (0.004) | (0.004) | (0.014) | (0.014) | (0.014) | (0.016) | (0.015) | (0.015) | (0.022) | (0.021) | (0.021) |
| OPT-macro | 0.047*** | | 0.012*** | 0.058*** | | 0.001 | 0.103*** | | −0.017** | 0.133*** | | −0.031*** |
| | (0.002) | | (0.002) | (0.007) | | (0.008) | (0.008) | | (0.009) | (0.011) | | (0.012) |
| OPT-hh | | 0.081*** | 0.076*** | | 0.128*** | 0.128*** | | 0.264*** | 0.271*** | | 0.357*** | 0.370*** |
| | | (0.002) | (0.002) | | (0.007) | (0.007) | | (0.007) | (0.008) | | (0.010) | (0.011) |
| HH.Prev.Year | 0.034*** | 0.011*** | 0.010*** | 0.062*** | 0.021*** | 0.021*** | 0.110*** | 0.020*** | 0.022*** | 0.156*** | 0.033*** | 0.036*** |
| | (0.002) | (0.002) | (0.002) | (0.005) | (0.005) | (0.006) | (0.006) | (0.006) | (0.006) | (0.008) | (0.008) | (0.008) |
| Constant | −0.897*** | −0.891*** | −0.883*** | −1.234*** | −1.208*** | −1.207*** | −1.248*** | −1.180*** | −1.192*** | −0.819*** | −0.720*** | −0.742*** |
| | (0.018) | (0.018) | (0.018) | (0.033) | (0.033) | (0.033) | (0.037) | (0.036) | (0.037) | (0.052) | (0.050) | (0.051) |
| Observations | 72,264 | 72,264 | 72,264 | 27,767 | 27,767 | 27,767 | 27,742 | 27,742 | 27,742 | 27,694 | 27,694 | 27,694 |
| $R^2$ | 0.074 | 0.088 | 0.089 | 0.072 | 0.082 | 0.082 | 0.117 | 0.150 | 0.151 | 0.108 | 0.142 | 0.142 |
| Adjusted $R^2$ | 0.073 | 0.087 | 0.087 | 0.071 | 0.081 | 0.081 | 0.115 | 0.149 | 0.149 | 0.107 | 0.140 | 0.140 |
| Residual Std. Error | 0.342 | 0.339 | 0.339 | 0.699 | 0.695 | 0.695 | 0.786 | 0.770 | 0.770 | 1.081 | 1.060 | 1.060 |
| F Statistic | 47.669*** | 57.881*** | 57.651*** ) | 42.951*** | 49.742*** | 48.786*** | 73.377*** | 99.063*** | 97.261*** | 67.379*** | 92.199*** | 90.629*** |

Standard errors in parentheses.

*/**/*** denotes significance at 1 / 5 / 10 % level.

All regressions include year-month dummies, age, gender, family status and recession dummy.

## 5. Conclusion

In this study, our aim is to disentangle the relationship between SES and macroeconomic/household-level expectations, as well as explore the implications of expectations on economic decision-making. To achieve this, we use a sample of approximately 80,000 observations from Hungary, covering the period from 2000 to 2009. We focus on how two aspects of SES (income rank and education level) are associated with the expectations reported by the respondents.

Our study makes several contributions to the existing literature. First, in addition to examining macroeconomic expectations, we also investigate household-level expectations. We find a strong correlation between these two types of expectations. Moreover, when we account for household-level expectations, the significance of income rank diminishes, suggesting that household-level expectations reflect the household's income situation. Second, in contrast to Das et al. (2020), we document that the relationship between SES and macroeconomic expectations is not linear. While notable differences exist between the lower and upper income quintiles, within the lower quintiles, the differences are rather small or non-existent. Third, our analysis reveals that a more nuanced examination of education levels enhances our understanding. Differences in macroeconomic expectations are not only observed between individuals with and without a university diploma but also between individuals without a high-school degree and those with one. The patterns observed in macroeconomic expectations are mirrored in household-level expectations. Fourth, we highlight the importance of past experiences and optimism in shaping macroeconomic expectations. Including these factors in the analysis reduces the influence of SES variables. Last, our findings demonstrate that both macroeconomic and household-level expectations significantly impact economic decisions, as captured by purchase intentions. Even after controlling for SES variables, these expectations remain relevant, underscoring the need for a comprehensive understanding of these expectations.

We acknowledge two limitations in our research: first, we have relatively short data ranging from the middle of 2000 until the end of 2009 due to availability issues, and within this time frame, we only have limited recession data.[14] Additionally, although we have data on the qualitative assessment

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[14]In some cases, economic expectations were very heavily affected by political issues, as

of various economic expectations, we are unable to determine whether these expectations turned out to be correct or not, except in terms of their directional accuracy (i.e., whether respondents correctly predicted the sign of the change, such as inflation, in the next period, as examined in Appendix A.3). It would be valuable for future research to investigate the factors contributing to having a "correct expectation" and explore whether socioeconomic factors have an impact on this.

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we noted about the sharp decline observed in 2006.

