



The role of financial literacy in shaping inflation beliefs: The case of Ukraine[☆]

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ABSTRACT

This paper investigates how households' financial literacy influences their perceptions of past inflation and expectations of future price changes. Using novel survey data collected in Ukraine, we employ instrumental variable quantile regression models across various household subsamples to assess the asymmetric and heterogeneous effects of financial literacy on inflation-related beliefs. We find that the impact of financial literacy varies significantly across the distributions of inflation perceptions and expectations, shaped by distinct components – knowledge, behavior, and attitude – as well as by household characteristics such as size, income level, and place of residence. We also find that trust in the banking system enhances the accuracy of inflation beliefs, with a stronger effect as perceptions and expectations deviate from benchmarks. These findings have important implications for central banks seeking to anchor inflation expectations.

1. Introduction

Inflation expectations are recognized as a crucial tool in monetary policy for shaping economic behavior. Expectations regarding future price changes significantly impact the current economic decisions made by agents, affecting consumption, investments, and wage negotiations. For central banks, it is vital to have these expectations anchored around a target, as this improves the transmission of monetary policy and reduces macrofinancial volatility. Therefore, central banks must understand the factors driving inflation and identify the sources of unanchored expectations.

However, the factors influencing inflation expectations can vary among different economic agents. Professional forecasters base their expectations on advanced models and possess substantial experience and knowledge in this area. In contrast, households may lack the economic education necessary to fully understand inflation processes; their inflation expectations tend to be less anchored and often skewed upward. This can pose challenges for central banks in effectively transmitting policy decisions and stabilizing the economy. Unanchored inflation expectations can stem from a lack of trust in the central bank

and the banking system or from low financial literacy among economic agents, who may be unaware of the central bank's efforts to control price changes.

Recent empirical research suggests that the accuracy of current inflation perceptions and expectations is more closely linked to specific economic or financial knowledge than to general education levels or income (van der Cruijsen et al., 2021). Given concerns about low saving propensity and potential financial vulnerability, research studies have primarily focused on measuring financial literacy and demonstrating that it is a strong predictor of wealth (Lusardi and Mitchell, 2007). Clark et al. (2017) argue that financial literacy leads to better investment outcomes, as financially literate individuals achieve higher risk-adjusted returns. Studies have also shown that individuals with higher financial literacy are more effective at managing their debt (Lusardi et al., 2020). Moreover, related literature has made significant efforts to explore how demographic factors, such as gender and age, influence financial literacy and shape financial decision-making (Hsu, 2016; Driva et al., 2016; Finke et al., 2017; Klapper and Lusardi, 2019; Muñoz-Murillo et al., 2020). Additionally, evidence suggests that financial literacy helps individuals adapt to economic shocks. Specifically, Bilici and Çevik (2023)

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demonstrate that financially literate respondents tended to hold significantly less cash and were more responsive in their contactless payment behaviors during the COVID-19 pandemic.

Recent studies examining financial literacy and inflation in both the United States and Europe highlight the potential of financial literacy to moderate inflation expectations and, consequently, influence prices (Rumler and Valderrama, 2020; Yakoboski et al., 2023; Beckmann and Kiesel-Reiter, 2023; Coibion et al., 2022). However, despite inflation being one of the most understood financial concepts (Beckmann and Kiesel-Reiter, 2023), there is still limited evidence regarding the influence of financial literacy on inflation in emerging markets. This issue is often exacerbated in these markets, which have less developed financial sectors and lower literacy levels (Hastings et al., 2013; USAID, 2021). The volatile environment in these countries complicates effective communications, leading inflation-targeting central banks to face greater challenges in gaining credibility and anchoring expectations.

In contrast to the inflation behavior of professional forecasters, the inflation expectations of households have been studied much less due to a lack of relevant data. Additionally, the existing literature has largely overlooked an important aspect of expectations: the skewness of inflation expectations, which becomes increasingly relevant in volatile markets. This skewness presents a significant challenge for inflation-targeting central banks, as unanchored inflation expectations among economic agents can distort inflation perceptions and hinder accurate forecasting. Consequently, under conditions of high uncertainty, individual assessments or predictions, as well as the accuracy of forecasts, are likely to be skewed. In such a context, central banks encounter increased difficulties in anchoring consumer expectations, making it essential to carefully study the impact of extreme values on outcomes.

In this study, we assess whether financial literacy can influence the accuracy of households' perceptions of current inflation and their beliefs about future price changes. We take into account the skewness of inflation perceptions and expectations, as well as other heterogeneous aspects, such as different components of financial literacy and household characteristics. We utilize novel, representative survey data on financial literacy conducted in Ukraine by Info Sapiens in 2021 on behalf of USAID. In collaboration with the National Bank of Ukraine, the survey included several questions regarding respondents' beliefs about inflation processes in Ukraine. This enabled us to assess and quantify the link between financial literacy and inflation perceptions and expectations. Using a unified OECD approach to assess financial literacy, the dataset includes information on all three components of financial literacy: financial knowledge, financial behavior, and financial attitude. This allows us to test the role of different aspects of financial literacy in shaping inflation expectations.

To capture how financial literacy influences inflation perceptions and expectations, we examine variations in two dependent variables: individual deviations of inflation perceptions from the actual (official) inflation rate and deviations of individual one-year inflation expectations from the consensus forecast made by professional forecasters at the country's main analytical centers.

Our empirical approach involves estimating instrumental variable quantile regressions to account for the skewed distributions of inflation perceptions and expectations, as well as to address endogeneity issues in our identification strategy. We use households' investment opportunity experience as an instrument to address reverse causality or potential endogeneity resulting from measurement error or unobserved variable bias. We also estimate the effects of the components of financial literacy separately and for specific subsamples to account for heterogeneous effects across different groups. Additionally, since our analysis is closely related to anchoring inflation expectations, it is crucial to determine whether individual trust in banking institutions helps to reduce inflation perceptions and expectations, especially given the unique features of emerging markets (Christelis et al., 2020). Therefore, we also control for trust in the banking system, as captured in the survey.

Our main findings can be summarized as follows. First, this research

confirms that financial literacy enhances the accuracy of individual inflation perceptions and expectations among Ukrainian households in the short run. Our findings reveal that the impact of financial literacy varies significantly across the distribution of inflation perceptions and expectations and is shaped by distinct components of financial literacy – namely, knowledge, behavior, and attitude – as well as household characteristics such as size, income level, and place of residence.

Second, financial knowledge, behavior, and attitude play crucial roles among respondents whose perceptions and expectations are relatively accurate and align with the official inflation rate and consensus forecasts (i.e., the left and middle parts of the distribution). The effect is particularly strong for financial knowledge and is revealed more clearly for specific household subsamples, particularly among larger households in small towns and villages.

Third, financial behavior and attitude also become very important for households whose inflation perceptions and expectations tend to be extremely inaccurate. In some cases, for different antagonistic subsamples of households, we find that the effect of financial literacy varies significantly across the extremes of the distributions. For instance, financial attitude is important for low-income households at the lower end of the distribution of inflation expectations, where expectations align closely with the consensus forecast. Conversely, for high-income households, financial literacy is important at the upper end of the distribution.

Fourth, we also find that financial literacy and its components have no statistically significant effect for households in metropolitan areas (the largest cities in Ukraine) at any point in the distributions for both inflation perceptions and expectations. This may suggest that households in this group have a different consumption basket and, consequently, differing perceived and expected inflation rates.

Lastly, our results demonstrate that trust in the banking system significantly enhances the accuracy of perceptions and expectations regarding inflation. This effect becomes stronger, both statistically and economically, as individuals' beliefs deviate further from benchmarks.

From a policymaking perspective, our results reveal that financial literacy could be an important tool for a central bank. Enhancing financial knowledge – specifically improving understanding of inflation, economic relationships, and policy transmission – can help improve perceptions and expectations for households that already align closely with benchmarks. Additionally, we highlight another critical aspect of financial literacy: behavior and attitude, which are vital for households with unanchored perceptions and expectations. In this regard, communication and educational efforts aimed at enhancing households' budgeting and saving skills, as well as fostering a better investment mindset and long-term planning, are essential policy tools. Furthermore, improving access to financial services and tools for the general public can also positively influence financial behavior and attitudes.

