Inflation Expectations and Portfolio Rebalancing of Households: Evidence from Inflation Targeting in India

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Abstract

We use India's inflation targeting policy as a natural experiment to examine how a fall in inflation expectations impacts households' consumption and portfolio choices. Through regional variations in inflation expectations, we provide direct evidence of how the transmission of inflation expectations through different economic channels is influenced by the household balance sheet. Consistent with the consumption Euler equation, households with high liquid wealth decrease consumption, increase savings, and rebalance their portfolio from risky investments towards bank deposits. In line with a decrease in precautionary savings, households with low liquid wealth consume more and save less as inflation expectations fall.

Keywords: Inflation Expectations, Inflation Targeting, Household Finance, Household Balance Sheet, Consumption, Savings

JEL Classification: D12, D84, D91, E21, E31, E52

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1. Introduction

Inflation expectations play a central role in shaping households' consumption-savings decisions and has been empirically shown to influence individuals' consumption choices in different directions[1]. Attributed to various economic channels, these consumption behaviours shed light on how inflation expectations guide households' choices in different circumstances. Nonetheless, most existing literature has predominately focused on consumption decisions, and direct evidence of the relationship between savings and portfolio choices remains underexplored (D'Acunto et al. (2023)). In this paper, we add to the existing literature by studying how changes in inflation expectations influence both consumption and portfolio choice of households simultaneously. By further examining the pass-through of inflation expectations through household balance sheets, we present conditions that dictate the prevalence of different economic channels.

Despite its importance, the causal relationship between inflation expectations and household portfolio rebalancing in the real world remains poorly understood. A key challenge is identifying exogenous shifts in households' inflation expectations. Monetary policy changes are infrequent, and even when they occur, households often exhibit limited attention to such announcements (D'Acunto et al. (2022a)). For instance, consumers largely overlooked dramatic policy changes, such as the transition from strict to average inflation targeting in the U.S. (Coibion et al. (2023)). To address these challenges, we leverage a large-scale natural experiment in India: the adoption of Inflation Targeting. On 20 February 2015, the Reserve Bank of India (RBI) introduced Inflation Targeting as its new monetary policy framework, despite significant reservations by the government. This was the first time the central bank explicitly set a specific inflation target to effectively anchor inflation expectations in India. The dramatic policy shift attracted substantial public and media attention, making it a salient event that caused a significant shift in inflation expectations.

Another challenge lies in data availability. To study how households respond to changes in inflation expectations in different domains, we require data on households' inflation expectations, as well as their consumption and portfolio decisions. We address this challenge

[1] Consistent with predictions from the consumption Euler equation with constant nominal interest rate, an increase in inflation expectations has been observed to increase consumption across different countries and population profiles (Burke and Ozdagli (2021), D'Acunto et al. (2021a)). On the other hand, higher inflation expectations are associated with lower consumption in scenarios when households experience higher uncertainty ((Candia et al. (2020), Jiang et al. (2024)) or relate higher inflation with bad economic times (Andre et al. (2022), Coibion et al. (2024)).

by combining two different sets of data. The first set of data comes from the Inflation Expectations Survey of Households conducted by RBI, while the second set of data is a comprehensive proprietary dataset from an Indian financial institution, which provides us with detailed information on monthly credit card, debit card, savings, and stock market investments. Although we cannot map subjects at the individual level, we can link them through the Postal Index Number code (pin code) based on the location of their home address. Linking both datasets yields 217 pin codes in 6 cities that are common, which include Ahmedabad, Bhubaneshwar, Chennai, Delhi, Kolkata and Mumbai. As such, our identification strategy exploits changes in inflation expectations across different pin codes due to the announcement of the Inflation Targeting policy. Particularly, we rely on survey results from the RBI's Inflation Expectations Survey of Households in the fourth quarter of 2014 -- households' most recent inflation expectations before the announcement of the Inflation Targeting policy in February 2015.

One potential concern with this specification is that our results could be driven by other common shocks within the same city (and not due to changes in inflation expectations). To address this concern, we tighten our specification further by exploring the cross-sectional variation of inflation expectations in each pin code by age group and gender. Here, we divide the age group into 2 categories (younger and older) based on the average age from the inflation expectations survey. Accordingly, we seek to examine changes in inflation expectations by pin code-age group-gender bins. For instance, in one bin, we have older, male respondents in pin code 100001 (which is based in Delhi). Based on the overlapping groupings in the two datasets, we obtained 622 common bins. This is our preferred specification. To validate this approach, we demonstrate that age and gender are significantly correlated with inflation expectations in India and that lower first moments of inflation expectations coincide with lower second moments, which is consistent with existing literature.

Using households' inflation expectations before the Inflation Targeting policy as a measure of treatment intensity, we employ a difference-in-difference strategy by comparing the impacts on households in different pin code-age group-gender bins from the administrative dataset provided by the Indian financial institution. Consistent with evidence of falling and more stable inflation expectations post-policy change, our underlying assumption is that bank customers in different bins and pin codes would have evolved similarly, were it not for the adoption of the Inflation Targeting policy. In doing so, we can isolate the policy's effect on inflation expectations and explore its broader implications for household financial decision-making.

Our baseline findings suggest that at the aggregate level, there is no evidence of an economically and statistically significant relationship between inflation expectations and households' choices. However, this aggregate result is masked by the heterogeneous response of households. We center our analysis on two possible economic channels. On the one hand, a decrease in inflation expectations with constant nominal interest rates will directly increase the perceived real interest rate (through the Fisher equation). Thus, from the consumption Euler equation, there will be greater incentive for individuals to save and reduce spending. This is particularly pertinent for households due to the nominal rigidities in the savings deposit rate (Neumark and Sharpe (1992), Driscoll and Judson (2013)). On the other hand, a decrease in inflation expectations could have the opposite effect, as the need for precautionary savings falls. As households experience a fall in inflation uncertainty, they become more confident. Hence, they are more willing to spend and save less (Ryngaert (2022), Coibion et al. (2024)). Given the contrasting effects of these economic channels, it is crucial to understand the conditions that determine the dominance of a specific channel.

In our study, we find that households' liquidity position determines whether the consumption Euler equation or the precautionary channel is dominant. The consumption Euler equation channel can be seen in households with high liquid savings, while the precautionary channel is evident in households with low liquid savings. When inflation expectations decreased by 1 percentage point, for households with the highest savings quintile, onsumption fell by 82 rupees[2] (0.3 percent) while bank deposits increased by 1,266 rupees (8 percent). Evidence of these households decreasing their consumption and increasing savings is not surprising. As sticky bank deposit rates provide this group of households with their primary source of safe and liquid returns (Drechsler et al. (2017)), they are most likely to be influenced by the consumption Euler equation.

In contrast, households with the lowest savings increased their consumption by 54 rupees (0.5 percent) and reduced their bank deposits by 443 rupees (12 percent) when inflation expectations decreased by 1 percentage point. This suggests that the precautionary channel plays a more important role for households with low liquid savings. A likely reason is greater vulnerability of households with low liquidity to changes in economic outlook, including inflation. As a result, when inflation uncertainty decreases, this group of households becomes more confident in the economy, which translates to higher spending and lower savings. To further validate the existence of the precautionary channel, we assess individuals' consumption

[2] To convert to USD, the exchange rate of 75 Indian Rupee to 1 USD (as of April 2021) can be used.

uncertainty by computing their coefficient of variation in consumption spending one year before the policy shock. We find that households in the lowest savings deciles exhibit the highest levels of consumption uncertainty before the policy change. This supports our hypothesis of the precautionary channel. Since this group of households has the highest consumption uncertainty, the precautionary channel is the strongest among them. Moreover, within the lowest savings deciles, we find that an increase in consumption uncertainty relates to higher spending, further validating the precautionary channel.

We also provide additional evidence supporting the consumption Euler equation among households with the highest savings. Here, we turn to another key variable: borrowing repayment. The consumption Euler equation reflects the relationship between current and future consumption decisions, which are driven by changes in real interest rates. Should an increase in real interest rates drive these households to consume less and save more, we would expect them to respond with other financial decisions, including loan repayments. Indeed, by focusing on the sub-sample of households holding existing loans with the financial institution in this study, we find that borrowers increase their loan repayments by 760 rupees when inflation expectations fall by 1 percentage point. This finding underscores the significance of real interest rates. A fall in inflation expectations, coupled with constant nominal interest rates, amplifies the cost of borrowing in real terms, prompting higher prepayments. Moreover, we demonstrate that changes in consumption-savings choices for this group of households are not attributable to alternative financial decisions, such as investments in risky assets. By separating households with and without any investments in risky assets, we find that our baseline results still hold. Households with the most liquid savings consume less and save more.

Next, we turn to portfolio choice. Our analysis reveals that households with the highest liquid savings decrease their investments in risky assets by 348 rupees (2.3 percent). In other words, they rebalance their portfolio from risky investments to bank deposits. Since these households behave in line with predictions of the consumption Euler equation channel, their behavior is most likely attributed to changes in interest rates. One possible explanation is related to the notion that changes in inflation expectations have an asymmetric impact on **nominal** returns, resulting in an asymmetric impact on the **real** returns of risky investments and bank deposit rates. Figure A1 Panel A in the online appendix presents the changes in interest rates in India during this period. While the RBI discount rate, treasury bill yields, and the term deposit rate offered by the financial institution decreased over time, the savings deposit rate offered by the financial institution remained unchanged at 4 percent. Thus, real savings deposit rate increased when inflation expectations fell. On the contrary, nominal returns of the

equity markets are more responsive to changes in inflation expectations as real returns are expected to be unchanged (Campbell and Vuolteenaho (2004)). This can be seen in Figure A1 Panel B, whereby there is a fall in nominal returns of the leading stock market index in India after the announcement of the inflation-targeting policy in February 2015. As such, due to the nominal rigidity of the savings deposit rate, households with high liquidity rebalanced their portfolio.

We acknowledge potential confounding factors that may influence households' decisions. One concern is that changes in inflation expectations resulting from Inflation Targeting could coincide with shifts in other macroeconomic expectations. For instance, the Inflation Targeting policy may have boosted optimism by enhancing economic stability and confidence. Alternatively, households may have brought forward future consumption in anticipation of a policy-tightening cycle following the policy announcement. While these alternative explanations are plausible, the observed heterogeneity in responses, such as spending increases limited to low-liquidity households, suggests that these factors are not the sole drivers of our findings as they would likely impact high and low liquidity households similarly. Another concern is that concurrent macroeconomic and financial conditions, such as changes in interest rates, currency values, and stock market performance, may impact stock market portfolio choices. However, these factors are unlikely to explain our results. Our difference-in-differences methodology, which relies on changes in inflation expectations that are orthogonal to stock holdings, mitigates potential biases from such variables.