## Appendix A. Appendix

*Appendix A.1. Robustness: latent variable for economic expectations*

An argument can be made that taking the average of the "optimism"-variables is not essentially the best way to analyze the phenomena. We chose to do this due to the fact that we could still analyze, for example, $UNEMP$ separately to $opt - macro$. Alternatively, we ran a Principal Component Analysis, and used the first factor to capture the latent "economic expectations". Then, using this factor, we ran all the main regressions of the paper. As per Table A.7, we find that while the lower income quintiles are now significantly different from each other (an effect which only disappears once we add $HH.Prev.Year$), the effect is increasing by income-quintiles. Similarly, the effect of recession seems to be stronger with the upper quintiles, again suggesting that differences in economic expectations among income ranks get closer to each other, while for education, this interaction term is not significant. Overall, our results do not differ significantly from the results above.

Table A.7: Main Regressions in the paper using PCA as a measure for the latent variable "optimism"

| | | Dependent variable: | | |
|---|---|---|---|---|
| | | First factor of PCA | | |
| | (1) | (2) | (3) | (4) |
| Quintile 2 | 0.038*** | | 0.030** | −0.003 |
| | (0.011) | | (0.012) | (0.010) |
| Quintile 3 | 0.119*** | | 0.131*** | 0.059*** |
| | (0.011) | | (0.012) | (0.010) |
| Quintile 4 | 0.241*** | | 0.254*** | 0.135*** |
| | (0.011) | | (0.012) | (0.010) |
| Quintile 5 | 0.423*** | | 0.445*** | 0.237*** |
| | (0.011) | | (0.012) | (0.011) |
| Quintile (linear) | | 0.105*** | | |
| | | (0.003) | | |
| Rec. × Quintile 2 | | | 0.040 | 0.049** |
| | | | (0.028) | (0.024) |
| Rec. × Quintile 3 | | | −0.079*** | −0.031 |
| | | | (0.028) | (0.024) |
| Rec. × Quintile 4 | | | −0.083*** | −0.058** |
| | | | (0.028) | (0.024) |
| Rec. × Quintile 5 | | | −0.133*** | −0.081*** |
| | | | (0.029) | (0.025) |
| Has University Diploma | 0.229*** | 0.247*** | 0.220*** | 0.141*** |
| | (0.011) | (0.011) | (0.012) | (0.011) |
| Has high-school degree | 0.123*** | 0.127*** | 0.119*** | 0.074*** |
| | (0.011) | (0.011) | (0.012) | (0.010) |
| Recession | −0.238*** | −0.238*** | −0.192*** | −0.105* |
| | (0.061) | (0.061) | (0.063) | (0.055) |
| Rec. × Univ. Diploma | | | 0.045 | 0.033 |
| | | | (0.029) | (0.026) |
| Rec. × High-school degree | | | 0.016 | −0.003 |
| | | | (0.028) | (0.025) |
| HH.Prev.Year | | | | 0.499*** |
| | | | | (0.003) |
| Constant | −0.411*** | −0.550*** | −0.417*** | 0.124*** |
| | (0.046) | (0.047) | (0.046) | (0.040) |
| Observations | 75,713 | 75,713 | 75,713 | 75,619 |
| $R^2$ | 0.179 | 0.177 | 0.179 | 0.385 |
| Adjusted $R^2$ | 0.177 | 0.176 | 0.178 | 0.384 |
| Residual Std. Error | 0.907 (df = 75588) | 0.908 (df = 75591) | 0.907 (df = 75582) | 0.785 (df = 75487) |
| F Statistic | 132.582*** | 134.519*** | 126.904*** | 360.676*** |

Note: *p<0.1; **p<0.05; ***p<0.01

*Appendix A.2. Correlation matrix*

This appendix contains the correlation table with all variables, including those ($CAR\ HOME$ and $HOME-exp$) for which we have a considerably lower number of observations. The associations observed in Table 3 still hold.

Table A.8: Correlation table with all variables

| | Inc | Age | ECON-macro | INF | UNEMP | ECON-hh | HH.Prev.Year | SAV | DUR | OPT-macro | OPT-hh | Diploma | CAR | HOME | DUR-worth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Income | 1 | | | | | | | | | | | | | | |
| Age | -0.023 | 1 | | | | | | | | | | | | | |
| ECON-macro | 0.013 | -0.059 | 1 | | | | | | | | | | | | |
| INF | 0.050 | 0.0001 | 0.352 | 1 | | | | | | | | | | | |
| UNEMP | 0.005 | 0.004 | 0.475 | 0.394 | 1 | | | | | | | | | | |
| ECON-hh | 0.024 | -0.116 | 0.644 | 0.329 | 0.410 | 1 | | | | | | | | | |
| HH.Prev.Year | 0.070 | -0.070 | 0.464 | 0.258 | 0.348 | 0.574 | 1 | | | | | | | | |
| SAV | 0.122 | -0.110 | 0.380 | 0.238 | 0.302 | 0.431 | 0.434 | 1 | | | | | | | |
| DUR | 0.058 | -0.102 | 0.458 | 0.289 | 0.360 | 0.512 | 0.479 | 0.464 | 1 | | | | | | |
| OPT-macro | 0.026 | -0.027 | 0.826 | 0.690 | 0.807 | 0.613 | 0.471 | 0.403 | 0.484 | 1 | | | | | |
| OPT-hh | 0.087 | -0.136 | 0.611 | 0.354 | 0.443 | 0.800 | 0.615 | 0.805 | 0.805 | 0.619 | 1 | | | | |
| Diploma | 0.194 | 0.017 | 0.054 | 0.066 | 0.066 | 0.050 | 0.085 | 0.157 | 0.079 | 0.078 | 0.122 | 1 | | | |
| CAR | 0.113 | -0.197 | 0.169 | 0.117 | 0.141 | 0.213 | 0.215 | 0.316 | 0.243 | 0.186 | 0.323 | 0.097 | 1 | | |
| HOME | 0.082 | -0.192 | 0.112 | 0.071 | 0.083 | 0.138 | 0.141 | 0.186 | 0.154 | 0.116 | 0.200 | 0.079 | 0.280 | 1 | |
| DUR-worth | 0.047 | -0.066 | 0.169 | 0.096 | 0.130 | 0.171 | 0.176 | 0.223 | 0.215 | 0.174 | 0.253 | 0.072 | 0.127 | 0.079 | 1 |
| HOME-exp | 0.100 | −0.167 | 0.200 | 0.094 | 0.141 | 0.224 | 0.219 | 0.307 | 0.243 | 0.193 | 0.324 | 0.079 | 0.270 | 0.307 | 0.168 |