The paper is organized as follows: Section 2 presents the dataset, Section 3 describes our empirical methodology, Section 4 reports estimation results along with several robustness checks, and Section 5 concludes.

2. Financial literacy survey database for Ukraine

Our research utilizes data collected from a nationwide, statistically representative survey of financial literacy and financial inclusion in Ukraine, conducted according to OECD methodology in August 2021 as part of the USAID Financial Sector Transformation Project, in collaboration with the National Bank of Ukraine (NBU). The OECD report describes the methodology and contains the actual survey questions.¹ USAID required survey agencies to have an original full sample of 1700

¹ OECD (2022). OECD/INFE Toolkit for Measuring Financial Literacy and Financial Inclusion. Retrieved from www.oecd.org/financial/education/2022-INFE-Toolkit-Measuring-Finlit-Financial-Inclusion.pdf (accessed 18 October 2022).

valid contacts (individuals) while allowing the survey agencies to form larger sample sizes if they wanted to increase the precision of their estimates.² In contrast to the OECD research, this study analyzes a full representative sample to account for the impact of outliers and to learn the asymmetric influence of financial literacy on inflation expectations. The poll aims to evaluate financial literacy, financial inclusion, and financial well-being in Ukraine in 2021. The survey reveals significant differences in financial literacy based on age, place of residence, education, and income, but no differences by gender. The survey concludes that Ukrainians have a lower income and, consequently, experience greater financial stress compared to their peers in more advanced countries (USAID, 2021).³

Anonymized individual survey responses cover questions to evaluate financial literacy and its components: financial attitudes, financial knowledge, and financial behaviors related to budgeting, planning, and managing finances. The financial literacy score in Ukraine increased by 6.0 % over a period of less than three years, reaching 12.3 points in 2021, which equaled 58 % of its maximum value, according to the OECD methodology. USAID emphasized that the components of the financial literacy index had improved since the previous round of the survey. Meanwhile, the financial literacy score growth rate in the countries being compared, which participated in the OECD surveys in 2016 and 2020 (Georgia, Estonia, Poland, Russia, Hungary, Croatia, and the Czech Republic), amounted to only 2.4 %. Similarly, Ukraine came close to those countries in percentage terms compared to the maximum (60 %).

At the request of the NBU, the USAID 2021 survey also included a set of open-ended follow-up questions regarding individual perceptions of the current inflation rate and short-term (one-year) inflation predictions. Specifically, respondents were asked to indicate or predict the exact figures for:

- (1) consumer price changes over the past 12 months (How much do you believe the prices of consumer goods and services have changed over the last year?);
- (2) expected price changes in the upcoming 12 months (How do you foresee the prices of consumer goods and services changing in the next year?).

Answers to recent questions enable us to investigate how financial literacy and its specific components influence the perception of past inflation and future inflation expectations among Ukrainian households. Additionally, to determine if the ability of financial literacy aligns with the central bank's inflation target, we analyze the deviations of individual perceptions from the actual inflation rate and the deviations of individual expectations from the consensus forecast of inflation made by key state analytical centers.

The mean and median values of the dependent variables are significantly different, indicating that their distributions are considerably skewed. Both dependent variables (inflation perceptions and expectations) demonstrate a significantly right-skewed distribution, indicating problems with unanchored expectations (see Fig. 1). Inflation perceptions deviate from the actual inflation rate, with some respondents allowing extremely high deviations of up to 90 %. The accuracy of one-year predictions estimated from the consensus forecast over the one-

year horizon deteriorates, resulting in a wider deviation range.

Table 1 shows the descriptive statistics for the variables used in this analysis. Individual inflation perceptions averaged 23.2 %, ranging from 1.5 % to 100 %, whereas the actual inflation rate for the previous 12 months in Ukraine was 10.2 %. Respondents expected prices to increase by 21.3 % on average in the next year, while professional forecasters predicted 7.2 % inflation (consensus forecast).

The average respondent is 45 years old, earns circa UAH 6,570, and tends to save about 9 % of their income. Approximately 23 % of the sample reside in metropolises and probably have different consumer baskets than residents of other parts of the country. 65 % of the sample represents the labor force – employed respondents or those looking for a job – and 30 % of the households have minor children.

In Table 2, we divide our full sample into subsamples based on the inflation anchoring criterion and focus on the characteristics of those subsets with extreme inflation expectations – those below the 25th percentile (corresponding to anchored expectations) and those above the 75th percentile (corresponding to unanchored expectations). We use the nonparametric Wilcoxon (Mann-Whitney) rank-sum test to compare the differences between the groups.

Individuals who are likely to have anchored expectations have a higher monthly income (UAH 7143 vs. UAH 5806), trust the banking system more (2.9 vs. 2.3), and have more investment experience (0.444 vs. 0.293) despite being considerably younger (on average, 44.4 vs. 47.7 years old). Respondents with anchored inflation expectations are significantly better educated (3.157 vs. 2.974) and demonstrate higher financial literacy (8.1 vs. 7.2).

To better understand the practical implications of financial literacy in anchoring inflation expectations, we consider subsamples of consumers who may have specific structures of their consumer baskets that may affect financial literacy. Specifically, we pay close attention to respondents from metropolitan areas, those who belong to the labor force, households with considerable budget restrictions (such as low-income or large households), or those with specific expenditures due to their nature (households with minor children). It is essential to note that residents of metropolitan areas, labor force participants, individuals with higher incomes, and members of larger households with children are better educated, have gained more investment experience, and demonstrate significantly better financial literacy (Tables 3–7 for details).

Figs. 2 and 3 illustrate the scatter plots showing the correlation between inflation perceptions/expectations and financial literacy (and its components). Our preliminary analysis suggests that better financial literacy would likely sharpen Ukrainian households' understanding and make inflation expectations more accurate. However, it is worth noting that we should pay particular attention to non-linearity and the effect of outliers.

3. Methodology

3.1. Dealing with skewed distributions and asymmetric effects of financial literacy

This paper employs complementary methods to investigate the role of financial literacy in the inflation perceptions and inflation expectations of Ukrainian households. Considering the research topic and the specific issues encountered by other empirical papers using OLS regressions, we address essential concerns that hinder hypothesis testing and may lead to inconsistent conclusions. One of the key assumptions of linear regression is that residual errors would follow a normal distribution. Meeting this requirement when a continuous variable is skewed requires the subsequent logarithmic transformation of the variable of interest (Cameron and Trivedi, 2013.). Note that the distributions of deviations of individual inflation perceptions and expectations are positively skewed but appear approximately normal after log transformations.

Given the construction of our dependent variables and the need to

² The survey is representative of adults aged between 18 and 79 in Ukraine. In order to make international comparisons and to analyze the representativeness of national data by key socio-demographics, such as gender and age, survey agencies randomly drew 1000 participants (the minimum sample size) for interview.

³ The countries for comparison were selected according to the following four criteria: 1) the presence of the country in two OECD studies on financial literacy (2016 and 2020); 2) its index of financial development being less than 0.5; 3) being located in Europe; 4) having a lower-middle, upper-middle or high level of GDP per capita according to World Bank methodology.

estimate anchoring ability, the outcomes we might obtain via deviations also show right-skewed distributions with many zero values, but prevent the transformation of the distribution into a normal one, as the log of zero is undefined, and a log-linear regression could be infeasible in practice. The common practice of running linear regressions of the log of one plus the outcome allows for the retention of observations with zero-valued outcomes but produces biased estimates (frequently with the wrong sign) and hence makes interpretations unclear.⁴ Cohn et al. (2022) identify specific sources of bias of regressions with one plus outcome transformation and demonstrate that their drawbacks have a practical importance for empirical researchers.

In the context of this study, it is crucial to investigate households with enormous inflation expectations more precisely, as well as those whose predictions are anchored to the central bank's target. However, using the traditional OLS method in this case could pose a risk that such observations would be dismissed as outliers. To address this problem, researchers can segment the response variable into subsets based on its unconditional distribution and then apply the OLS technique. An alternative approach, which relies on the quantile regression method, appears preferable (Koenker and Hallock, 2001; Kaplan and Sun, 2017; Kaplan, 2022). Estimating linear models using quantile regressions may be preferable to traditional regression methods for several reasons. First, quantile regression results are characteristically robust to outliers and heavy-tailed distributions. Second, the quantile regression technique avoids the restrictive assumption that the error terms are identically distributed over all points of the conditional distribution. Not making this assumption allows us to factor in households' heterogeneity and address the situation where estimated slope parameters vary at different quantiles. Thus, having skewed or not normally distributed variables is another reason for using the quantile regression methodology. The value of the estimated parameters varies over the conditional inflation rate distribution. The coefficients could be interpreted as a marginal change in the regressand at a certain quartile due to a marginal change in a particular regressor.