Our findings have direct policy implications. Since inflation expectations influence different segments of the population in various ways, they provide insights into the distributional impact of changes in inflation expectations, underscoring the critical role of the household balance sheet. Given the heterogeneous responses of households with differing levels of liquidity to changes in inflation expectations, we demonstrate that the aggregate effect of the inflation-targeting policy on households' consumption and savings choices is mitigated as the opposing channels offset each other. Therefore, policies aimed at managing inflation expectations must be targeted and carefully designed.

Related Literature: This paper contributes to several strands of research. First, we speak directly to the literature examining the relationship between inflation expectations and economic decisions. Previous studies have highlighted the role of cognition and belief accuracy on household consumption choices (Bachmann et al. (2015), D'Acunto et al. (2022b)). More recent work by Indarte et al. (2024) has shown that low-wage workers tend to save less when asked how they would adjust their savings if inflation increased. Our paper adds to the

discourse by demonstrating the direct impact of household balance sheets, particularly liquid savings, on various economic channels. Earlier works such as Vellekoop and Wiederholt (2019), as well as Ichiue and Nishiguchi (2015), have also underscored the significance of household balance sheets and inflation expectations. The key difference between this paper and the existing literature is that we provide evidence for the prevalence of both the consumption Euler equation channel and precautionary savings channel under different conditions.

Another contribution of this paper is its emphasis on savings, the counterpart of consumption. While prior studies have documented how investors tend to invest more in real assets like housing as an inflation hedge (Malmendier and Nagel (2016), Brunnermeier and Julliard (2008)), we focus on bank deposits and risky assets, which form a sizable component of the economy. In the US, bank deposits represent approximately 80 percent of the GDP. Furthermore, equity holdings amount to USD$32 trillion and form the largest proportion of financial assets on the households' balance sheet. This is comparable to the stock of housing wealth (Di Maggio et al. (2020)). By further investigating how households make portfolio choices through changes in their bank deposits and risky investments, we shed light on the households' portfolio rebalancing decisions, a channel that is currently relatively unexplored. Similar to how households tend to "reach for yield" by rebalancing their portfolio from risk-free assets towards risky assets when real interest rates fall (Borio and Zhu (2012)), we find that for individuals where the consumption Euler equation takes precedence, they readjust their portfolio by moving away from risky assets towards risk-free assets when real interest rates increase. Consequently, changes in inflation expectations have the potential to impact households' willingness to take risks and the financial stability of an economy.

Accordingly, we add to the literature on inflation and investments in risky assets. Past research has primarily focused on the relationship between inflation and equities returns, which yielded mixed conclusions. While some studies indicate that inflation is positively correlated with stock returns (Boudoukh and Richardson (1993)), others revealed a negative relationship (Fama (1981), Barnes et al. (1999)). However, these findings provide indirect evidence of investors' behavior. To directly assess households' response to inflation, it is pertinent to study investors' transactions. Recent work by Braggion et al. (2023) examined local inflation and security portfolios during the German Hyperinflation in the 1920s, revealing a negative relationship between inflation and stock holdings. We depart from the literature above by providing direct evidence of household inflation expectations, *ex-ante,* and not the actual inflation, *ex-post*. Hence, we focus on the beliefs of individuals and how changes in inflation expectations impact their portfolio decisions.

Finally, we relate to the literature that examines the role of information in impacting households' inflation expectations and choices. Previous studies have shown that the communication of monetary policy can shape households' inflation expectations (Coibion et al. (2022)). Moreover, other research has focused on natural experiments, such as the announcement of value-added tax in Germany (D'Acunto et al. (2022a), Bachman et al. (2021)), to explore the causal impact of inflation expectations. In this paper, we add to the literature by showing how the announcement of the inflation-targeting policy impacts household decisions, offering new insights into the transmission of policy expectations to real economic behavior.

The remainder of the paper is organized as follows. Section 2 provides information about Inflation Targeting in India and the data used in this paper. Section 3 explains the empirical methodology and main results. Finally, Section 4 concludes.

2. Background and Data

2.1 Inflation Targeting in India

Inflation Targeting is a monetary policy strategy adopted by central banks to guide inflation towards a specific target. By providing a clear numerical target, it makes the management of inflation more transparent and salient. Inflation Targeting has gained widespread global acceptance over time, with 17 G20 countries and 35 out of 36 OECD members adopting this framework (Rose, (2020)), resulting in a measurable impact on inflation expectations. For instance, Johnson (2002) demonstrated that countries implementing Inflation Targeting experienced a decline and convergence in inflation expectations. Building upon this framework, we exploit the introduction of Inflation Targeting in India as an exogenous shock to inflation expectations, and examine how it impacts households decisions.

India formally adopted Inflation Targeting on 20 February 2015 when the Reserve Bank of India announced the transition to this framework under the Monetary Policy Framework Agreement with the Government of India. The agreement set an initial objective of reducing inflation below 6% by January 2016, followed by a target inflation rate of 4% within a band of ±2%. Before this shift, India relied on a "Multiple Indicators Approach," which monitored a range of macroeconomic variables without setting explicit numerical goals. The adoption of Inflation Targeting marked a major departure from this approach by introducing, for the first time, a clearly defined number for inflation. This transition from qualitative indicators to

explicit numerical targets provides the rationale for our study, as such a framework can anchor inflation expectations. Indeed, early studies, such as Eichengreen et al. (2020), have shown that this policy shift subsequently led to greater alignment of inflation expectations in India. Therefore, inflation targeting is able to induce convergence of previously heterogeneous inflation expectations towards the target.

India provides a unique context for studying inflation expectations due to the rare set of conditions surrounding its implementation. Observable, sudden, and exogenous changes in household inflation expectations in real-world settings are uncommon compared to controlled experimental environments, such as randomized information treatments. This makes India's case particularly valuable. Furthermore, existing literature highlights that households often exhibit inattention to monetary policy announcements (D'Acunto et al. (2022a)). However, this inattention tends to decrease during periods of high and volatile inflation (Weber et al. (2023)). India's adoption of Inflation Targeting coincided with a period of persistently high inflation, likely amplifying household awareness and sensitivity to the policy change. This combination of heightened inflation and a clearly defined policy shift creates a unique natural experiment for exploring the dynamics of inflation expectations and their impact on household behavior.

The introduction of Inflation Targeting in India was particularly significant as it coincided with intense public debate over its feasibility and suitability. Before 2014, the concept was largely unfamiliar in the Indian context. Its formal adoption was first proposed in the Urjit Patel Committee Report in January 2014, which advocated for Inflation Targeting as a monetary policy framework. However, political disagreements between the Government and the RBI created uncertainty regarding its implementation. At that time, skepticism about its suitability for India was widespread, as highlighted by newspaper articles compiled in Table A1 of the online appendix, which capture prevailing doubts about the policy's appropriateness. The progression from skepticism to eventual adoption reflects a broader policy debate about reconciling the theoretical merits of Inflation Targeting with India's unique economic conditions.

Beyond the news media, the policy sparked significant public interest. An analysis of Google Trends data from 2012 to 2015, shown in Figure A2, indicates that interest in inflation targeting was minimal before 2014. However, public curiosity surged following the release of the Urjit Patel Committee Report and the ensuing debates. This trend underscores how the high-inflation environment, coupled with intense media coverage, elevated public awareness and engagement with the topic. Simultaneously, much attention centered on the recently

appointed RBI Governor Raghuram Rajan, who was widely regarded as a rock star[3]. The February 2015 policy announcement marked a pivotal moment, as it resolved long-standing disagreements between the Government and the Reserve Bank of India over the adoption of inflation targeting, and was regarded as a victory for Raghuram Rajan. The unexpected nature of this policy shift further amplified its salience. Mohan and Ray (2019) provide a detailed history of Indian monetary policy, emphasizing how this unexpected and substantial policy change addressed a key challenge: generating exogenous shifts in household inflation expectations.

To begin, we show that ex-post, the announcement of the Inflation Targeting policy managed to provide clarity and reduce actual inflation volatility in India. Figure 1 presents the monthly inflation rate between January 2013 to January 2017 for 6 different cities that we will be focusing on in this paper: Ahmedabad, Bhubaneshwar, Chennai, Delhi, Kolkata, and Mumbai. Evidently, there is wide dispersion in the actual inflation rate experienced by different cities, and the actual inflation rate has become more stabilized after the introduction of the Inflation Targeting policy.

[Insert Figure 1]

Regional inflation disparities have been widely studied across different countries, highlighting the persistence of inflation differentials and their underlying drivers. For instance, Beck et al. (2009) compared regional inflation differentials between the eurozone and the United States, Nagayasu (2011) explored inflation variation within Japan, and Brown et al. (2018) analyzed disparities across 71 Russian regions. In the Indian context, Kundum et al. (2018) provided empirical evidence in the RBI Bulletin on the significant dispersion in inflation rates across states, shaped by heterogeneous economic, geographic, and structural characteristics. Expanding on these insights, our study shifts the focus to regional variations in inflation expectations and investigates how the Inflation Targeting policy influences their convergence, shedding light on the policy's effectiveness in anchoring expectations across diverse economic landscapes.

[3] Global headlines include "Raghuram Rajan: India's 'rock star' central banker" in the *BBC News* (https://www.bbc.com/news/business-24164947) and "Raghuram Rajan: India's Unlikely Rock Star" in the *Wall Street Journal* (https://www.wsj.com/articles/BL-IRTB-20230).

2.2 RBI Inflation Expectations Survey of Households

We use the RBI Inflation Expectations Survey of Households to measure changes in inflation expectations of households in India. The inflation survey is conducted quarterly in 18 major cities across India. Around 900 representative households are interviewed in each city every quarter. To ensure random sampling, each city is separated into three major areas. Each major area is further divided into three sub-areas. 100 respondents are selected randomly from each sub-round. In each survey, households are asked about their inflation expectations, as well as product-wise expectations of prices for different types of goods in different periods. These include the 1-year, 3-month, and current inflation expectations. Besides inflation expectations, we also obtain information on their age group, gender, city, and pin code (based on their home location). Known as the Postal Index Number code, the pin code is a six-digit code used in the Indian postal code system that identifies the post office where one's address is located.

Inflation expectations can be affected by many factors. These include consumer's prior perceptions of inflation (Malmendier and Nagel (2016), Cavallo et al. (2017)), personal experiences (D'Acunto et al. (2021a), Agarwal et al. (2022)), media (Carroll (2003), Pfajfar and Santoro (2013)) and knowledge about monetary policy (Christelis et al. (2020)). In addition, studies have shown that females and older households tend to report higher inflation expectations and that gender roles play a role in inflation expectations ((D'Acunto et al. (2021b)). Consequently, the inflation expectations of households in different cities, genders, and ages respond differently to the inflation targeting policy.