*Appendix A.3. Validity of economic expectations on economic data*

While the focus of this study is differences in expectations based on SES, and their influence on purchases, we also want to highlight the relationship between expectations and actual macroeconomic data. There are antecedents of such exercises in the literature. For example, Coibion et al. (2022) show that households tend to marginally overestimate actual inflation: the average estimation was of 2.5 percent compared to the 2.3 percent actual value of the CPI index in 2018. However, they also report that when asked about the FED's inflation target, less than 20 percent answered correctly that the target is 2 percent, and more than 40 percent answered that it is over 10 percent.

To see whether expectations indeed reflect actual macroeconomic processes, we compare them to actual economic data. In Figures A.5 and A.6, we plot our constructed macroeconomic optimism index (OPT-macro) and the monthly unemployment data.
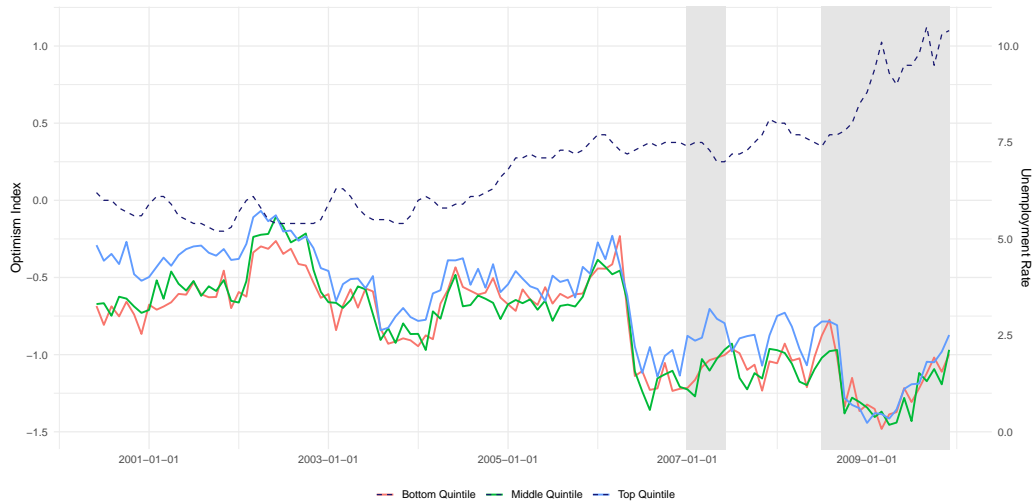


Figure A.5: Macroeconomic Optimism Index by Income Quintiles (solid lines, left axis) and the monthly Unemployment Rate (scattered line, right axis). Shaded areas indicate recession.
Source: FRED

We observe three patterns:

- Expectations reflect the seasonality of unemployment.

- Political events play an important role in expectations. For example, macroeconomic expectations became more positive after elections (2002 and 2006), they also increased with Hungary joining the European Union (May of 2004), but they decreased with the political crisis of 2006.

- For unemployment, overall, the downward-sloping trend of optimism coincides with the upward-sloping unemployment rate observed in the period under consideration. This connection is even more visible when compared to unemployment expectations in Figure A.6.



Figure A.6: Unemployment expectations by Income Quintiles (solid lines, left axis) and the monthly Unemployment Rate (scattered line, right axis). Shaded areas indicate recession. Source: FRED

In Figure A.7, we present a plot comparing inflation expectations with the actual year-on-year inflation rate. During the period under investigation, the average year-on-year inflation in Hungary was approximately 6 percent, with higher inflation rates observed prior to 2002 and during the recession of 2007.

The relationship between inflation expectations and actual inflation is not as straightforward. Before 2002, there is no clear pattern indicating a decrease in inflation expectations despite a decline in actual inflation. However, increases in inflation are preceded by more pessimistic outlooks in 2003 and 2006. Additionally, the decline in inflation following the peak in 2007 is accompanied by only a modest increase in optimism.