3.2. Endogeneity issues and the IV approach

In this research, we must also account for the possibility that the relationship between financial literacy and inflation may be affected by endogeneity issues, which could arise due to omitted variables or reverse causality, potentially biasing OLS estimates. For instance, elevated inflation expectations in emerging markets may lead individuals to pay closer attention to their financial decisions, thereby impacting their financial literacy. Malmendier and Nagel (2016), Beckmann and Kiesel-Reiter (2023) argue that adverse lifetime inflation experience can contribute to the acquisition of financial knowledge and play a crucial role in shaping inflation expectations.

Given the potential endogeneity that could be caused by the educational effect of frequent and excessive inflation, combined with the higher uncertainty associated with less developed emerging markets, it is reasonable to apply estimation techniques that address endogeneity concerns. This study applies the IV technique and estimates the following regressions:

$$y_i = \alpha_0 + \alpha_1 FL + \sum_{j=1}^k \gamma_j X_j + \varepsilon_i \quad (1)$$

$$FL_i = \beta_1 Invest_{Experience} + \sum_{j=1}^k \gamma_j X_j + \vartheta_i \quad (2)$$

⁴ Rather than relying on a linear regression of a transformed variable to obtain consistent estimates, researchers can use alternative models that also account for outcomes with zero values. For example, the Poisson regression (a generalized linear model) is well-suited for modeling count data, even when the outcome variable is continuous or exhibits many zero values (Santos Silva and Tenreiro, 2011).

where y_i corresponds to one of the two dependent variables: (1) the deviation of individual inflation perceptions from the actual inflation rate or (2) the deviation of expected inflation in one year for respondent i from the consensus forecast made by state analytical centers.

The construction of dependent variables described above is motivated by evidence from the literature that examines the cross-sectional variation of inflation expectations (Capistrán and Ramos-Francia, 2010; Beechey et al., 2011; Kumar et al., 2015; Reis, 2021) to identify the lack of anchoring in inflation expectations. Levin et al. (2004) and Kumar et al. (2015) argue that unanchored inflation expectations show greater deviations from the central bank's inflation target and react more strongly to surprises in monetary policy (Gürkaynak et al., 2006). Moreover, unanchored expectations tend to be more volatile and are revised more frequently (Dräger and Lamla, 2017).

FL_i refers to the key variable of interest to us – the level of the inflation literacy (or one of its components) of individual i ; X_j contains control variables, which could potentially influence the current or expected inflation rate and financial literacy; and ε_i is an i.i.d. referring to the error term. The controls include respondents' sociodemographic characteristics, such as age, sex, marital status, and residence. Note that we also include trust in financial institutions (banks) as a control variable, as there is evidence that higher trust in the central bank lowers inflation expectations (Christelis et al., 2020).

To address endogeneity concerns, our primary task is to identify valid instruments that correlate with financial literacy (encompassing financial attitudes, specific financial knowledge, or financial behavior) after all exogenous controls have been accounted for but are unlikely to have any direct effect on inflation perceptions or expectations. These instruments should be relevant but not correlated with the errors of the second-stage regressions. For this aim, we exploit the variations in the key components of human capital, such as gained investment experience, to instrument financial literacy.

Lusardi et al. (2017) propose a model in which financial knowledge, a key component of financial literacy, is viewed as a form of human capital investment. The idea is that individuals accumulate financial knowledge through direct investment in financial education or through "learning by doing" over their life cycle. Our instrument represents individual investment experience, which is likely most relevant as the acquisition of such experience covaries with financial literacy. Investment experience is computed as the sum of the possible ways to invest. The research company (Info Sapiens) collected information on available investment endeavors in the past, such as buying bonds or putting the money on a time deposit, investing in crypto assets, cryptocurrencies, etc., purchasing shares, or investing in an alternative way except for pension contributions invested in the purchase of livestock, gold, property, etc. (see Appendix C for details). Even a preliminary analysis shows that the potential instrument (investment experience) is associated with financial literacy and its components, but not with inflation perception and expectations, which justifies the choice of our instrument (see the correlation matrix in Table 8).

Given the discussion in this section, it is worth emphasizing that our investigation draws on the instrumental variable quantile regression model introduced by Chernozhukov and Hansen (2005) to examine the asymmetric impact of various aspects of financial literacy on inflation perceptions and expectations. Specifically, we apply the estimation technique that implements the smoothed estimator suggested by Kaplan and Sun (2017), who demonstrate that smoothing improves statistical accuracy.

4. Empirical results

4.1. The impact of financial literacy on inflation perceptions and inflation expectations

The next step of our research is to analyze the ability of financial

literacy to improve inflation perceptions and anchor inflation expectations. With that in mind, we model the deviation of perceived inflation from actual inflation for the past year and the deviation of households' predictions from the one-year-ahead consensus forecast produced by key analytical centers for the same period.

Before examining how financial literacy may influence individual inflation perceptions and the formation of inflation expectations among different types of households, we first need to consider whether there are any concerns regarding endogeneity when using linear estimates. That is why we present IV regression outcomes for inflation perceptions and expectations from the outset (see Table 9).

Given that the possible bias tends to be worse when there are many instruments compared to endogenous regressors (i.e., many over-identifying restrictions) and that an exactly identified IV is less biased even with weak instruments, to address the endogeneity issue, we use the specification with the best single instrument.⁵ We employ investment experience as an excluded instrument for endogenous financial literacy, while other variables, such as income, sex, age, education, and residence, also significantly contribute to the formation of financial literacy but remain exogenous with respect to inflation perceptions and expectations. Our instrument is based on past individual experiences related to the formation of human capital, and using past values enhances the validity of the instrument. To test the under-identification and weak instruments assumptions, we use the Kleibergen-Paap rk LM and Cragg-Donald Wald F statistics, respectively. In the first-stage regressions, the Sanderson-Windmeijer multivariate F test of excluded instruments equals 107.89 and 108.21 (Table 9), respectively. Both numbers exceed 10, ensuring that financial literacy is not a weak instrument according to the rule of thumb.

It is crucial that the endogeneity test confirms the relevance of the issue, at least in the case of inflation expectations. The available tests provide us with reasons to consider financial literacy as an endogenous variable that determines inflation expectations. As we can see, each point of financial literacy improves the accuracy of individual inflation expectations by approximately 5.9 %.

To better understand the exact influence of different aspects of financial literacy on price growth perceptions and prediction accuracy, we break down the financial literacy index into its components as suggested by USAID: financial knowledge, financial behavior, and financial attitude. These components identify different aspects of literacy. The first one reflects attained knowledge, whereas the latter two components might pick up intuition based on life experience and developed habits.

We replace the financial literacy index with its components and show the corresponding estimation results in Table 10. It is crucial to stress that all components of financial literacy (financial knowledge, financial behavior, and financial attitude) appear to be endogenous for the model of individual inflation expectations. We also point out that trust in the banking sector remains a significant determinant of future price expectations when the model specification includes financial behavior or financial attitude, but this is not the case with financial knowledge.

4.2. The asymmetric effects of financial literacy on inflation perceptions and expectations

The just-identified IV approach applied above is expected to yield approximately median-unbiased estimates. However, the distributions of our dependent variables – households' inflation perceptions and

expectations – are notably skewed toward the upper end. To capture the effects along these skewed distributions, we account for endogenous financial literacy when investigating potential asymmetries and the influence of extreme values.