We now turn to our main specification. As we would like to focus on the economic choices of households with varying inflation expectations, we center our analysis on households that we can link with their financial choices. After mapping the RBI Inflation Expectations Survey of Households results with our proprietary dataset from the Indian financial institution, we have 219 pin codes in 6 cities that are in common. The cities, which include Ahmedabad, Bhubaneshwar, Chennai, Delhi, Kolkata and Mumbai, are large cities that are considered good comparison groups. Here, we follow the literature that focuses on regional heterogeneity. Figure 2 presents changes in inflation expectations across these cities from the first quarter of 2013 to the first quarter of 2017. It is clear that there is a fall in average inflation expectations after the announcement of the policy change, and that inflation expectations have become more stabilized. This is further exemplified in Figure A3 which presents the variance of inflation expectations across time.

[Insert Figure 2]

To tighten our mapping with the administrative bank data, we further explore cross-sectional variation based on gender and age groups. We define the age group as an indicator variable for older households (which is larger than the average age of 43 years old from the inflation expectations survey). Together, we have 622 bins.

Since the inflation targeting policy was unexpectedly announced on 20 February 2015, we focus on households' last inflation expectations (prior to the policy change) in the 4th quarter of 2014. Table 1 Panel A and B report the average inflation expectations by pin code and by bin, respectively. At the pin code level, the current, 3-month, and 1-year inflation expectations stand at 10.15, 9.76, and 11.25 percent, respectively. At the bin level, the current, 3-month, and 1-year inflation expectations are at 10.72, 10.26, and 11.79 percent, respectively. These numbers are larger than India's actual inflation rate of 6.67 percent in 2014, which is consistent with the inflation expectations literature that underscores households having higher inflation expectations than the actual inflation rate.

[Insert Table 1]

In the Online Appendix, we dive deeper into the RBI Inflation Expectations Survey of Households at the individual level. Table A2 provides summary statistics of the survey from 2010 to 2019, alongside our sample in 2014Q4. Mean inflation expectations declined in our 2014Q4 sample compared to the broader dataset, providing an initial indication of shifting trends around this period. Table A3 further shows that following the announcement of the Inflation Targeting policy, there was a fall in inflation expectations across all different horizons by around 2.4 to 3.4 percentage points. The findings provide strong *ex post* evidence that the policy announcement directly influenced household inflation expectations, aligning with the broader goals of inflation targeting frameworks to anchor expectations.

To support our straficiation at the bin level, Table A4 presents regression results of inflation expectations on age, gender, and pin code, based on the 2014Q2 sample. Consistent with prior literature, we find that women and older individuals tend to report higher inflation expectations (D'Acunto et al. (2021b)). Specifically, the regression achieves a high R-squared value of 0.71 to 0.77, indicating a strong model fit for our preferred specification. We also examine the relationship between the first and second moments of inflation expectations, a

critical dimension often highlighted in existing literature. Studies suggest that lower first moments of inflation expectations are typically associated with lower second moments. To explore this, we calculate the standard deviation of inflation expectations within each bin and regress it on the corresponding average inflation expectations. Table A5 presents the results. Our findings reveal a positive correlation, further supporting the validity of our bin stratification.

To address concerns that outliers may influence our benchmark results, we analyze the distribution of respondents and inflation expectations at both the pin code and bin levels. The distribution of the number of respondents across different pin codes and bins is shown in Figure A4 . On average, there are around 15 respondents in each pin code and 5 respondents in each bin. Less than 10 percent of the pin codes and bins have only 1 respondent. Subsequently, we present the distribution of the inflation expectations at the pin code level and bin level in Figures A5 and A6 respectively. This illustrates the dispersion of inflation expectations (which is our underlying *Treat* variable) when collapsed to pin code and bin level, respectively. From the histogram and kernel density in these figures, there is little evidence that extreme values could drive our baseline results, as they constitute a relatively small proportion.

2.3 Administrative Bank Data

To study the impact of households' consumption and portfolio rebalancing decisions, we use a unique, proprietary dataset obtained from a major bank in India. It is one of the top four banks in India by assets and market capitalization. The bank has more than 18,000 branches and ATMs across India, offering a wide variety of banking products and financial services. This includes credit and debit cards, savings accounts, term deposit accounts, and mutual funds. As highlighted in the previous section, we center our analysis on households with pin codes in 6 cities: Ahmedabad, Bhubaneshwar, Chennai, Delhi, Kolkata, and Mumbai (that are common with the RBI Inflation Expectations Survey of Households).

From this dataset, we have information on both monthly transaction level data and account balances. To measure transaction flows, we classify them into three main categories, consumption, change in bank deposits, and risky investment. Consumption includes credit and debit card spending, as well as cash withdrawals from the bank or ATM. Change in bank deposits is the month-on-month change in bank deposits, whereby bank deposits relate to account balances for both savings and term deposits. Finally, we turn to risky assets. Here, investments in risky assets involve mutual fund flows as well as direct purchase or sale of

stocks. We also have demographic information of individual households, such as their occupation, age, and gender, as well as the pin code and city in which they stay. This allows us to map directly to the RBI Inflation Expectations Survey of Households.

In this paper, we focus on the period from October 2014 to June 2015 (i.e. 4th quarter of 2014 to the 2nd quarter of 2015). This includes the quarter before, during, and after the inflation-targeting policy was announced. Table 1 Panels C to E shows basic descriptive statistics of our sample. To prevent outliers from driving our results, we winsorized the sample at 1% and 99% based on the size of consumption, changes in savings, and risky investments. Based on the mapped sample, there are a total of 43,393 households. The average age is 47, with 63 percent of them married, and 22 percent of them being females.[4]

For transaction-level data, average monthly consumption is 18,910 rupees (252 USD), while changes in bank deposits and investments in risky assets amount to 2,486 rupees (33 USD) and 3,076 rupees (41 USD), respectively. In terms of account balances, bank deposits average 399,472 rupees (5,326 USD), while demat balances, representing shareholdings, stand at 312,346 rupees (4,164 USD). The share of risky assets is 0.1, reflecting low exposure to equity markets, which aligns with the literature on limited stock market participation. Notably, during this period, the regular savings account interest rate remained fixed at 4%, providing a stable benchmark. In contrast, term deposit rates fluctuated in response to monetary policy changes, offering a comparative framework for assessing shifts in household financial behavior.

One key consideration in this paper relates to households' liquidity. Figure A7 illustrates the distribution of households' savings as of October 2014, where we divide the savings into 5 different quintiles. Here, we note that the quintiles can help to capture the range of variation in the amount of liquid savings[5]. In Table A7 in the online appendix, we present the summary statistics of the average savings balances in the different quintiles from October 2014 to June 2015. We find that the average savings balances are fairly spread out. The amount of savings in each quintile are as follows: Quintile 1 (23,000 rupees), Quintile 2 (50,000 rupees), Quintile 3 (102,000 rupees), Quintile 4 (220, 000 rupees), Quintile 5 (624,000 rupees). Thereafter, we present the summary statistics of our key outcome variables: consumption, changes in bank deposits, and risky investments in the different quintiles during the same period.

[4] Table A6 compares key demographics from the RBI survey data and the administrative bank data.
[5] To ensure the robustness of our findings, we demonstrate that our regression estimates remain consistent when using deciles instead of quintiles.

3. Empirical Methodology and Results

3.1 Benchmark Results

In this paper, we compare the outcomes of households with different changes in their inflation expectations (treatment intensities) using a difference-in-differences strategy from October 2014 to June 2015. Our underlying assumption is that households in both datasets are representative of each pin code in each city. While systematic differences in average inflation expectations exist across pin codes, these differences are assumed to have remained stable over time in the absence of the inflation target. As a result, households across pin codes experienced a similar decline in inflation expectations relative to the inflation target rate of 4 percent. Formally, we run the following regression:

$$Y_{i,j,t} = \gamma_i + \lambda_t + \beta_1 Treat_j * Post_t + \epsilon_{it} \qquad (1)$$

Here, $Y_{i,j,t}$ represents the outcome variable for household i in group j at time t. $Treat_j$ denotes the group-specific inflation expectations of households from the RBI Inflation Expectations Survey of Households during the 4th quarter of 2014 (as that is their latest reported inflation expectations before the policy announcement date), which is time-invariant. We assume that households experienced an unanticipated change in inflation expectations (to the target level) before the announcement of the inflation-targeting policy in February 2015. In other words, higher initial inflation expectations ($Treat_j$) correspond to larger downward revisions towards the target rate of 4 percent, while lower initial expectations result in smaller changes.

$Post_t$ is a time-varying indicator equal to 1 for months following the announcement of the Inflation Targeting Policy in February 2015, and 0 otherwise. The dependent variables include consumption, changes in bank deposits, as well as investment in risky assets. We abstract from taking logarithms as the outcome variables could potentially be negative. γ_i is the individual dummy variable to absorb differences in individual preferences, while λ_t is the month dummy variable to control for time-fixed effects.

In our baseline results, we focus on 1-year inflation expectations and include 3 months and current inflation expectations as our robustness tests in the online appendix. We first focus on inflation expectations at the pin code level. To allay concerns that the mapping of city-level inflation expectations into the households' outcomes could be driven only by common shocks

at the city level, we further explore cross-sectional variation based on gender and age group. This allows us to rely on inflation expectations according to the pin code-age group-gender bins, which is our preferred specification.

Table 2 presents the benchmark results based on the average treatment effect for 1-year inflation expectations, with Panel A displaying results by pin code, and Panel B by pin code-age group-gender bins.

[Insert Table 2]

In Panel A, we find that as inflation expectations fall by 1 percentage point, there is an increase in consumption by 7 rupees, an increase in bank deposits by 40 rupees, and an increase in risky investments by 16 rupees. Panel B reports that as inflation expectations fall by 1 percentage point, there is an increase in consumption by 1 rupee, a fall in bank deposits by 38 rupees, and a fall in risky investments by 7 rupees. All results are not statistically significant at the 10 percent level. Hence, we do not find evidence supporting the view that 1-year inflation expectations impact households' decisions at the aggregate level.