Overall, it can be concluded that inflation expectations generally align with actual data, with some exceptions. In cases where expectations deviate from actual inflation, they are more likely to be influenced by political events rather than purely economic factors.
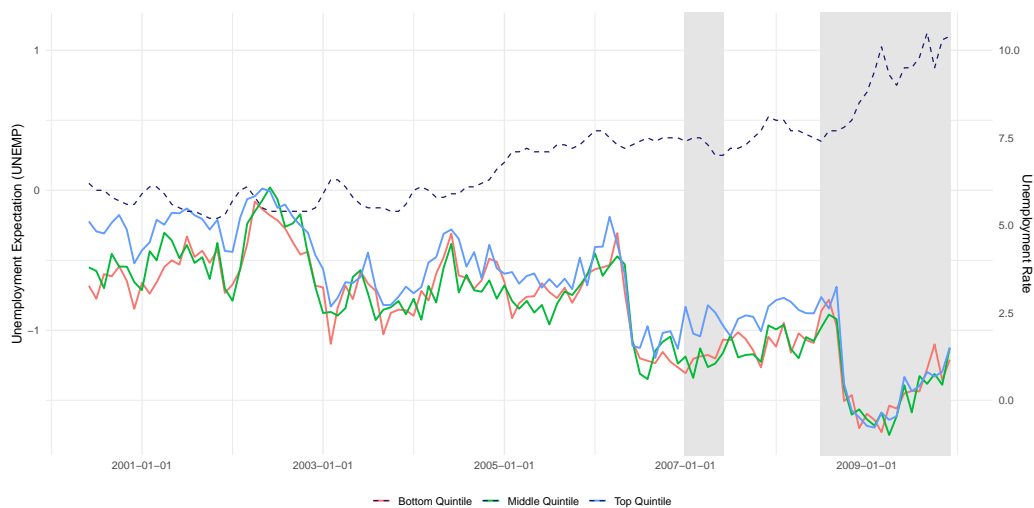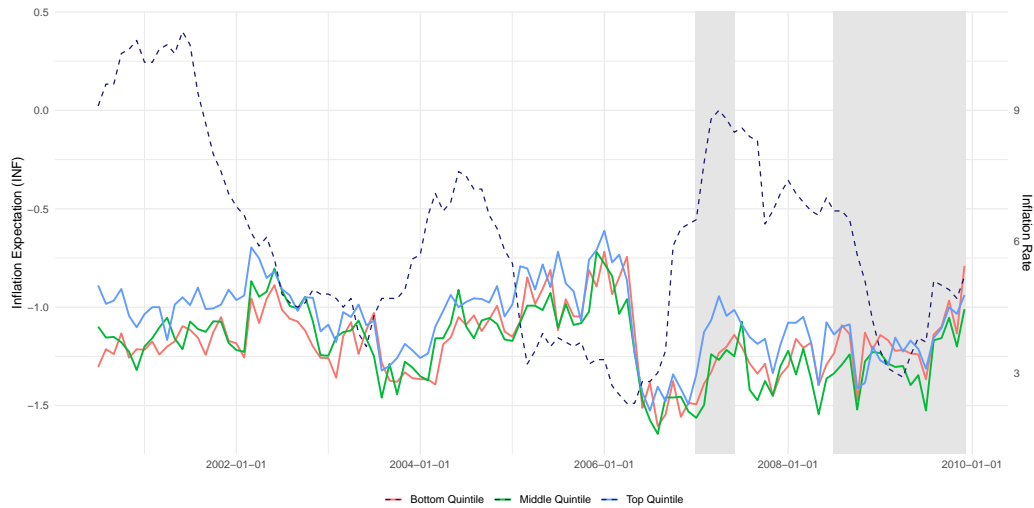


Figure A.7: Inflation expectations by Income Quintiles (solid lines, left axis) and the year-on-year Inflation Rate (scattered line, right axis). The grey area marks quarters when the economy was in recession.

Source: FRED

To address the strong correlation between education and income level, we conduct additional robustness checks on the non-linearity findings presented in Table 4. Specifically, we perform separate regressions by including only the income and education dummy variables. The results of these regressions are presented in Tables A.9 and A.10.

The results from these robustness checks confirm that while the correlation between education and income is an important issue, it generally has a limited effect on the estimated coefficients. This suggests that the non-linearity observed in Table 4 remains robust and is not solely driven by the correlation between education and income.

Table A.9: Robustness check: multicollinearity between macroeconomic optimism components