Therefore, we employ the instrumental variable (IV) quantile regression technique, treating financial literacy as endogenous to gain deeper insights into the formation of accurate inflation perceptions and expectations (Chernozhukov and Hansen, 2005; Kaplan and Sun, 2017; Kaplan, 2022). This method is particularly well-suited for dealing with the skewed distributions that often arise in volatile market environments, offering advantages over standard linear regression. Moreover, this approach carries important policy implications for central banks conducting inflation-targeting monetary policy in the face of persistent unanchored inflation expectations. Notably, the lower percentiles of the inflation expectations distributions contain values that are relatively close to official inflation rates and consensus forecasts by professional forecasters. In contrast, the upper percentiles capture extremely inaccurate beliefs, inconsistent with these benchmarks.

To fully leverage the strengths of quantile regression and capture the influence of critical values, we intentionally do not exclude outliers during processing. Nonetheless, given the nature of the survey data, we take special care to control for the potential influence of outliers. We report robust standard errors derived from the IV quantile regression following Kaplan and Sun (2017). Additionally, in line with Coibion et al. (2022) and Akarsu et al. (2024), we apply the jackknife resampling technique to our benchmark financial literacy index to improve the robustness of our estimates by mitigating sensitivity to influential data points.

Estimation results from the IV quantile regression models, including jackknife-resampled outcomes, are presented in Tables 11 and 12 for inflation perceptions and expectations, respectively. For brevity, these tables report only the coefficients for our key variables of interest – financial literacy and trust in banks. Robust standard errors appear in parentheses, and jackknife standard errors are shown in brackets. Fig. 4 visualizes the estimated effects of financial literacy across the distributions.

The findings suggest that financial literacy has a moderately statistically significant effect at various points across the distributions of inflation perceptions and expectations. However, when disaggregating financial literacy into its components – financial knowledge, behavior, and attitude – the effects become more pronounced. Specifically, financial knowledge shows a statistically significant influence at the lower and middle parts of the distribution for both inflation perceptions and expectations. Among respondents whose inflation beliefs are relatively close to benchmark values, greater financial knowledge further improves accuracy.

In contrast, financial behavior and attitude matter not only at the lower end but also at the extreme upper end of the distribution, where inflation beliefs are highly inaccurate. This pattern indicates that the effect of financial literacy is not only asymmetric across the distributions of inflation beliefs but also driven by its underlying components.

Furthermore, we assess the role of trust in the banking system alongside our baseline analysis. We find that trust has a statistically and economically significant impact at the upper tail of the distributions – precisely where households' inflation perceptions and expectations tend to deviate most from the benchmarks (see Fig. 5).

4.3. The heterogeneous effects of financial literacy for subsamples

We further explore the potential heterogeneous effects of financial literacy and its components on inflation perceptions and the accuracy of inflation expectations, accounting for various household characteristics and, potentially, different consumption baskets that may shape inflation-related beliefs. Given the limitations of survey data, we divide households into contrasting groups that may exhibit different financial behaviors and consumption patterns. Specifically, we run IV quantile

⁵ The assumption that the instruments are not correlated with the error term cannot be statistically tested in the exactly identified models. Additionally, we ran IV regressions with two instruments (investment experience and the number of cases in which the respondents were victims of fraud), the validity of which were justified by the Hansen J-test that fails to reject the null hypothesis of joint instrument validity at 5 % level of significance. The main conclusions remain the same. The latter results are available on request.

regressions separately for (i) households in the labor force and those outside of it, (ii) low-income and high-income households, (iii) small and large households, and (iv) households residing in major metropolitan areas versus those in smaller cities, towns, and villages.

The analysis reveals a heterogeneous impact of financial literacy and its components across household groups. As summarized in Fig. 6, the influence of financial literacy on perceived and expected inflation becomes significantly more apparent at disaggregated levels. Notably, financial knowledge has a statistically and economically significant effect on both inflation perceptions and expectations in the lower and middle parts of the distributions – particularly among respondents whose beliefs are close to official benchmarks. This effect is especially pronounced among large households in smaller settlements.

Interestingly, the impact of financial knowledge on inflation perceptions is significant for high-income households, while its influence on inflation expectations is more pronounced among low-income households. This finding reinforces the notion that the formation of inflation expectations and the accuracy of perceived inflation is a complex, group-specific process.

The effects of financial behavior and financial attitude also become more evident in the lower and middle parts of the distributions across subsamples. These effects are particularly strong among large and high-income households in smaller towns and villages. Unlike financial knowledge, however, financial behavior and attitude also play a notable role at the upper end of the distribution. This suggests that for households with highly inaccurate inflation perceptions and expectations, financial habits and mindset significantly contribute to the extreme unanchoring of inflation beliefs.

Our cross-sample analysis also uncovers an interesting asymmetry in the effects of financial attitude across income groups. Specifically, financial attitude significantly improves inflation accuracy at the lower end of the distribution for high-income households, while for low-income households, it plays a critical role in mitigating extreme overestimations at the upper end. In other words, for high-income households, financial attitude contributes to a near-perfect alignment with benchmark inflation, whereas for low-income households, it helps prevent severe deviations.

That said, in some subsamples, financial literacy and its components show no statistically significant or economically meaningful effects. In particular, households living in the largest metropolitan areas appear unaffected by financial knowledge, behavior, or attitude at any point in the distribution. This may suggest that these households operate with a different consumption basket, and that our current dataset and analytical framework are not well-suited to capturing relevant effects in this group. Further research is warranted in this area, ideally incorporating data on differentiated consumption baskets and associated inflation perceptions and expectations.

5. Conclusions and policy discussion

In this study, we assess the role of financial literacy in shaping Ukrainian households' perceptions of current inflation and their expectations about future price changes. Our findings suggest that, alongside credibility and trust, financial literacy serves as a key lever for central banks to enhance public understanding of inflation dynamics and anchor inflation expectations.

We find that financial literacy has a statistically significant and negative effect on both perceived and expected inflation. These results

align with existing literature (e.g., [Carin van der Crujssen and Demertzis, 2011](#); [Rumler and Valderrama, 2020](#)), but our use of instrumental variable quantile regressions uncovers important asymmetries across the distribution of inflation beliefs, as well as heterogeneities across financial literacy components – knowledge, behavior, and attitude – and household characteristics.

Specifically, financial knowledge, behavior, and attitude are most effective among households whose inflation beliefs align more closely with official rates and consensus forecasts. The strongest effects are observed for financial knowledge, particularly among larger households in smaller towns and villages. Financial behavior and attitude become increasingly relevant among households with highly inaccurate beliefs, with distinct patterns at both ends of the distribution. In some contrasting groups, we observe that the effects emerge at opposite ends of the distribution, underscoring the complexity of inflation belief formation and pointing to the need for targeted central bank policies to improve public awareness and anchor expectations.

We also find that trust in the banking system significantly enhances the accuracy of inflation perceptions and expectations, especially among individuals whose beliefs deviate most from benchmark rates. This reinforces the well-documented importance of credibility and trust in shaping inflation expectations (e.g., [Savolchuk and Yukhymenko, 2023](#); [Christelis et al., 2020](#)).

Our analysis is based on novel survey data collected in collaboration with Info Sapiens, USAID, and the National Bank of Ukraine, highlighting the value of integrated surveys enriched with targeted questions for exploring complex economic behaviors. Future research could examine the role of financial literacy in shaping exchange rate expectations, given the strong correlation between inflation and exchange rate beliefs ([Coibion and Gorodnichenko, 2015](#)) and the prominence of the exchange rate channel in Ukraine's monetary transmission, especially during wartime ([NBU, 2023](#)).

From a policy perspective, our findings emphasize the growing importance of financial literacy as a complement to efforts to strengthen central bank credibility. The asymmetric and heterogeneous effects we observe suggest that communication strategies should be tailored to specific audience groups. Financial education initiatives, awareness campaigns, and research partnerships can enhance public understanding of inflation processes and central bank actions.

Promoting sound financial behavior is particularly critical for individuals with unanchored expectations. Improving access to financial services, liberalizing markets, and expanding the availability of financial tools can support this goal. Finally, fostering stronger financial attitudes – through initiatives that promote long-term planning, savings, and an investment mindset – can contribute to better-anchored expectations. In turn, sustained macroeconomic and financial stability will reinforce these effects.

Acknowledgements

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APPENDICES.