This can also be seen in the distributed lag model. Building on Equation (2), we include the lead and lag variables relative to the announcement of the inflation-targeting policy.

$$Y_{i,j,t} = \gamma_i + \lambda_t + \sum_{\tau=-3}^{3} \beta_\tau I_{jt+\tau} + \epsilon_{it} \quad (2)$$

$I_{jt+\tau}$ refers to the inflation expectations of households ($Treat_j$) that we have defined earlier in Equation (2) on periods before and after the policy change. The lead variables, variable $\beta_{-1}, \beta_{-2}, \beta_{-3}$, measure the impact of inflation expectations on households before the announcement of the policy, while the lag variables, $\beta_1, \beta_2, \beta_3$, focus on the marginal response after the policy announcement date. Like Equation (2), γ_i is the individual dummy variable to absorb differences in individual preferences, while λ_t is the month dummy variable to control for time-fixed effects.

In Figure 3, we present the results of the distributed lag model due to changes in 1-year inflation expectations. These graphs can be considered as difference-in-difference coefficients from an event-study point of view, 3 months before and 3 months after the policy

announcement. The x-axis represents the months before the announcement (-3 to -1), the announcement (period 0), and the months after the announcement (1 to 3) of the term deposits.

[Insert Figure 3]

Evidently, there are no economically and statistically significant differences in consumption, changes in bank deposits, and risky investments during this period. These results are not surprising as there has been no consensus on the causal effect of inflation expectations on consumption empirically, and studies such as Burke and Ozdagli (2021) have documented that inflation expectations generally have little impact on spending. Moreover, there are many possible ways that households can respond to changes in inflation expectations.

To explore what drives the different channels, we turn to the household balance sheet. By examining the composition and structure of household assets and liabilities, we aim to identify the channels through which inflation expectations could potentially influence economic behavior.

3.2 Economic Mechanisms

Inflation expectations play a key role in shaping households' consumption and savings decisions, often through different and sometimes opposing forces. As noted earlier, research has identified several ways in which inflation expectations influence household behavior. Here, we focus on two testable mechanisms: the consumption Euler equation channel, where lower real interest rates encourage households to spend more in the present, and the precautionary savings channel, where increased uncertainty causes households to save more. We recognize that these are not the only explanations for household responses. In Section 3.4, we will explore other mechanisms and behavioral factors, as well as how they interact within the broader economy.

The consumption Euler equation channel suggests that a decrease in inflation expectations will increase savings and reduce consumption when nominal interest rates are held constant. Since there is a rise in perceived real interest rates through the Fisher equation, the opportunity cost of consumption has risen, inducing households to save more. In contrast, the precautionary channel indicates that a decrease in inflation expectations results in households reducing savings and increasing consumption. This is attributed to the need to have lower precautionary savings. As inflation expectations fall and become more stabilized,

households become more confident, translating to a decrease in precautionary savings. Hence, the precautionary channel suggests that consumption tends to increase, while savings decrease.

One key determining factor that drives the consumption Euler equation channel or precautionary channel lies in the household balance sheet, which includes their liquidity position. For households with low liquidity, they are more concerned about precautionary savings. Hence, we will expect the precautionary channel to play a more important role for these individuals. In contrast, for households with more liquidity, the consumption Euler equation channel is expected to play a more dominant role as they stand to gain more from the expected increase in real interest rate.

To test our predictions, we examine the heterogeneous effects of liquid wealth position. We divide the sample into 5 quintiles based on their savings balance on September 2014, before re-estimating the following difference-in-differences equation from October 2014 to June 2015:

$$Y_{i,j,t} = \gamma_i + \lambda_t + \sum_{k=1}^{5} \beta_k Treat_j * Post_t * Z_k + \delta_k Z_k * Post_t + \varepsilon_{it} \quad (3)$$

Building on Equation (2), Z_k is a binary variable that is equal to 1 if the household belongs to the kth quintile. For instance, Z_5 refers to households in the 5th quintile (highest amount of savings). We then estimate the coefficients from each quintile and examine their differential responses.

In this specification, the underlying assumption is that across savings quintiles, there are equal baseline inflation expectations in each pin code and bin, and that low and high-wealth households update their expectations identically. To validate that our inflation expectations (i.e. Treat variable) are independent of households' liquidity, we run the regression between inflation expectations and different savings quintiles. Here, we find that there is no statistically significant relationship between inflation expectations and the savings quintiles (Table A8 in the online appendix).

Table 3 presents the heterogeneous effects of liquidity by pin code-age group-gender bins. We begin by examining households with the least and most liquidity. For households in the lowest savings quintile, a fall in 1-year inflation expectations by 1 percentage point led to an increase in consumption of 54 rupees (significant at 10 percent), fall in bank deposits of 443 rupees (significant at 5 percent), and an increase in investments by 86 rupees (not significant

at 10 percent). This corresponds to an increase in consumption of 0.5 percent and a decrease in savings of 12 percent. In contrast, households in the highest savings quintiles experienced a decrease in consumption by 82 rupees, an increase in bank deposits by 1266 rupees, and a decrease in risky investments by 348 rupees when 1-year inflation expectations fell by 1 percentage point. All the coefficients are statistically significant at the 1 percent level. This corresponds to a decrease in consumption of 0.3 percent, an increase in savings of 8 percent, and a fall in risky investments of 2.3 percent.

[Insert Table 3]

Our findings indicate that households exhibit varied responses to changes in inflation expectations, reflecting differences in their financial positions. While households with lower levels of liquid savings spend more and save less in bank deposits, those with higher liquid savings spend less and save more in bank deposits. Moreover, households with high liquid savings invest less in risky assets. Due to the offsetting effects across different types of households, the impact of households' decisions at the aggregate level is masked. To ensure the robustness of our findings, we conduct additional analyses examining the influence of liquidity based on changes in 3-month inflation expectations (see Table A9) and current inflation expectations (see Table A10). In addition, we demonstrate that our results remain consistent regardless of the number of savings bins. In Table A11, we present the results discussed in this section using deciles (10 bins), instead of quintiles (5 bins). In all robustness checks, our key results remained unchanged.

To provide better visualization and clarity, we present our findings graphically. In Figure 4, we plot the coefficients in Table 3 that is based on changes in 1-year inflation expectations at the pin code-age group-gender levels [6]. Panel A shows that across the liquid savings quintiles, there is a negative slope in consumption spending. There is a consistent decrease in spending as liquidity increases. While households in the lowest savings quintiles increased their consumption, households in the highest quintiles decreased their spending. In contrast, Panel B illustrates that there is a positive slope for liquid savings quintiles and changes in bank deposits. In other words, households tend to save more when they have higher liquidity. Finally, Panel C reports that investments risky investment fall only for households at the

[6] In Figure A8, we present the heterogenous effects of liquidity across the savings quintiles at the pin code levels. We obtain similar results.

highest savings quintiles. For households at the rest of the savings quintiles, investments in risky investments remain relatively unchanged.

[Insert Figure 4]

These results are consistent with our predictions based on the two economic channels discussed earlier. As the consumption Euler equation is expected to dominate for households with high liquid savings, they end up consuming more and saving less. In comparison, households with lower liquid savings are more vulnerable to changes in economic outlook, including inflation. Thus, as inflation uncertainty decreases, they become more assured about the economy, resulting in greater inclination to spend more and save less.

To provide evidence for the precautionary channel, we focus on the consumption uncertainty of households. Formally, we define consumption uncertainty by the coefficient of variation (standard deviation/mean) of individual households 1 year before the announcement of the policy. Based on changes in consumption from February 2014 to January 2015, we calculate the coefficient of variation for each individual. Figure 5 presents the consumption uncertainty across different savings quintiles. We find that households in the lowest savings quintiles exhibited the highest levels of consumption uncertainty, prior to the policy change. Given that they had the highest consumption uncertainty before the policy change, the precautionary channel dominates for this group of individuals.

[Insert Figure 5]

Next, we test whether consumption uncertainty drives consumption behavior for households in the lowest savings deciles. Building on Equation (2), we include the interaction term between households' prior 1-year inflation expectations ($Treat_j$), period after the inflation-targeting policy ($Post$), and the consumption volatility experienced by individual i (CV_i) into the following equation:

$$Y_{i,j,t} = \gamma_i + \lambda_t + \beta_1 Treat_j * Post_t + \beta_1 Treat_j * Post_t * CV_i + \epsilon_{it} \qquad (4)$$

Here, our main coefficient of interest is β_1. If households with the largest consumption uncertainty tend to consume more after the policy change, we should expect β_1 to be positive.

Table 4 presents our results with consumption, change in savings, and risky investments, as dependent variables for households in the lowest savings deciles. Indeed, we find that an increase in consumption uncertainty relates to an increase in consumption by 59 rupees (statistically significant at 5 percent). In contrast, higher consumption uncertainty relates to lower savings of 59 rupees and higher investments of 21 rupees (both not statistically significant). This lends support to our hypothesis of the precautionary channel.

[Insert Table 4]

Next, we seek to provide additional evidence for the consumption Euler equation for households with the most liquid savings. At the heart of the consumption Euler equation lies the interplay between current and future consumption choices, as well as changes in the real interest rates. If changes in the real interest rates drive the behavior of these households, we should expect them to respond to changes in other domains of their financial decisions too. One way is to look at borrowing repayments. When real interest rates increase due to a fall in inflation expectations and constant nominal interest rates, real costs of borrowing will increase. In this case, we should expect loan prepayments to increase too. To study the impact on borrowers, we focus on households that hold existing loans with the financial institution in this study[7]. We then re-run equation (4), with the inclusion of loan repayments as an additional outcome variable. Table 5 presents our results.

[Insert Table 5]

From Table 5, we find that for households in the highest savings quintiles, there is an increase in loan repayments by 760 rupees (statistically significant at 5 percent), when there is a fall in inflation expectations by 1 percentage point. This is consistent with the notion that these households respond to changes in real interest rates. It is most likely that borrowers are prepaying their loans with higher loan repayments. For those with fixed interest rates, the nominal interest rates should remain unchanged. Conversely, for individuals with floating interest rates, the nominal interest rates should decrease as the RBI discount rate and treasury bills have fallen (Figure A1 in the online appendix). Thus, we should expect loan repayments to remain unchanged or decrease if there are no prepayments. For borrowers in the highest

[7] This corresponds to around 14 percent of the entire sample.

savings quintiles, we also observe that consumption reduces by 7 rupees (not statistically significant at 10 percent), bank deposits increase by 1506 rupees (statistically significant at 5 percent), and investments in risky investments fall by 422 rupees (statistically significant at 5 percent), which is consistent with our baseline results of portfolio rebalancing.

To show that our results are not driven by the presence of risky assets, we divide our sample into 2 distinct groups: those with and without exposure to such investments. The first group comprises individuals holding stock brokerage accounts (referred to as demat accounts in India) or those who have previously invested in mutual funds. The second group comprises individuals who have not engaged in any transactions involving risky investments. We then re-run equation (4) for each sub-group separately. The regression results for individuals with and without exposure to risky investments are presented in Table A12 and A13 in the online appendix, respectively. In both cases, we observe the same benchmark results for consumption and changes in bank deposits. Households in the highest savings deciles do consume less and save more, regardless of whether they invest in risky assets. The only difference is that households with risky investments have an additional option available to them, which is to invest less in risky assets. These findings provide evidence supporting the consumption Euler equation for households in the highest savings quintiles.