| | *Dependent variable:* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | ECON-macro | | | INF | | | UNEMP | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| Quintile 2 | 0.036*** | | 0.038*** | −0.002 | | 0.0001 | 0.001 | | 0.003 |
| | (0.012) | | (0.012) | (0.009) | | (0.009) | (0.010) | | (0.010) |
| Quintile 3 | 0.093*** | | 0.090*** | 0.041*** | | 0.037*** | 0.049*** | | 0.045*** |
| | (0.012) | | (0.012) | (0.009) | | (0.009) | (0.010) | | (0.010) |
| Quintile 4 | 0.169*** | | 0.157*** | 0.100*** | | 0.087*** | 0.120*** | | 0.105*** |
| | (0.012) | | (0.012) | (0.009) | | (0.009) | (0.010) | | (0.010) |
| Quintile 5 | 0.254*** | | 0.220*** | 0.184*** | | 0.148*** | 0.232*** | | 0.193*** |
| | (0.012) | | (0.012) | (0.009) | | (0.009) | (0.010) | | (0.011) |
| Has high-school degree | | 0.124*** | 0.101*** | | 0.109*** | 0.092*** | | 0.135*** | 0.113*** |
| | | (0.012) | (0.012) | | (0.009) | (0.009) | | (0.010) | (0.010) |
| Has University diploma | | 0.188*** | 0.122*** | | 0.183*** | 0.133*** | | 0.208*** | 0.142*** |
| | | (0.012) | (0.012) | | (0.008) | (0.009) | | (0.010) | (0.011) |
| Recession | −0.015 | −0.007 | −0.007 | 0.318*** | 0.326*** | 0.326*** | −0.209*** | −0.200*** | −0.200*** |
| | (0.066) | (0.066) | (0.066) | (0.048) | (0.048) | (0.048) | (0.058) | (0.058) | (0.058) |
| Constant | −0.911*** | −0.812*** | −0.929*** | −1.452*** | −1.400*** | −1.469*** | −1.292*** | −1.224*** | −1.312*** |
| | (0.051) | (0.050) | (0.050) | (0.037) | (0.037) | (0.037) | (0.044) | (0.044) | (0.044) |
| Observations | 75,713 | 75,713 | 75,713 | 75,713 | 75,713 | 75,713 | 75,713 | 75,713 | 75,713 |
| R$^2$ | 0.167 | 0.164 | 0.169 | 0.063 | 0.061 | 0.066 | 0.158 | 0.155 | 0.161 |
| Adjusted R$^2$ | 0.166 | 0.163 | 0.167 | 0.061 | 0.060 | 0.065 | 0.156 | 0.154 | 0.159 |
| F Statistic | 128.495*** | 128.046*** | 128.004*** | 42.918*** | 42.369*** | 44.837*** | 120.221*** ) | 120.016*** | 120.876*** |

Standard errors in parentheses.
*/**/*** denotes significance at 1 / 5 / 10 % level.
All regressions include year-month dummies,age, gender, family status.

Table A.10: Robustness check: multicollinearity between household-level optimism components

| | ECON-hh | | | SAV | | | DUR | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| Quintile 2 | 0.029*** | | 0.030*** | 0.019 | | 0.022* | 0.025** | | 0.028** |
| | (0.011) | | (0.011) | (0.013) | | (0.013) | (0.011) | | (0.011) |
| Quintile 3 | 0.071*** | | 0.067*** | 0.155*** | | 0.145*** | 0.096*** | | 0.091*** |
| | (0.011) | | (0.011) | (0.013) | | (0.013) | (0.011) | | (0.011) |
| Quintile 4 | 0.152*** | | 0.139*** | 0.352*** | | 0.318*** | 0.202*** | | 0.185*** |
| | (0.011) | | (0.011) | (0.013) | | (0.013) | (0.011) | | (0.011) |
| Quintile 5 | 0.267*** | | 0.232*** | 0.683*** | | 0.587*** | 0.375*** | | 0.328*** |
| | (0.011) | | (0.011) | (0.013) | | (0.013) | (0.011) | | (0.011) |
| Has high-school degree | | 0.099*** | 0.074*** | | 0.230*** | 0.165*** | | 0.172*** | 0.137*** |
| | | (0.011) | (0.011) | | (0.013) | (0.013) | | (0.011) | (0.011) |
| Has University diploma | | 0.207*** | 0.133*** | | 0.568*** | 0.373*** | | 0.280*** | 0.173*** |
| | | (0.011) | (0.011) | | (0.013) | (0.013) | | (0.011) | (0.011) |
| Recession | −0.034 | −0.026 | −0.026 | −0.171** | −0.150** | −0.152** | −0.129** | −0.117* | −0.118* |
| | (0.063) | (0.063) | (0.063) | (0.071) | (0.072) | (0.071) | (0.061) | (0.061) | (0.061) |
| Constant | −0.683*** | −0.584*** | −0.697*** | −1.541*** | −1.302*** | −1.571*** | −1.017*** | −0.888*** | −1.042*** |
| | (0.048) | (0.047) | (0.048) | (0.054) | (0.055) | (0.054) | (0.047) | (0.046) | (0.047) |
| Observations | 75,713 | 75,713 | 75,713 | 75,713 | 75,713 | 75,713 | 75,713 | 75,713 | 75,713 |
| $R^2$ | 0.161 | 0.157 | 0.162 | 0.114 | 0.092 | 0.124 | 0.120 | 0.111 | 0.124 |
| Adjusted $R^2$ | 0.159 | 0.155 | 0.161 | 0.112 | 0.091 | 0.123 | 0.118 | 0.109 | 0.122 |
| Residual Std. Error | 0.938 | 0.940 | 0.937 | 1.068 | 1.080 | 1.061 | 0.912 | 0.917 | 0.910 |
| F Statistic | 123.315*** | 122.180*** | 123.040*** | 81.961*** | 66.824*** | 89.645*** | 88.136*** | 81.854*** | 90.012*** |

*Dependent variable:*

Standard errors in parentheses.
*/**/*** denotes significance at 1 / 5 / 10 % level.
All regressions include year-month dummies, age, gender, family status.