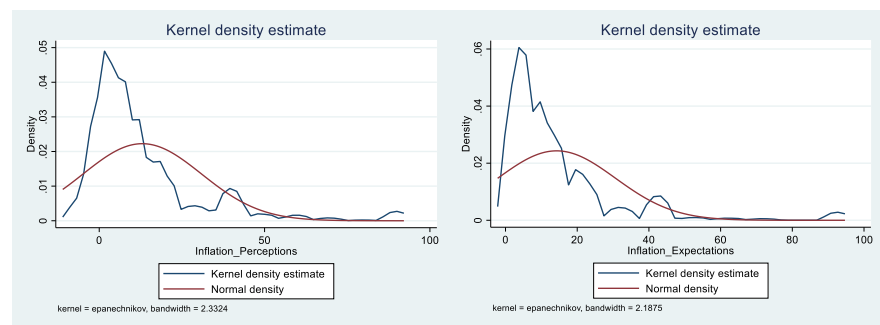


Fig. 1. Distributions of Inflation perception and inflation expectations.

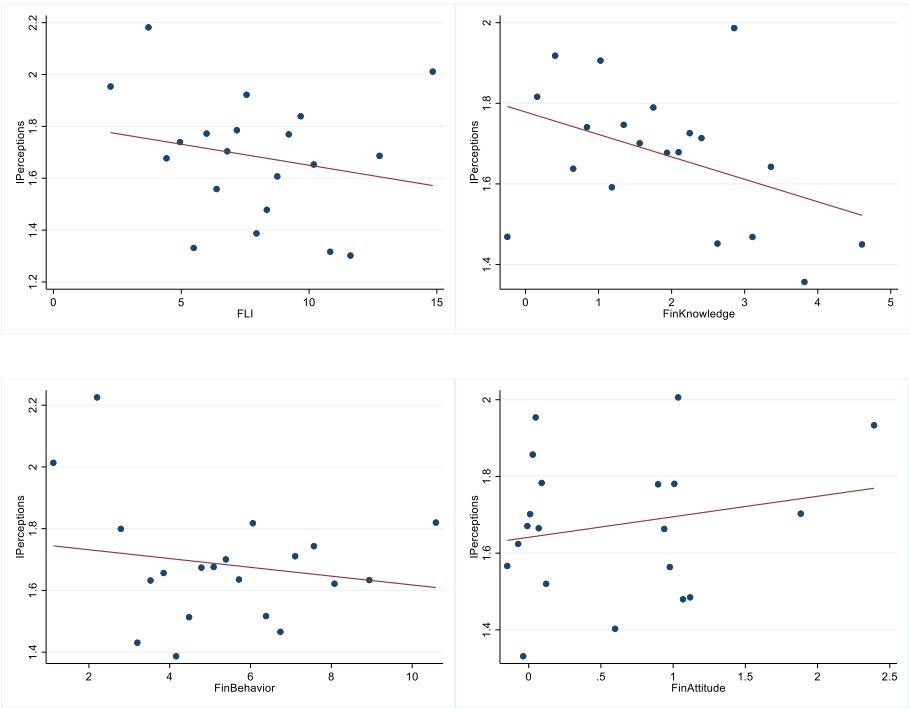


Fig. 2. Inflation perceptions and financial literacy (its components).

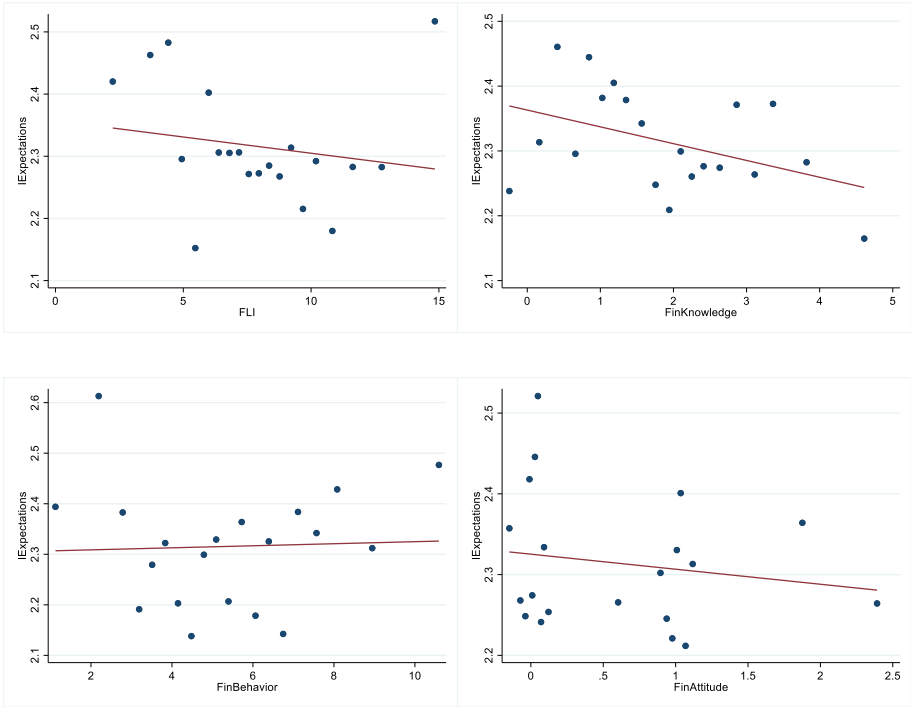


Fig. 3. Inflation expectations and financial literacy (its components).

⁶ Estimation results are available on request.

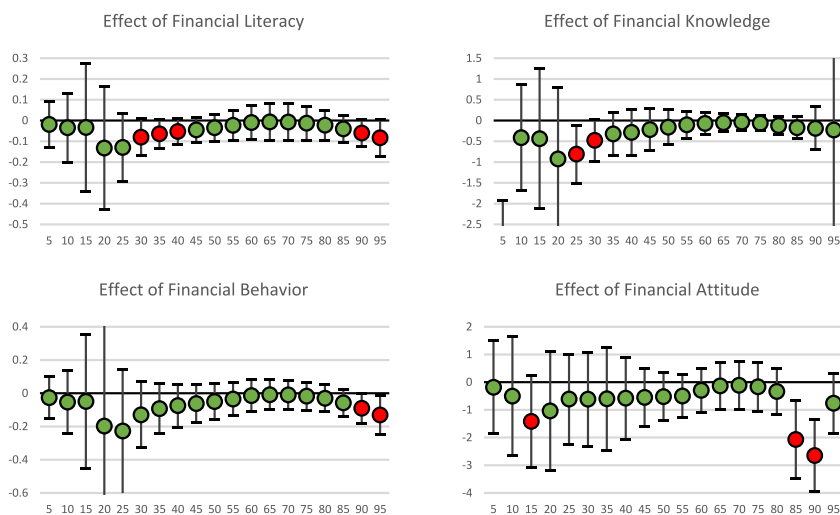
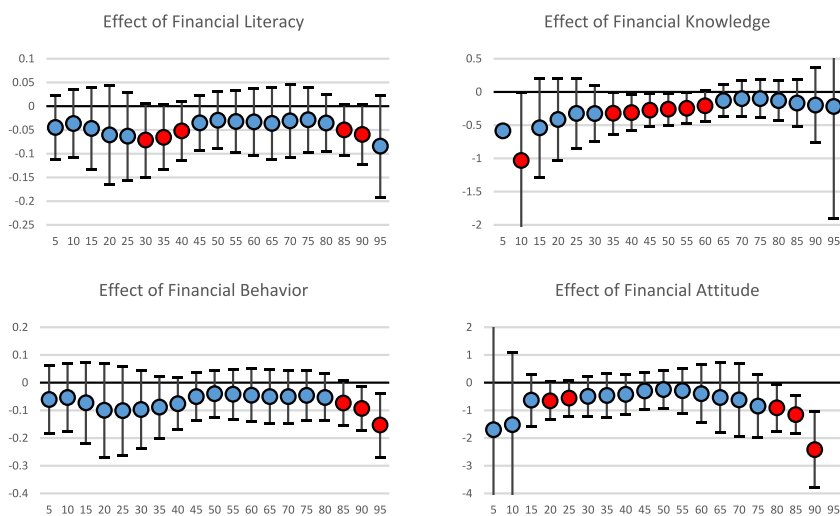
Panel A. Inflation Perceptions**Panel B. Inflation Expectations**

Fig. 4. Effects of financial literacy and its components on inflation perceptions (Panel A) and expectations (Panel B), full sample, IVQR results.