3.3 Portfolio Choices

We now turn to portfolio choices. Why do households with high liquid savings rebalance their portfolios from risky assets to risk-free assets when there is a fall in inflation expectations? We reconcile this with the classical Merton (1969) portfolio choice model. In Merton's model, the fraction of wealth (W_t) allocated to risky assets can be presented in the following closed-form solution: $W_t = \frac{\mu - r}{\sigma^2 \gamma}$. Here, γ refers to the constant relative risk aversion, while r refers to the constant real interest rate for the risk-free rate. Given a risky asset, S_t, that evolves according to the stochastic differential equation: $dS_t = \mu . S_t . dt + \sigma . S_t . dz_t$, μ and σ relates to the expected real return and standard deviation of the risky asset, respectively. Subsequently, any policy change that affects μ, the real returns of risky assets, and r, the real returns of the risk-free rate, asymmetrically will change W_t, the fraction of wealth allocated to risky assets.

For households, the risk-free rate can be determined from the savings deposit rate. Unlike institutional investors, they do not have access to bond markets. Furthermore, government securities are highly inaccessible to households in India due to the competitive

bidding processes. In India, most households save directly through bank deposits (which are liquid) and are insured up to a maximum of 500,000 rupees in a bank. In fact, low participation by household investors in the bond markets in a worldwide phenomenon. In a developed country, like the US, direct household participation in the bond market is approximately 1.3 percent, according to the 2016 Survey of Consumer Finances.

Changes in inflation expectations are expected to affect the nominal returns of risky assets and the risk-free rate (savings deposit rate) asymmetrically. This is attributed to the rigidity of the savings deposit rate (Neumark and Sharpe (1992), Driscoll and Judson (2013)). From our administrative bank dataset, there are no changes in the nominal interest rate offered by the bank (risk-free rate), which remains unchanged at 4 percent. Despite changes in the RBI discount rate, treasury yield, changes in the actual inflation rate, and inflation expectations, the nominal interest rate offered by the commercial bank to savings account holders remains unchanged (Figure A1 in the online appendix). Only the term deposit rate changes with the bank rate. Hence, due to nominal rigidity of the savings deposit rate, the nominal return of households' risk-free assets does not have a one-to-one change with changes in inflation expectations. In terms of real returns, a decrease in inflation expectations (with a constant nominal interest rate) leads to an increase in the real interest rate of the risk-free assets, as demonstrated by the Fisher equation.

On the other hand, the impact on the real returns on the stock market is expected to remain unchanged, since equities are claims to the productive capital of the real economy (Campbell and Vuolteenaho (2004)) and inflation risk is often priced in stock returns (Boons et al. (2020)). Consequently, a fall in inflation expectations will lead to a corresponding fall in the nominal rate of return for the risky asset, *ceteris paribus*. In sum, we expect households to rebalance their portfolios from risky assets to safe assets when faced with a fall in inflation expectations due to the asymmetric impact of inflation expectations on the real returns of risk-free assets and risky assets. As households with the most liquid savings have the most to gain from a higher real interest rate, they are found to rebalance their portfolio.

Our findings carry important policy implications. Recent studies have documented that falling nominal interest rates cause investors to "reach for income" by increasing demand for income-generating assets (Daniel et al. (2021), Jiang and Sun (2020)) and that term depositors reallocate their portfolios toward riskier investments (Agarwal et al. (2023)). These studies operate in settings where inflation expectations remain unchanged, suggesting that households are more inclined to take risks when faced with a declining real interest rate. On the contrary, our evidence highlights the opposite effect: when real interest rates rise due to a drop in

inflation expectations, households exhibit a reduced willingness to take on risk. This behavioral shift is particularly pronounced among households with high levels of liquid assets, underscoring the sensitivity of wealthier households to changes in the real return on savings.

We observe significant heterogeneity across demographic groups in their responses to real interest rate changes. Older households are much more likely than younger ones to reduce their exposure to risky assets, reflecting greater risk aversion with age. Gender differences are also pronounced—women are more likely than men to cut back on consumption when real interest rates rise (see Table A14 in the online appendix). These patterns highlight the critical role of age and gender in shaping household decisions in response to shifts in real interest rates and inflation expectations. These findings emphasize the need for tailored policy interventions. Understanding how demographic characteristics influence financial behavior can help policymakers design targeted strategies that address the specific needs of different groups. For example, financial education programs or targeted incentives could help mitigate heightened risk aversion among older individuals or cautious demographics.

3.4 Discussion

In this section, we address and mitigate several potential concerns to ensure the robustness of our findings. First, we demonstrate that our results are consistent across various measures and levels of inflation expectations. Specifically, we establish robustness at both the pin code level and the pin code-age group-gender bin level, as well as across different time periods. In Figure A8 in the online appendix, we present the heterogeneous effects of liquidity across savings quintiles at the pin code level. We also show results for three-month and current inflation expectations at the pin code-age group-gender bin level Figures A9 and A10 in the online appendix, respectively. In all, these results are consistent with our benchmark findings.

Next, we examine potential confounding factors that may influence households' decisions in this study. One key concern is that changes in inflation expectations due to the Inflation Targeting policy may coincide with shifts in other economic expectations, potentially driving household behavior. For instance, changes in macroeconomic expectations triggered by the policy could shape households' perceptions of the economy. Recent studies suggest that higher inflation expectations are often linked to more pessimistic views of the economy, driven by concerns about declining real income and purchasing power (Candia et al. (2020), Jiang et al. (2024)). Conversely, lower inflation expectations may foster optimism by easing these

concerns and enhancing perceptions of economic stability. In our context, the Inflation Targeting policy may have boosted confidence in the economy, encouraging households to increase spending. Alternatively, households could have advanced future consumption in anticipation of a tightening policy cycle following the policy announcement.

While these alternative explanations are plausible, the heterogeneity in responses across liquidity levels provides compelling evidence against them as the sole drivers of our findings. If optimism or expectations of future policy tightening are the primary mechanisms, we will expect similar increases in spending across households, regardless of liquidity levels. However, the observed pattern, where only low-liquidity households exhibit significant increases in spending, suggests otherwise. This heterogeneity highlights the importance of other mechanisms at play, reinforcing the robustness of our findings. Should such factors impact households uniformly, they would not alter our results.

Additionally, we consider concurrent macroeconomic and financial conditions, such as changes in interest rates, currency values, and stock market performance. For example, as shown in Figure A1 in the online appendix, nominal interest rates and stock market indices in India declined following the announcement of the Inflation Targeting policy. While these trends may reflect falling inflation expectations, an alternative explanation is that households may respond directly to changes in nominal variables, consistent with the concept of money illusion (Shafir et al., 1997), whereby individuals focus on nominal rather than real values. For instance, households may reduce their stock market participation due to nominal declines, independent of underlying real dynamics.

However, this explanation is unlikely to account for our results. We employ a difference-in-differences methodology based on changes in inflation expectations, which are orthogonal to stock holdings. Provided that the effects of inflation expectations on household behavior remain constant during this period, it is unlikely that these nominal variables bias our results. This is further supported by evidence presented in Table A15 in the online appendix, where we regress inflation expectations on stock holdings and find no statistically significant relationship between the two variables.

Another concern is our inability to track households' purchases of real assets (e.g., gold or real estate) or international portfolio rebalancing. For instance, households with high liquid savings may not be rebalancing their portfolios domestically but instead transferring their savings back to India from foreign accounts in response to higher real interest rates. Despite this limitation, we observe a decline in investments in risky assets among high-liquidity households, suggesting that these individuals are shifting their asset allocations. This provides

evidence of portfolio adjustments even if some reallocations occur outside the scope of our data.

Lastly, the economic mechanisms underpinning our findings, such as the consumption Euler equation and the precautionary channel, remain robust across different specifications. Our results also hold across varying time horizons of inflation expectations (1 year, 3 months, and current) and across different demographic groupings (pin code and pin code-age group-gender bins). These robust findings underscore the validity of our analysis and reinforce the credibility of our conclusions.

4 Conclusion

This paper seeks to contribute to the growing body of literature in examining the impact of inflation expectations on household behavior. Although we observe that inflation expectations do not appear to shape households' choices at the aggregate level, changes in households' consumption and portfolio decisions do take place. By exploiting a natural experiment in India - Inflation Targeting, we document two opposing channels: the consumption Euler equation channel and the precautionary channel for households with different liquid savings. These findings underscore the importance of the household balance sheet in the study of inflation expectations.

Moreover, we show that households decrease their investments in risky assets when faced with lower inflation expectations and sticky nominal interest rates. Through our direct evidence of inflation expectations and portfolio choices, we seek to further increase our understanding of households' savings choices. This holds particular relevance in an environment with rising inflation rates and when more policymakers explore the potential use of inflation expectations as a policy tool (Coibion et al. (2020)). As our findings document that risky investments are highly sensitive to changes in inflation expectations, it has the potential to impact risk-taking among different individuals. Thus, our results also serve as a cautionary note for monetary policymakers.

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Table 1. Summary Statistics

	Number	Mean	SD
	(1)	(2)	(3)
Panel A: Inflation Expectations (by pin code)			
Current inflation expectations	219	10.15	6.18
3 Months inflation expectations	219	9.76	5.78
1 Year inflation expectations	219	11.25	7.38
Panel B: Inflation Expectations (by bin)			
Current inflation expectations	622	10.72	8.04
3 Months inflation expectations	622	10.26	7.71
1 Year inflation expectations	622	11.79	9.15
Panel C: Demographics			
Age	43,272	47.4	14.7
Married	43,272	0.63	0.48
Female	43,272	0.22	0.42
Panel D: Transactions			
Consumption	389,448	18,910	50,184
Change in Bank Deposits	389,448	2,486	273,962
Investments in Risky Assets	389,448	3,076	95,562
Panel E: Account Balances			
Bank Deposits	389,448	399,472	1,210,682
Demat Balance	389,448	312,346	3,997,848
Risky Asset Share	389,448	0.10	0.27

Notes: This table reports the summary statistics used in our regression analysis. Panels A and B first highlight descriptive statistics of the Inflation Expectations Survey of Households conducted by the Reserve Bank of India in the fourth quarter of 2014. Panel A is based on the average inflation expectations at the pin code level, while Panel B relates to the average inflation expectations at the pin code-age group-gender bins. Next, Panels C, D and E provide an overview of the summary statistics of households in the administrative dataset from October 2014 to June 2015. In Panel C, we show the basic demographic information of individual households. Thereafter, average transactions (flows) and average account balances (stocks) are presented in Panels D and E respectively. To convert to USD, the exchange rate of 70 Indian rupees to 1 USD (as of January 2020) can be used.