*Appendix  A.5.  Standardized coefficients*

To facilitate the comparison of the coefficients, we include the standardized coefficients of the SES variables. Note that for inflation (INF) and unemployment (UNEMP), the influence of being in a recession is greater than that of the observed SES variables, but in the other instances SES variables play a more important role.

Table A.11: Standardized coefficients of Table 4

|  | ECON-macro | INF | UNEMP | ECON-hh | SAV | DUR |
|---|---|---|---|---|---|---|
| Quintile 2 | 0.014 | 0.00005 | 0.001 | 0.012 | 0.008 | 0.011 |
| Quintile 3 | 0.033 | 0.020 | 0.019 | 0.026 | 0.051 | 0.038 |
| Quintile 4 | 0.058 | 0.047 | 0.045 | 0.055 | 0.113 | 0.077 |
| Quintile 5 | 0.082 | 0.080 | 0.082 | 0.091 | 0.209 | 0.136 |
| Has University Diploma | 0.035 | 0.056 | 0.047 | 0.041 | 0.104 | 0.056 |
| Has high-school degree | 0.029 | 0.038 | 0.037 | 0.022 | 0.045 | 0.044 |
| Recession | -0.002 | 0.165 | -0.080 | -0.010 | -0.051 | −0.046 |

*Appendix A.6. Ordinal Logit Models*

As an additional step to validate our results, we use an Ordinal Logit Model framework implemented in R in the "MASS" package (Ripley et al., 2013). Throughout our regression analysis, we assumed a linear relationship along the responses (-2: will be much worse; -1: will be worse, 0: will remain the same, etc.). We can also analyze the issue by looking at the effect of factors on proportional odds of having a more favorable outlook. We include results for the OPT-macro components (that is: ECON-macro, INF, and UNEMP). P-values are obtained by comparing the t-values against the normal distribution. Overall, we see similar results to our OLS regressions, although it is worth noting that there is significant variability in the effects. For example, in the case of inflation, recession and education seem to have a higher effect than in the estimates of UNEMP and ECON-macro.

Table A.12: Ordinal Logit Models estimate for ECON-macro

|  | Value | Std. Error | t-value | p-value |
|---|---|---|---|---|
| Quintile 2 | 0.025 | 0.022 | 1.132 | 0.258 |
| Quintile 3 | 0.073 | 0.022 | 3.314 | 0.001 |
| Quintile 4 | 0.128 | 0.022 | 5.799 | 0 |
| Quintile 5 | 0.121 | 0.023 | 5.284 | 0 |
| Has University Diploma | 0.127 | 0.023 | 5.487 | 0 |
| Has High-School Degree | 0.127 | 0.022 | 5.643 | 0 |
| Recession | 0.171 | 0.122 | 1.397 | 0.162 |
| HH.Prev.Year | 0.867 | 0.008 | 105.967 | 0 |
| Intercepts: | | | | |
| -2\|-1 | -1.599 | 0.094 | -17.080 | 0 |
| -1\|0 | -0.057 | 0.093 | -0.614 | 0.540 |
| 0\|1 | 1.573 | 0.094 | 16.805 | 0 |
| 1\|2 | 5.334 | 0.100 | 53.501 | 0 |

Table A.13: Ordinal Logit Models estimate for INF

|  | Value | Std. Error | t-value | p-value |
|---|---|---|---|---|
| Quintile 2 | -0.040 | 0.023 | -1.715 | 0.086 |
| Quintile 3 | 0.043 | 0.023 | 1.829 | 0.067 |
| Quintile 4 | 0.138 | 0.023 | 5.887 | 0 |
| Quintile 5 | 0.223 | 0.024 | 9.221 | 0 |
| Has University Diploma | 0.305 | 0.024 | 12.787 | 0 |
| Has High-School Degree | 0.224 | 0.024 | 9.494 | 0 |
| Recession | 1.042 | 0.131 | 7.929 | 0 |
| HH.Prev.Year | 0.534 | 0.008 | 65.596 | 0 |
| Intercepts: |  |  |  |  |
| -2\|-1 | -0.457 | 0.101 | -4.534 | 0 |
| -1\|0 | 2.269 | 0.101 | 22.435 | 0 |
| 0\|1 | 4.710 | 0.105 | 44.882 | 0 |
| 1\|2 | 5.063 | 0.107 | 47.489 | 0 |

Table A.14: Ordinal Logit Models estimate for UNEMP

|  | Value | Std. Error | t-value | p-value |
|---|---|---|---|---|
| Quintile 2 | -0.023 | 0.022 | -1.013 | 0.311 |
| Quintile 3 | 0.031 | 0.022 | 1.404 | 0.160 |
| Quintile 4 | 0.114 | 0.022 | 5.109 | 0 |
| Quintile 5 | 0.211 | 0.023 | 9.189 | 0 |
| Has University Diploma | 0.233 | 0.023 | 10.287 | 0 |
| Has High-School Degree | 0.206 | 0.023 | 9.139 | 0 |
| Recession | -0.350 | 0.125 | -2.797 | 0.005 |
| HH.Prev.Year | 0.611 | 0.008 | 77.443 | 0 |
| Intercepts: |  |  |  |  |
| -2\|-1 | -0.773 | 0.095 | -8.144 | 0 |
| -1\|0 | 1.199 | 0.095 | 12.629 | 0 |
| 0\|1 | 3.134 | 0.096 | 32.760 | 0 |
| 1\|2 | 6.146 | 0.107 | 57.492 | 0 |