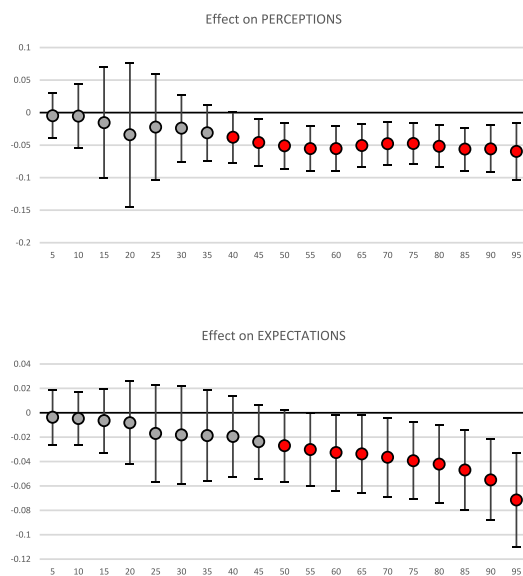


Fig. 5. Effect of trust in banking system on inflation perceptions and expectations, full sample, IVQR results.

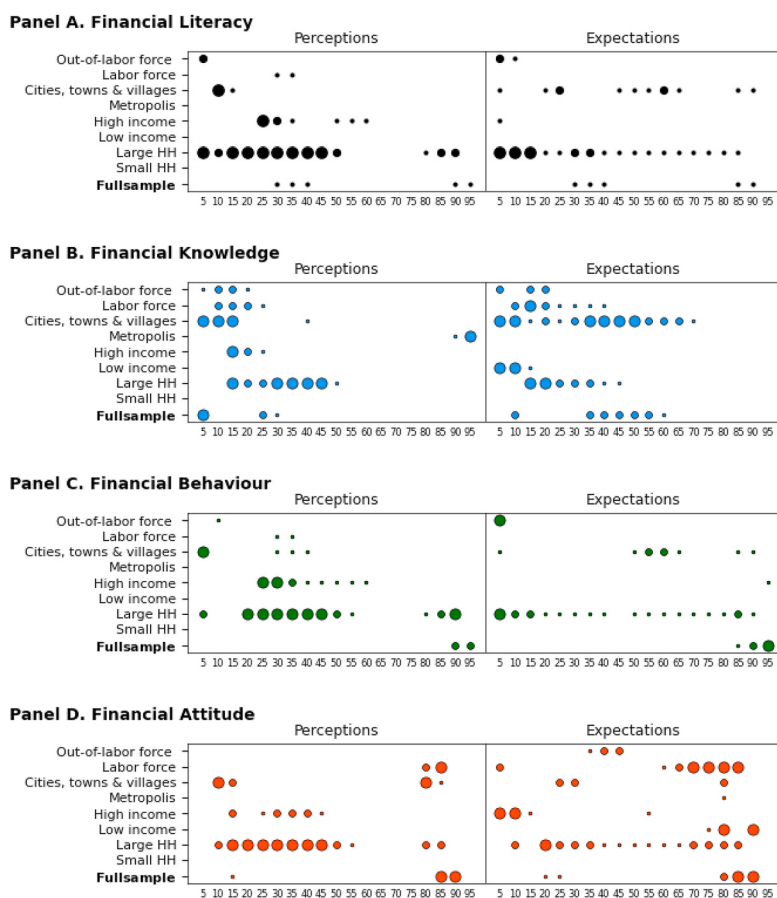


Fig. 6. Effects of financial literacy and its components on inflation perceptions and expectations of households, subsamples, IVQR results⁶.

Table 1
Descriptive statistics

Variable	N	μ	σ	Min	Max
IP	2008	23.225	17.925	1.500	100.000
Inflation Perception ^a	2008	1.674	1.708	-1.609	4.498
IE	2004	21.319	16.774	0.900	100.000
Inflation Expectation ^a	2004	2.146	1.034	-2.303	4.527
FLI	1820	7.878	3.376	0.000	19.500
Fin Knowledge	2040	1.866	1.306	0.000	6.000
Fin Behavior	1820	5.342	2.497	0.000	14.000
Fin Attitude	2040	0.598	0.709	0.000	3.000
Invest Experience	2040	0.373	0.627	0.000	6.000
Trust	2040	2.714	2.085	0.000	8.000
Income	2040	6.570	7.245	0.000	60.000
Age	2040	45.425	16.037	18.000	79.000
Male	2040	0.465	0.499	0.000	1.000
Education	2019	3.109	0.792	1.000	4.000
Metropolis	2040	0.226	0.419	0.000	1.000
Labor Force	2040	0.650	0.477	0.000	1.000
Minor Kids	2040	0.307	0.461	0.000	1.000

Notes: *IP* is a one-year inflation perception. *Inflation Perception** is the deviation of individual perceived inflation from actual inflation for the past year. *IE* denotes one-year inflation expectations. *Inflation Expectation** is the deviation of individual inflation expectations from the one-year-ahead consensus forecast produced by key analytical centers for the same period. *FLI* stands for the *Financial Literacy Index*.

Investment experience is the number of investment types made by a person in the past (see [Appendix C](#)). *Trust* is an indicator that measures trust in financial institutions (banks). *Income* is the average monthly income of the respondent, UAH. *Age* is the age of the respondent, years. *Education* is the highest attained educational level. *Metropolis* is a dummy variable that takes the value of one if the respondent lives in a big city (more than 1 mln. inhabitants). *Labor force* is a dummy variable that takes the value of one if the respondent belongs to the labor force, and zero if otherwise. Minor kids is a dummy variable that takes the value of one if the respondent has minor children, and zero otherwise.

^a Dependent variables of this research.

Table 2
Descriptive statistics: Anchored expectations vs. unanchored expectations

Variable	μ	σ	μ	σ	z
	Anchored		Unanchored		
Inflation Perception*	-0.917	1.020	3.503	0.475	-27.753***
Inflation Expectation*	1.403	0.791	3.052	0.957	-21.905***
FLI	8.106	3.311	7.222	3.466	4.366***
Fin Knowledge	1.882	1.379	1.556	1.173	3.479***
Fin Behavior	5.526	2.478	4.973	2.643	3.574***
Fin Attitude	0.602	0.691	0.629	0.746	-0.195
Invest Experience	0.444	0.708	0.293	0.542	3.643***
Trust	2.905	2.078	2.328	2.080	4.681
Income	7.143	7.318	5.806	7.123	2.928***
Age	44.398	16.096	47.677	15.943	-3.216***
Male	0.481	0.500	0.447	0.498	1.110
Education	3.157	0.795	2.974	0.815	3.756***
Metropolis	0.290	0.454	0.205	0.404	3.177***
Labor Force	0.633	0.483	0.647	0.478	-0.480
Minor Kids	0.272	0.445	0.295	0.456	-0.803
N	482		501		

Notes: *Inflation Perception** is the deviation of individual perceived inflation from actual inflation for the past year. *Inflation Expectation** is the deviation of individual inflation expectations from the one-year-ahead consensus forecast produced by key analytical centers for the same period. *FLI* stands for the *Financial Literacy Index*. *Investment experience* is the number of investment types made by a person in the past (see [Appendix C](#)). *Trust* is an indicator that measures trust in financial institutions (banks). *Income* is the average monthly income of the respondent, UAH. *Age* is the age of the respondent, years. *Education* is the highest attained educational level. *Metropolis* is a dummy variable that takes the value of one if the respondent lives in a big city (more than 1 mln. inhabitants). *Labor force* is a dummy variable that takes the value of one if the respondent belongs to the labor force and zero if otherwise. Minor kids is a dummy variable that takes the value of one if the respondent has minor children and zero otherwise.