Table 2. DID Regression Estimates

Panel A: By pin code			
Dep. Var.:	Consumption	Δ Bank Deposits	Risky Investments
	(1)	(2)	(3)
1 Year Inflation Expectations * Post	7.178	39.90	16.42
	(22.33)	(147.7)	(50.19)
Obs.	389,448	389,448	389,448
R Square	0.332	0.018	0.069
Individual Fixed Effects	Y	Y	Y
Month Fixed Effects	Y	Y	Y
Panel B: By bin			
Dep. Var.:	Consumption	Δ Bank Deposits	Risky Investments
	(1)	(2)	(3)
1 Year Inflation Expectations * Post	1.085	-38.30	-6.571
	(18.99)	(125.6)	(42.69)
Obs.	389,448	389,448	389,448
R Square	0.332	0.018	0.069
Individual Fixed Effects	Y	Y	Y
Month Fixed Effects	Y	Y	Y

Notes: This table reports the impact of prior 1 year inflation expectations (before the announcement of inflation targeting) on consumption, changes in bank deposits, and investments in risky assets. Panel A depicts inflation expectations categorized by pin code, whereas Panel B focuses on inflation expectations by pin code-age group-gender bins . The results presented in this table are obtained using monthly data from October 2014 to June 2015, with Post being an indicator variable that depicts the time period after February 2015. Each column represents the estimation of its corresponding dependent variable that is indicated in the first row. For all the regressions, individual fixed effects and month fixed effects are imposed. Standard errors are clustered at the bin level. The robust standard errors are reported in parentheses. *,**,*** denote statistically significant levels at 10%, 5% and 1%, respectively.

Table 3. Regression Estimates based on Savings Quintiles

Dep. Var.:	Consumption	Δ Bank Deposits	Risky Investments
	(1)	(2)	(3)
1 Year Inflation Expectations * Post * Quintile 1	53.60*	-443.3**	86.05
	(28.86)	(190.9)	(64.88)
1 Year Inflation Expectations * Post * Quintile 2	65.44**	-490.1***	66.81
	(28.55)	(188.9)	(64.19)
1 Year Inflation Expectations * Post * Quintile 3	29.74	-322.9*	92.34
	(28.84)	(190.8)	(64.82)
1 Year Inflation Expectations * Post * Quintile 4	-31.24	-89.37	74.16
	(28.72)	(190.0)	(64.56)
1 Year Inflation Expectations * Post * Quintile 5	-81.97***	1,266***	-347.8***
	(29.05)	(192.2)	(65.30)
Obs.	389,448	389,448	389,448
R Square	0.332	0.019	0.069
Individual Fixed Effects	Y	Y	Y
Month Fixed Effects	Y	Y	Y

Notes: This table reports the heterogeneous effects of prior 1 year inflation expectations (before the announcement of inflation targeting) by individuals' savings quintiles. Based on individuals' liquid wealth position in October 2014, we separate them into 5 different groups. Quintile 1 refers to those with the least liquid savings, while Quintile 5 refers to those with the highest liquid savings. In this specification, inflation expectations are categorized by pin code-age group-gender bins. The results presented in this table are obtained using monthly data from October 2014 to June 2015, with Post being an indicator variable that depicts the time period after February 2015. Each column represents the estimation of its corresponding dependent variable, which is indicated in the first row. For all the regressions, individual fixed effects and month fixed effects are imposed. Standard errors are clustered at the bin level. The robust standard errors are reported in parentheses. *,**,*** denote statistically significant levels at 10%, 5% and 1%, respectively.

Table 4. Regression Estimates by Consumption Volatility (Lowest Savings Quintiles)

Dep. Var.:	Consumption	Δ Bank Deposits	Risky Investments
	(1)	(2)	(3)
1 Year Inflation Expectations * Post	-64.26	89.40	-9.560
	(52.67)	(159.0)	(47.55)
1 Year Inflation Expectations * Post * Consumption Volatility	59.26**	-59.41	20.51
	(26.01)	(78.52)	(23.48)
Obs.	78,255	78,255	78,255
R Square	0.239	0.010	0.084
Individual Fixed Effects	Y	Y	Y
Month Fixed Effects	Y	Y	Y

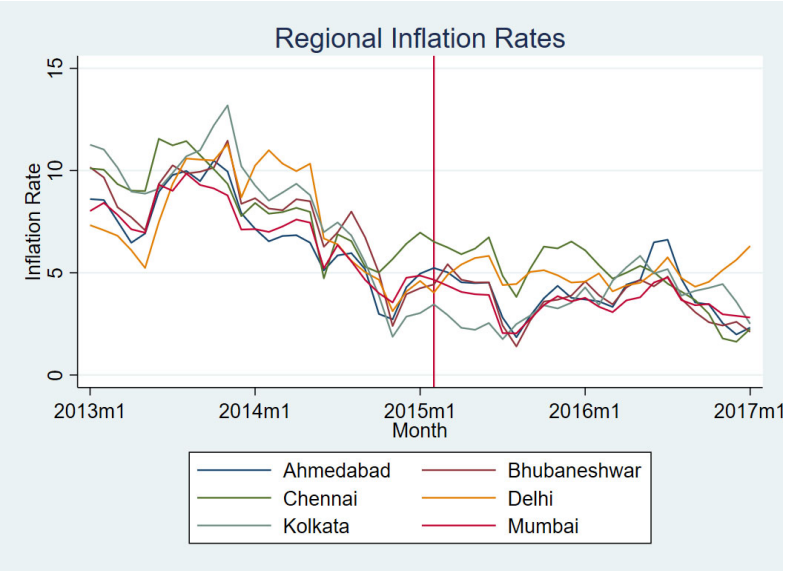
Notes: This table reports the heterogeneous effects of prior 1 year inflation expectations (before the announcement of inflation targeting) for households in the lowest savings quintiles. Consumption volatility refers to the coefficient of variation (standard deviation/mean) of individuals' consumption 1 year prior to the announcement (i.e. February 2014 to January 2015). In this specification, inflation expectations are being categorized by pin code-age group-gender bins. The results presented in this table are obtained using monthly data from October 2014 to June 2015, with Post being an indicator variable that depicts the time period after February 2015. Each column represents the estimation of its corresponding dependent variable which is indicated in the first row. For all the regressions, individual fixed effects and month fixed effects are imposed. Standard errors are clustered at the bin level. The robust standard errors are reported in parentheses. *,**,*** denote statistically significant levels at 10%, 5% and 1%, respectively.

Table 5. Regression Estimates for borrowers

Dep. Var.:	Consumption	Δ Bank Deposits	Risky Investments	Loan Repayment
	(1)	(2)	(3)	(4)
1 Year Inflation Expectations * Post * Quintile 1	62.43	-1,075	162.4	-324.3
	(115.5)	(724.1)	(205.9)	(401.1)
1 Year Inflation Expectations * Post * Quintile 2	45.30	-1,269**	211.0	-79.50
	(102.4)	(641.9)	(182.5)	(355.6)
1 Year Inflation Expectations * Post * Quintile 3	83.38	-1,004	234.3	-297.5
	(97.83)	(613.5)	(174.4)	(339.8)
1 Year Inflation Expectations * Post * Quintile 4	-24.10	-139.5	66.12	-195.5
	(97.09)	(608.8)	(173.1)	(337.3)
1 Year Inflation Expectations * Post * Quintile 5	-6.689	1,506**	-422.2**	760.0**
	(106.1)	(665.3)	(189.2)	(368.6)
Obs.	57,807	57,807	57,807	57,807
R Square	0.334	0.015	0.076	0.144
Individual Fixed Effects	Y	Y	Y	Y
Month Fixed Effects	Y	Y	Y	Y

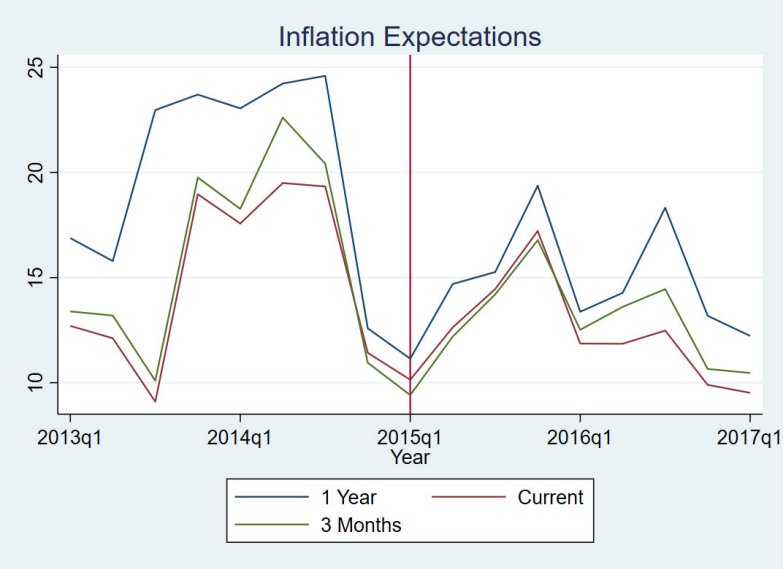
Notes: This table reports the heterogeneous effects of prior 1 year inflation expectations (before the announcement of inflation targeting) by individuals' savings quintiles for the sub-sample: borrowers. Borrowers refer to individuals with an existing loan with the bank. Based on individuals' liquid wealth position in October 2014, we separated them into 5 different groups. Quintile 1 refers to those with the least liquid savings, while Quintile 5 refers to those with the highest liquid savings. In this specification, inflation expectations are categorized by pin code-age group-gender bins. The results presented in this table are obtained using monthly data from October 2014 to June 2015, with Post being an indicator variable that depicts the time period after February 2015. Each column represents the estimation of its corresponding dependent variable which is indicated in the first row. For all the regressions, individual fixed effects and month fixed effects are imposed. Standard errors are clustered at the bin level. The robust standard errors are reported in parentheses. *,**,*** denote statistically significant levels at 10%, 5% and 1%, respectively.

Figure 1. Inflation Rate Across Cities in India



Notes: This figure shows the regional monthly inflation rates in 6 different cities-- Ahmedabad, Bhubaneshwar, Chennai, Delhi, Kolkata, and Mumbai-- from January 2013 to January 2017. This is calculated based on the state-level (Urban) Consumer Price Index.