*Appendix A.7. Income level as a linear regressor*

In this Appendix, we report regressions that follow Das et al. (2020) by imposing a linear structure. That is, instead of using quintile dummies, we introduce a variable called Quintile that takes the value of the corresponding quintile (1 for the bottom quintile, 2 for the second quintile and so on). In specification (1) (which is the most akin to Das et al. (2020)), we find that the linear income rank has a significant and positive coefficient. However, once we include relevant factors in specifications (2) and (3), the coefficient becomes insignificant, as in our preferred regression (see Table 5). As for household-level optimism, the linear income variable (Quintile) remains significant in all specifications.

Table A.15: Recreation of Table 5 with linear income rank specification

| | OPT-macro | | | OPT-hh | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Quintile | 0.051*** | 0.002 | −0.001 | 0.103*** | 0.070*** | 0.047*** |
| | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) |
| | | | | | | |
| Has University diploma | 0.145*** | 0.030 | 0.037* | 0.239*** | 0.145*** | 0.145*** |
| | (0.024) | (0.020) | (0.020) | (0.028) | (0.023) | (0.021) |
| | | | | | | |
| Rec. × Quintile | −0.008* | 0.007** | 0.007** | −0.031*** | −0.026*** | −0.020*** |
| | (0.004) | (0.004) | (0.004) | (0.005) | (0.004) | (0.004) |
| | | | | | | |
| Rec. × Univ. Diploma | −0.005 | −0.004 | −0.006 | −0.003 | 0.0001 | −0.008 |
| | (0.006) | (0.005) | (0.005) | (0.007) | (0.006) | (0.005) |
| | | | | | | |
| OPT-hh | | 0.482*** | 0.420*** | | | |
| | | (0.003) | (0.003) | | | |
| | | | | | | |
| HH.Prev.Year | | | 0.093*** | | | 0.321*** |
| | | | (0.003) | | | (0.002) |
| | | | | | | |
| OPT-macro | | | | | 0.646*** | 0.467*** |
| | | | | | (0.003) | (0.003) |
| Recession | 0.059 | 0.063* | 0.078** | −0.009 | −0.047 | 0.014 |
| | (0.045) | (0.038) | (0.037) | (0.053) | (0.044) | (0.039) |
| | | | | | | |
| Constant | −1.289*** | −0.697*** | −0.661*** | −1.229*** | −0.396*** | −0.247*** |
| | (0.033) | (0.028) | (0.028) | (0.039) | (0.032) | (0.029) |
| | | | | | | |
| Observations | 75,713 | 75,713 | 75,619 | 75,713 | 75,713 | 75,619 |
| R² | 0.191 | 0.443 | 0.452 | 0.191 | 0.443 | 0.546 |
| Adjusted R² | 0.190 | 0.442 | 0.452 | 0.190 | 0.442 | 0.545 |
| Residual Std. Error | 0.651 | 0.541 | 0.536 | 0.756 ( | 0.628 | 0.567 |
| F Statistic | 149.653*** | 505.892*** | 522.460*** | 146.736*** ( | 501.706*** | 757.878*** |

Standard errors in parentheses.
*/**/*** denotes significance at 1 / 5 / 10 % level.
All regressions include year-month dummies, age, gender, family status.

*Appendix  A.8.  Income level using income deciles*

For further analysis, we included a specification where instead of income quintiles, we use income decile dummies (again, by defining the income deciles by clustering for age and the month of the survey). Again, we find that the first three - and in the case of $UNEMP$, the first four - income deciles are not significantly different from each other. At the higher end, however, we

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can see a jump starting from Deciles 9 in many cases, and not just between 9 and 10, meaning that this increase in effect is not strictly concentrated on the highest income level.

Table A.16: Regression results for economic expectations based on separate decile dummies