Table 3
Descriptive statistics: Metropolis vs. other settlements

Variable	Metropolis		Cities, towns & villages		z
	μ	σ	μ	σ	
Inflation Perception*	1.348	1.859	1.768	1.650	3.974***
Inflation Expectation*	2.090	1.012	2.162	1.040	1.691*
FLI	8.525	3.593	7.693	3.289	-3.663***
Fin Knowledge	2.105	1.384	1.796	1.275	-4.183***
Fin Behavior	5.719	2.540	5.234	2.475	-2.940***
Fin Attitude	0.597	0.738	0.598	0.700	0.431

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Table 3 (continued)

Variable	Metropolis		Cities, towns & villages		z
	μ	σ	μ	σ	
Invest Experience	0.452	0.734	0.350	0.590	−2.625***
Trust	2.608	2.178	2.745	2.056	1.506
Income	8.465	8.838	6.015	6.608	−5.241***
Age	44.784	15.677	45.613	16.141	0.921
Male	0.450	0.498	0.469	0.499	0.710
Education	3.235	0.751	3.072	0.800	−3.819***
	460		1559		

Table 4

Labor force vs. out-of-labor force

Variable	Labor force		Out-of-labor force		z
	μ	σ	μ	σ	
Inflation Perception*	1.670	1.701	1.680	1.720	0.031
Inflation Expectation*	2.124	1.037	2.187	1.029	0.961
FLI	8.354	3.325	6.850	3.256	−8.726***
Fin Knowledge	2.045	1.324	1.534	1.204	−8.325***
Fin Behavior	5.664	2.428	4.646	2.503	−8.095***
Fin Attitude	0.608	0.698	0.580	0.728	−1.377
Invest Experience	0.458	0.677	0.216	0.484	−8.836***
Trust	2.921	2.055	2.331	2.086	−6.548***
Income	8.459	7.578	3.062	4.942	−16.783***
Age	41.240	12.028	53.199	19.326	15.191***
Male	0.519	0.500	0.364	0.482	−6.681***
Education	3.272	0.717	2.803	0.835	−12.242***
	1326		714		

Notes: *Inflation Perception** is the deviation of individual perceived inflation from actual inflation for the past year. *Inflation Expectation** is the deviation of individual inflation expectations from the one-year-ahead consensus forecast produced by key analytical centers for the same period. *FLI stands for the Financial Literacy Index*. *Investment experience* is the number of investment types made by a person in the past (see Appendix C). *Trust* is an indicator that measures trust in financial institutions (banks). *Income* is the average monthly income of the respondent, UAH. *Age* is the age of the respondent, years. *Education* is the highest attained educational level. *Metropolis* is a dummy variable that takes the value of one if the respondent lives in a big city (more than 1 mln. inhabitants). *Labor force* is a dummy variable that takes the value of one if the respondent belongs to the labor force, and zero if otherwise. *Minor kids* is a dummy variable that takes the value of one if the respondent has minor children, and zero if otherwise.

Table 5

Households with low vs. high income

Variable	Low income		High income		z
	μ	σ	μ	σ	
Inflation Perceptions*	1.774	1.719	1.496	1.673	−4.541***
Inflation Expectations*	2.191	1.048	2.068	1.005	−2.408**
FLI	7.207	3.238	8.940	3.319	10.604***
Fin Knowledge	1.660	1.230	2.234	1.358	9.309***
Fin Behavior	4.926	2.453	6.000	2.424	8.826***
Fin Attitude	0.559	0.708	0.668	0.706	3.969***
Invest Experience	0.269	0.529	0.558	0.736	10.228***
Trust	2.433	2.019	3.216	2.106	8.242
Income	2.287	2.183	14.207	6.823	38.417***
Age	47.962	17.256	40.903	12.374	−9.246***
Male	0.410	0.492	0.562	0.496	6.602***
Education	2.950	0.810	3.391	0.672	12.076***
	1307		733		

Table 6

Big vs. small households

Variable	Big HH		Small HH		z
	μ	σ	μ	σ	
Inflation Perceptions*	1.737	1.620	1.618	1.779	−0.978
Inflation Expectations*	2.138	1.021	2.153	1.046	0.098
FLI	8.330	3.321	7.472	3.375	−5.633***

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Table 6 (continued)

Variable	Big HH		Small HH		z
	μ	σ	μ	σ	
Fin Knowledge	2.035	1.326	1.719	1.271	−5.228***
Fin Behavior	5.654	2.441	5.062	2.514	−5.430***
Fin Attitude	0.573	0.663	0.620	0.746	0.690
Invest Experience	0.443	0.685	0.312	0.565	−4.735***
Trust	2.932	2.034	2.525	2.110	−4.808***
Income	7.287	7.545	5.947	6.917	−3.609***
Age	38.653	12.970	51.305	16.130	17.622***
Male	0.453	0.498	0.475	0.500	1.027
Education	3.189	0.762	3.040	0.810	−3.979***
	948		1092		

Notes: *Inflation Perception** is the deviation of individual perceived inflation from actual inflation for the past year. *Inflation Expectation** is the deviation of individual inflation expectations from the one-year-ahead consensus forecast produced by key analytical centers for the same period. *FLI* stands for the *Financial Literacy Index*. *Investment experience* is the number of investment types made by a person in the past (see Appendix C). *Trust* is an indicator that measures trust in financial institutions (banks). *Income* is the average monthly income of the respondent, UAH. *Age* is the age of the respondent, years. *Education* is the highest attained educational level. *Metropolis* is a dummy variable that takes the value of one if the respondent lives in a big city (more than 1 mln. inhabitants). *Labor force* is a dummy variable that takes the value of one if the respondent belongs to the labor force and zero if otherwise. *Minor kids* is a dummy variable that takes the value of one if the respondent has minor children and zero if otherwise.

Table 7

Households with vs. without minor children

Variable	HH with minor children		HH without minor children		z
	μ	σ	μ	σ	
Inflation Perceptions*	1.769	1.637	1.631	1.737	−1.630
Inflation Expectations*	2.176	1.037	2.133	1.033	−1.259
FLI	8.827	3.260	7.430	3.338	−8.308***
Fin Knowledge	2.063	1.296	1.779	1.302	−4.646***
Fin Behavior	6.092	2.422	4.987	2.453	−8.745***
Fin Attitude	0.623	0.668	0.587	0.726	−1.930*
Invest Experience	0.474	0.695	0.328	0.589	−4.845***
Trust	2.866	1.984	2.647	2.125	−2.601
Income	7.994	8.072	5.940	6.755	−4.974***
Age	37.919	8.898	48.749	17.323	13.963***
Male	0.383	0.487	0.501	0.500	4.899***
Education	3.285	0.753	3.031	0.796	−6.853***
	626		1414		

Notes: *Inflation Perception** is the deviation of individual perceived inflation from actual inflation for the past year. *Inflation Expectation** is the deviation of individual inflation expectations from the one-year-ahead consensus forecast produced by key analytical centers for the same period. *FLI* stands for the *Financial Literacy Index*. *Investment experience* is the number of investment types made by a person in the past (see Appendix C). *Trust* is an indicator that measures trust in financial institutions (banks). *Income* is the average monthly income of the respondent, UAH. *Age* is the age of the respondent, years. *Education* is the highest attained educational level. *Metropolis* is a dummy variable that takes the value of one if the respondent lives in a big city (more than 1 mln. inhabitants). *Labor force* is a dummy variable that takes the value of one if the respondent belongs to the labor force, and zero if otherwise. *Minor kids* is a dummy variable that takes the value of one if the respondent has minor children, and zero if otherwise.