Figure 2. Inflation Expectations Across Cities in India

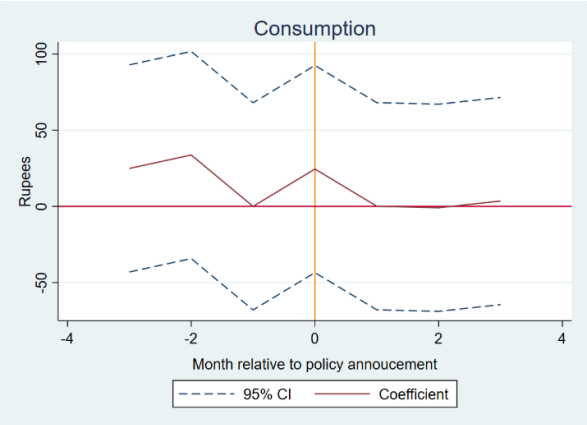


Notes: This figure shows the average quarterly inflation expectations in 6 different cities-- Ahmedabad, Bhubaneshwar, Chennai, Delhi, Kolkata, and Mumbai-- from the first quarter of 2013 to the first quarter of 2017. We include 1 Year, 3 Months, and current Inflation Expectations.

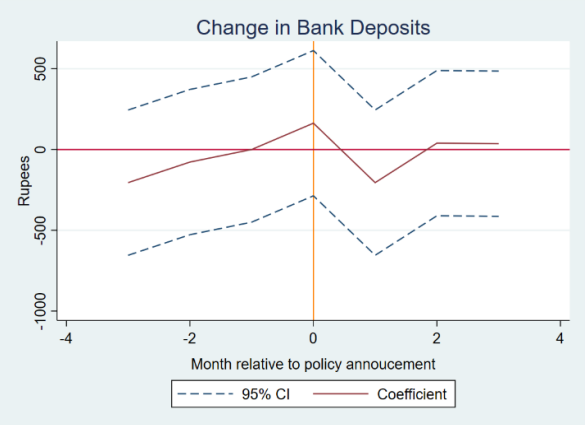
Figure 3. Event Study Graphs of Average Treatment Effect

(by pin code-age group-gender bins)

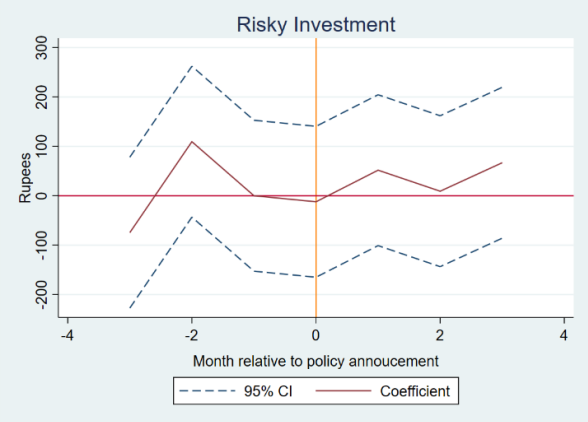
Panel A:



Panel B:



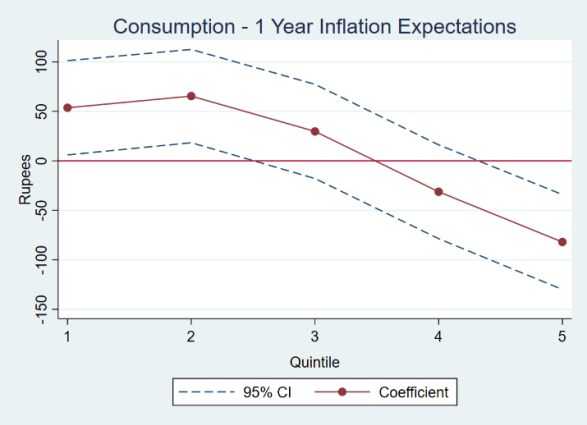
Panel C:



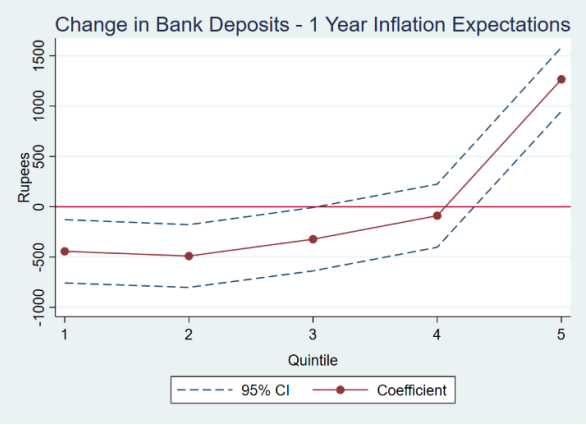
Note: This figure shows the dynamics of the average treatment effect on consumption (Panel A), changes in bank deposits (Panel B), and risky investment (Panel C). In this specification, inflation expectations are categorized by pin code-age group-gender bins. The x-axis denotes the month after the announcement of the inflation-targeting policy.

Figure 4: Heterogenous Effects for 1 Year Inflation Expectations based on Savings Quintiles (by pin code-age group-gender bins)

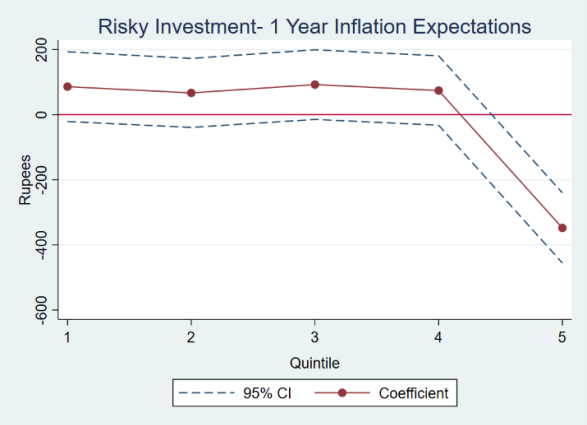
Panel A:



Panel B:



Panel C:



Notes: This figure shows the heterogenous impact of 1-year inflation expectations on consumption (Panel A), changes in bank deposits (Panel B), and investments in risky assets (Panel C) by liquid savings quintiles. In this specification, inflation expectations are categorized by pin code-age group-gender bins.

Figure 5. Consumption Uncertainty



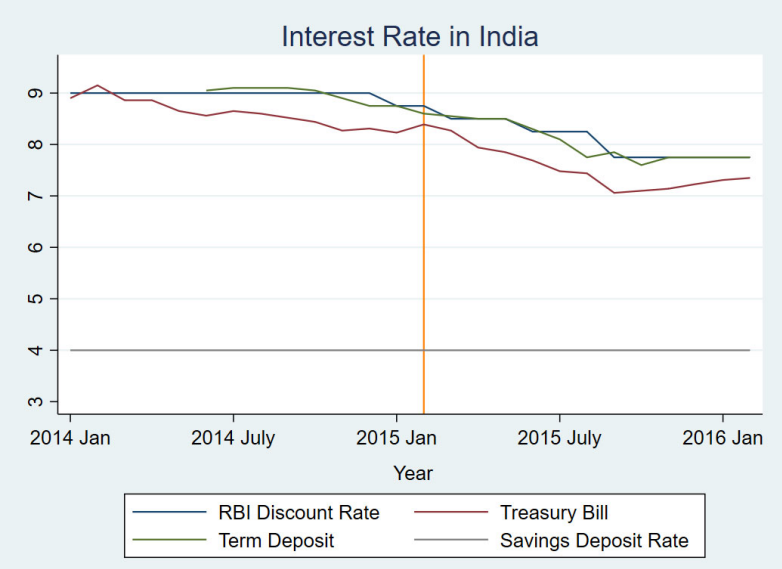
Note: This figure illustrates the coefficient of variation (standard deviation/mean) of individuals' consumption 1 year prior to the announcement (i.e. February 2014 to January 2015) across savings quintiles.

Internet Appendix

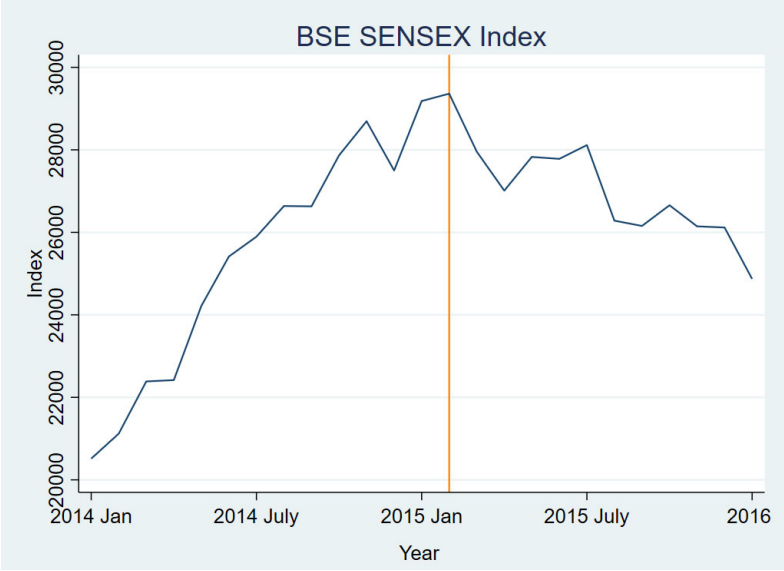
Not Intended for Publication

Figure A1. Interest Rate in India

Panel A:

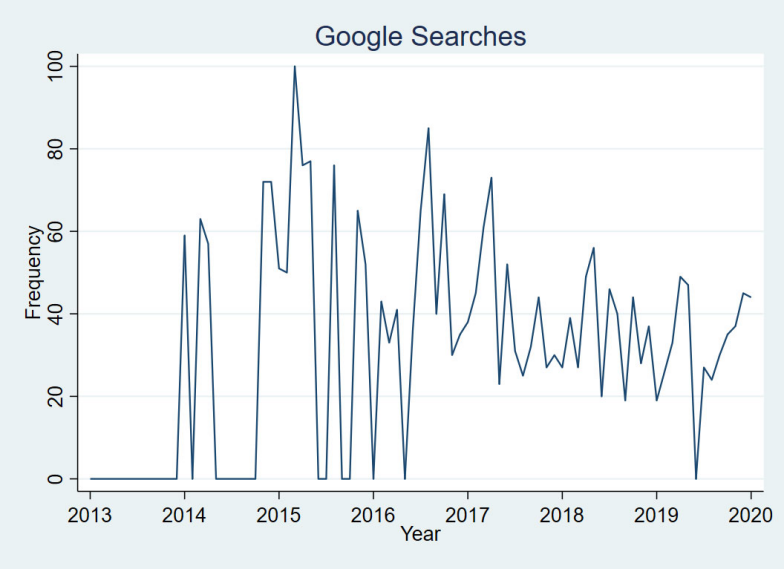


Panel B:



Note: Panel A shows the Reserve Bank of India (RBI) Discount Rate, India Treasury Bill 91-day yield, as well as the 1-year term deposit rate and savings deposit rate offered by the commercial bank described in this paper. Panel B presents changes in the BSE SENSEX, India's most tracked bellwether index over the same time period.