| | Dependent variable: | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | ECON-macro | INF | UNEMP | OPT-macro | ECON-hh | SAV | DUR | OPT-hh |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Decile3 | 0.019 | −0.006 | −0.009 | 0.001 | 0.010 | −0.010 | 0.013 | 0.004 |
| | (0.014) | (0.010) | (0.012) | (0.009) | (0.013) | (0.015) | (0.013) | (0.011) |
| Decile4 | 0.060*** | 0.008 | 0.014 | 0.027*** | 0.050*** | 0.050*** | 0.040*** | 0.047*** |
| | (0.014) | (0.010) | (0.012) | (0.009) | (0.013) | (0.015) | (0.013) | (0.011) |
| Decile5 | 0.076*** | 0.023** | 0.030** | 0.043*** | 0.056*** | 0.107*** | 0.072*** | 0.078*** |
| | (0.014) | (0.010) | (0.012) | (0.009) | (0.013) | (0.015) | (0.013) | (0.011) |
| Decile6 | 0.106*** | 0.051*** | 0.058*** | 0.072*** | 0.078*** | 0.182*** | 0.111*** | 0.124*** |
| | (0.014) | (0.010) | (0.012) | (0.009) | (0.013) | (0.015) | (0.013) | (0.011) |
| Decile7 | 0.156*** | 0.079*** | 0.095*** | 0.110*** | 0.126*** | 0.282*** | 0.164*** | 0.191*** |
| | (0.014) | (0.010) | (0.012) | (0.009) | (0.013) | (0.015) | (0.013) | (0.011) |
| Decile8 | 0.162*** | 0.097*** | 0.117*** | 0.125*** | 0.157*** | 0.359*** | 0.208*** | 0.242*** |
| | (0.014) | (0.010) | (0.012) | (0.009) | (0.013) | (0.015) | (0.013) | (0.011) |
| Decile9 | 0.180*** | 0.120*** | 0.168*** | 0.156*** | 0.177*** | 0.460*** | 0.260*** | 0.299*** |
| | (0.014) | (0.010) | (0.013) | (0.009) | (0.014) | (0.015) | (0.013) | (0.011) |
| Decile10 | 0.267*** | 0.178*** | 0.221*** | 0.222*** | 0.292*** | 0.724*** | 0.401*** | 0.473*** |
| | (0.015) | (0.011) | (0.013) | (0.010) | (0.014) | (0.016) | (0.013) | (0.011) |
| Has University Diploma | 0.113*** | 0.128*** | 0.137*** | 0.126*** | 0.122*** | 0.347*** | 0.160*** | 0.210*** |
| | (0.012) | (0.009) | (0.011) | (0.008) | (0.012) | (0.013) | (0.011) | (0.009) |
| Has High-School Degree | 0.100*** | 0.092*** | 0.112*** | 0.101*** | 0.073*** | 0.162*** | 0.135*** | 0.123*** |
| | (0.012) | (0.009) | (0.010) | (0.008) | (0.011) | (0.013) | (0.011) | (0.009) |
| Constant | −0.931*** | −1.470*** | −1.313*** | −1.238*** | −0.697*** | −1.573*** | −1.043*** | −1.104*** |
| | (0.050) | (0.037) | (0.044) | (0.033) | (0.048) | (0.054) | (0.046) | (0.038) |
| Observations | 75,713 | 75,713 | 75,713 | 75,713 | 75,713 | 75,713 | 75,713 | 75,713 |
| $R^2$ | 0.169 | 0.067 | 0.161 | 0.194 | 0.163 | 0.128 | 0.125 | 0.198 |
| Adjusted $R^2$ | 0.168 | 0.065 | 0.159 | 0.192 | 0.162 | 0.126 | 0.123 | 0.196 |
| Residual Std. Error (df = 75584) | 0.988 | 0.720 | 0.867 | 0.649 | 0.936 | 1.058 | 0.910 | 0.749 |
| F Statistic (df = 128; 75584) | 120.077*** | 42.170*** | 113.207*** | 141.949*** | 115.135*** | 86.324*** | 84.227*** | 145.389*** |

*Note:* $^{*}$p<0.1; $^{**}$p<0.05; $^{***}$p<0.01

Standard errors in parentheses.
*/**/*** denotes significance at 1 / 5 / 10 % level.
All regressions include time-year dummies, age, gender, family status.
OPT-macro = (ECON-macro + INF + UNEMP)/3
OPT-hh = (ECON-hh + SAV + DUR) / 3

*Appendix A.9. Heterogeneity of past experience*

Table A.17: Heterogeneous effects of past experiences on SES as a channel for optimism

| | *Dependent variable:* | | | |
| | OPT-macro | | Opt-HH | |
| | (1) | (2) | (3) | (4) |
| HH. Prev.Year $\times Quintile$ | −0.002 | | 0.011*** | |
| | (0.002) | | (0.002) | |
| HH. Prev.Year $\times Quintile2$ | | 0.003 | | −0.003 |
| | | (0.007) | | (0.008) |
| HH. Prev.Year $\times Quintile3$ | | 0.013* | | 0.014* |
| | | (0.007) | | (0.008) |
| HH. Prev.Year $\times Quintile4$ | | 0.005 | | 0.024*** |
| | | (0.007) | | (0.008) |
| HH. Prev.Year $\times Quintile5$ | | −0.014* | | 0.034*** |
| | | (0.007) | | (0.008) |
| Constant | −0.956*** | −0.931*** | −0.714*** | −0.627*** |
| | (0.031) | (0.031) | (0.033) | (0.032) |
| Observations | 75,619 | 75,619 | 75,619 | 75,619 |
| $R^2$ | 0.320 | 0.320 | 0.436 | 0.437 |
| Adjusted $R^2$ | 0.318 | 0.319 | 0.435 | 0.436 |
| Residual Std. Error | 0.596 | 0.596 | 0.628 | 0.628 |
| F Statistic | 288.278*** ( | 275.184*** | 473.972*** | 453.302*** |

Standard errors in parentheses.
*/**/*** denotes significance at 1 / 5 / 10 % level.
All regressions include year-month dummies, age, gender, income quintiles, education level, family status and recession.

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