Table 8

Correlation matrix

	IPerception	IExpectations	FLI	FKnowledge	FBehavior	FAttitude
IExpectations	0.554					
FLI	−0.067	−0.052				
FKnowledge	−0.065	−0.056	0.639			
FBehavior	−0.054	−0.028	0.903	0.312		
FAttitude	0.011	−0.025	0.403	0.104	0.205	
Invest Experience	−0.080	−0.092	0.370	0.237	0.341	0.129

Table 9

Impact of financial literacy on inflation Perceptions and rpeceptions: Results of IV regressions

	FLI	Inflation Perceptions	FLI	Inflation Expectations
	b/se	b/se	b/se	b/se
FLI		−0.0580 (0.045)		−0.0595** (0.028)
Trust	0.0473 (0.034)	−0.0489** (0.020)	0.0483 (0.035)	−0.0309** (0.012)
Income	0.0684*** (0.010)	−0.0007 (0.007)	0.0667*** (0.010)	0.0028 (0.004)
Age	−0.0128*** (0.005)	0.0031 (0.003)	−0.0129*** (0.005)	0.0023 (0.002)
Male	−0.5023*** (0.140)	−0.0970 (0.081)	−0.4850*** (0.140)	−0.0468 (0.051)
Education	0.8555*** (0.091)	−0.0035 (0.072)	0.8572*** (0.092)	0.0227 (0.043)
Invest Experience	1.4518*** (0.140)		1.4542*** (0.140)	
Controls (Residence)	+	+	+	+
Endogeneity Test (χ^2)	1.456			4.786**
Underidentification Test (Kleibergen-Paap rk LM statistic, χ^2)	101.932***			102.064***
Weak Identification Test (Cragg-Donald Wald F statistic)	164.825***			165.166***
N	1779	1779	1775	1775

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

Table 10

Impact of FLI Components on Inflation perceptions and inflation expectations

	Inflation Perceptions			Inflation Expectations		
	b/se	b/se	b/se	b/se	b/se	b/se
Financial Knowledge	−0.3185 (0.216)			−0.2908** (0.139)		
Financial Behavior		−0.0829 (0.065)			−0.0851** (0.040)	
Financial Attitude			−0.7487 (0.490)			−0.6845** (0.316)
Trust	−0.0433** (0.020)	−0.0485** (0.020)	−0.0535*** (0.020)	−0.0193 (0.013)	−0.0306** (0.012)	−0.0287** (0.013)
Controls	+	+	+	+	+	+
Instrumented	Financial Knowledge	Financial Behavior	Financial Attitude	Financial Knowledge	Financial Behavior	Financial Attitude
Instrument	Investment Experience	Investment Experience	Investment Experience	Investment Experience	Investment Experience	Investment Experience
Endogeneity Test (χ^2)	1.948	1.709	2.458	4.732**	6.025**	4.716**
Underidentification Test (Kleibergen-Paap rk LM statistic, χ^2)	35.352***	89.733***	18.189***	35.608***	89.698***	18.321***
Weak Identification Test (Cragg-Donald Wald F statistic)	45.270***	141.143***	25.363***	45.606***	140.962***	25.497***
F	12.586	13.474	11.815	8.520	9.403	8.067
N	1987	1779	1987	1983	1775	1983

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

Table 11

Inflation perceptions, IVQR results, robust standard errors and jackknife resampling

percentiles	(05)	(10)	(15)	(20)	(25)
FLI	−0.0187 (0.056)	−0.0345 (0.085)	−0.0330 (0.156)	−0.1322 (0.151)	−0.1291 (0.083)
se	[0.023]	[0.033]	[0.085]	[0.157]	[0.140]
Trust	−0.0047 (0.016)	−0.0053 (0.022)	−0.0155 (0.042)	−0.0340 (0.058)	−0.0222 (0.037)
se	[0.007]	[0.0134]	[0.040]	[0.071]	[0.038]

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Table 11 (continued)

percentiles	(05)	(10)	(15)	(20)	(25)
percentiles	(30)	(35)	(40)	(45)	(50)
FLI	−0.0798	−0.0635	−0.0524	−0.0448	−0.0344
se	(0.046)*	(0.035)*	(0.032)*	(0.031)	(0.034)
Jk_se	[0.074]	[0.058]	[0.042]	[0.036]	[0.035]
Trust	−0.0239	−0.0310	−0.0378	−0.0460	−0.0511
se	(0.025)	(0.021)	(0.019)**	(0.018)**	(0.018)***
Jk_se	[0.030]	[0.021]	[0.018]**	[0.017]***	[0.018]***
percentiles	(55)	(60)	(65)	(70)	(75)
FLI	−0.0227	−0.0097	−0.0062	−0.0071	−0.0128
se	(0.038)	(0.042)	(0.045)	(0.044)	(0.042)
Jk_se	[0.045]	[0.033]	[0.027]	[0.024]	[0.028]
Trust	−0.0553	−0.0553	−0.0506	−0.0477	−0.0475
se	(0.018)***	(0.018)***	(0.018)***	(0.017)***	(0.017)***
Jk_se	[0.020]***	[0.021]***	[0.019]***	[0.017]***	[0.016]***
percentiles	(80)	(85)	(90)	(95)	
FLI	−0.0222	−0.0397	−0.0601	−0.0833	
se	(0.037)	(0.033)	(0.033)*	(0.045)*	
Jk_se	[0.027]	[0.034]	[0.030]**	[0.044]*	
Trust	−0.0517	−0.0561	−0.0557	−0.0596	
se	(0.017)***	(0.017)***	(0.018)***	(0.021)***	
Jk_se	[0.015]***	[0.016]***	[0.017]***	[0.020]***	
Controls	Income, Age, Sex, Education, Residence				
Instrumented	FLI				
Instruments	Investment experience				
N	1779	1779	1779	1779	1779

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

Robust standard errors are reported in parentheses. Jackknife standard errors are reported in brackets.

Table 12

Inflation expectations, IVQR results, robust standard errors and jackknife resampling

percentiles	(05)	(10)	(15)	(20)	(25)
FLI	−0.0448	−0.0366	−0.0471	−0.0605	−0.0632
se	(0.034)	(0.036)	(0.044)	(0.053)	(0.047)
Jk_se	[0.602]	[0.023]	[0.037]	[0.058]	[0.042]
Trust	−0.0037	−0.0047	−0.0064	−0.0082	−0.0169
se	(0.011)	(0.011)	(0.013)	(0.017)	(0.020)
Jk_se	[0.010]	[0.007]	[0.009]	[0.014]	[0.019]
percentiles	(30)	(35)	(40)	(45)	(50)
FLI	−0.0713	−0.0655	−0.0521	−0.0352	−0.0297
se	(0.040)*	(0.035)*	(0.031)*	(0.030)	(0.031)
Jk_se	[0.037]*	[0.040]*	[0.048]	[0.036]	[0.024]
Trust	−0.0181	−0.0187	−0.0194	−0.0236	−0.0270
se	(0.020)	(0.019)	(0.017)	(0.015)	(0.015)*
Jk_se	[0.022]	[0.027]	[0.018]	[0.016]	[0.013]**
percentiles	(55)	(60)	(65)	(70)	(75)
FLI	−0.0324	−0.0332	−0.0363	−0.0310	−0.0287
se	(0.033)	(0.036)	(0.039)	(0.039)	(0.035)
Jk_se	[0.026]	[0.027]	[0.026]	[0.030]	[0.026]
Trust	−0.0301	−0.0326	−0.0337	−0.0365	−0.0393
se	(0.015)**	(0.016)**	(0.016)**	(0.016)**	(0.016)**
Jk_se	[0.013]**	[0.015]**	[0.014]**	[0.013]***	[0.014]***
percentiles	(80)	(85)	(90)	(95)	
FLI	−0.0355	−0.0500	−0.0596	−0.0842	
se	(0.030)	(0.028)*	(0.032)*	(0.055)	

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Table 12 (continued)

percentiles	(05)	(10)	(15)	(20)	(25)
Jk_se	[0.026]	[0.026]*	[0.025]**	[0.171]	
Trust	−0.0421	−0.0469	−0.0550	−0.0715	
se	(0.016)***	(0.017)***	(0.017)***	(0.020)***	
Jk_se	[0.015]***	[0.015]***	[0.018]***	[0.229]	
Controls	Income, Age, Sex, Education, Residence				
Instrumented	FLI				
Instruments	Investment experience				
N	1779	1779	1779	1779	1779

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

Robust standard errors are reported in parentheses. Jackknife standard errors are reported in brackets.

Appendix C. Instrument Construction

1. Investment experience is constructed based on the following survey question:

Question: Have you (personally) saved any money in the last 12 months using any of the methods listed on this card, regardless of whether or not you had any savings? Please do not include any money saved as a result of recalculations by the Pension Fund. However, consider all types of savings, such as savings for a rainy day or saving up for a special occasion.

- 1) Saved and kept cash at home or in my wallet
- 2) Kept money in a current account or a demand deposit account (available upon request)
- 3) Gave money to a family member to save/save on your behalf
- 4) I bought bonds or put them on a time deposit
- 5) Invested in cryptoassets, cryptocurrencies, etc.
- 6) Invested in shares
- 7) Saved or invested in any other way, with the exception of pension contributions (invested in the purchase of livestock, gold, property, etc.)

The investment experience is computed as the sum of answers collected for items 4–7.

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