Figure A2. Interest in Inflation Targeting



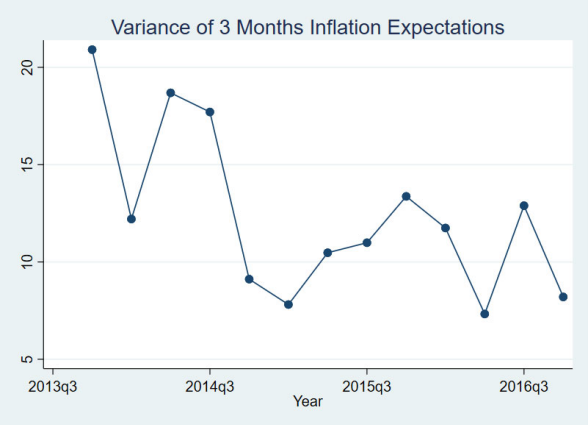
Notes: This figure illustrates changes in search interest for the term "Inflation Targeting" in India, as measured by Google Trends data from 2013 to 2019. An index value of 100 indicates the peak popularity of the term during the observed period.

Figure A3. Variance of inflation expectations across time

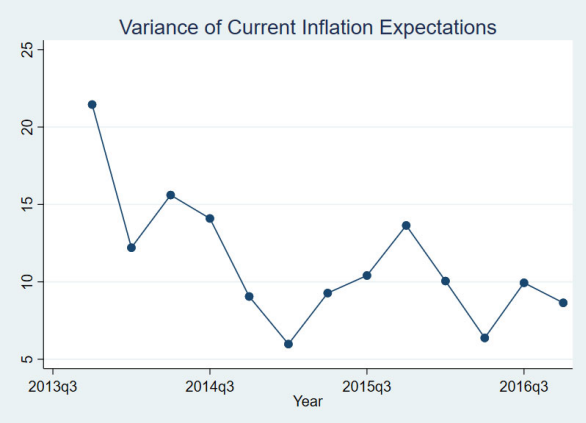
Panel A:



Panel B:



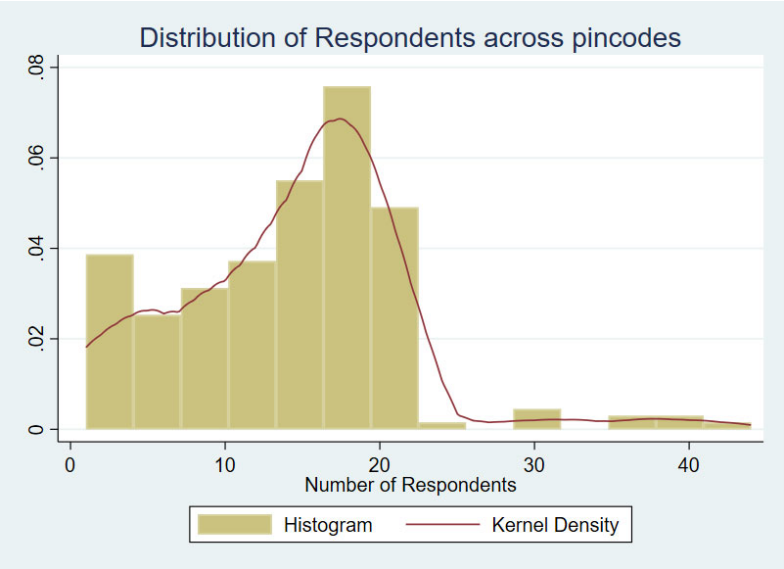
Panel C:



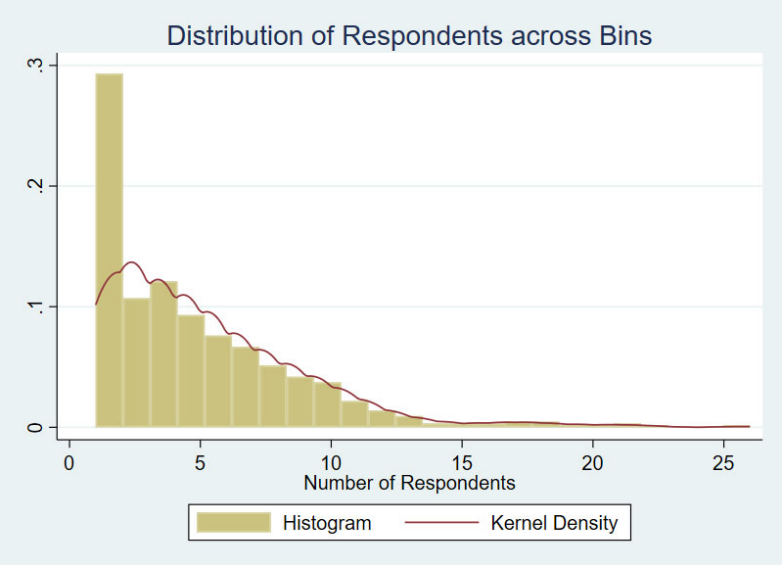
Note: This figure presents changes in the variance of inflation expectations among all households from the fourth quarter of 2013 to the fourth quarter of 2016. Panel A reports the variance of 1-year inflation expectations, Panel B displays the variance of 3-months inflation expectations, while Panel C depicts the variance of current inflation expectations.

Figure A4. Number of Respondents across pin codes and pin code-age group-gender bins

Panel A:



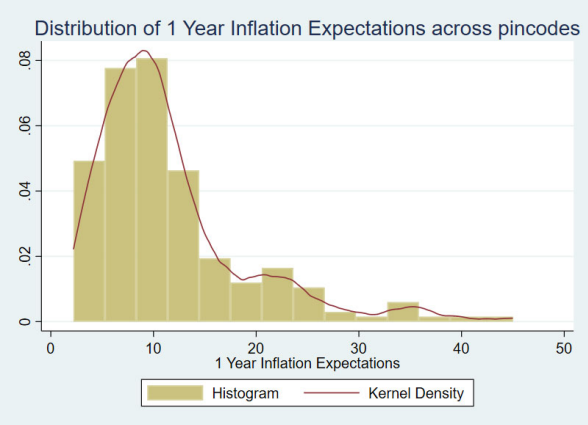
Panel B:



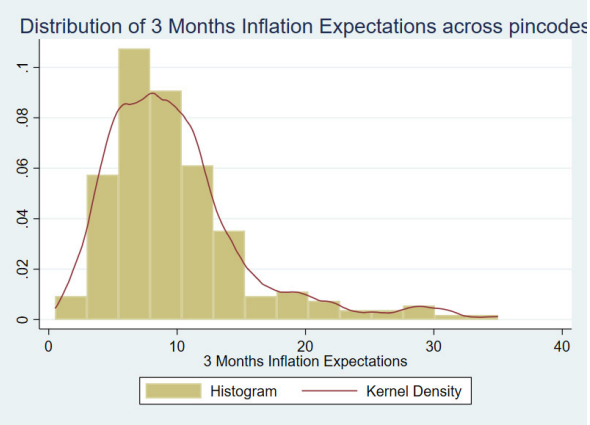
Note: This figure presents the distribution of the number of respondents across each pin code (Panel A) and bins (Panel B). The data is based on inflation expectations for our main specification in the fourth quarter of 2014.

Figure A5. Distribution of inflation expectations across pin codes

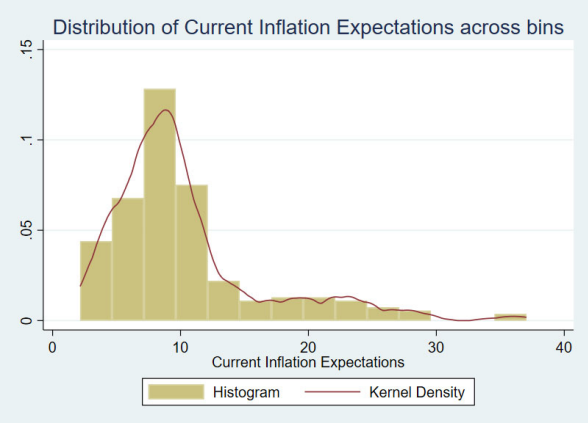
Panel A:



Panel B:



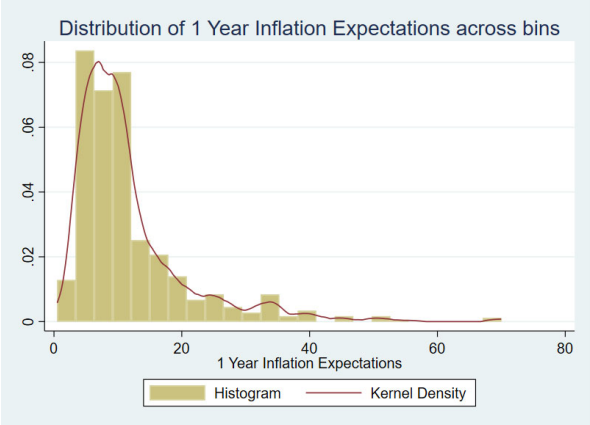
Panel C:



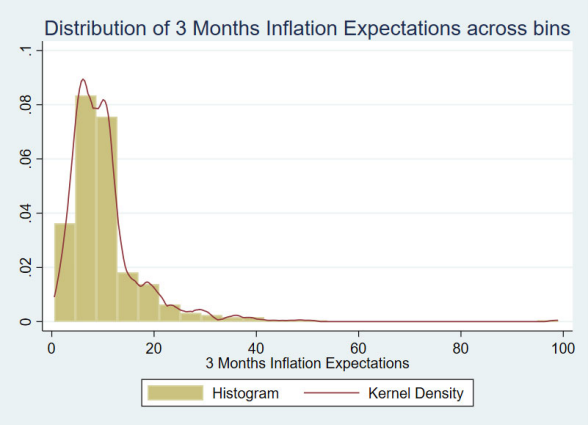
Note: This figure illustrates the distribution of inflation expectations across pin codes. Panels A, B, and C report the distribution of 1 year, 3 months and current inflation expectations, respectively. The data is based on inflation expectations for our main specification in the fourth quarter of 2014.

Figure A6. Distribution of inflation expectations across pin code-age group-gender bins

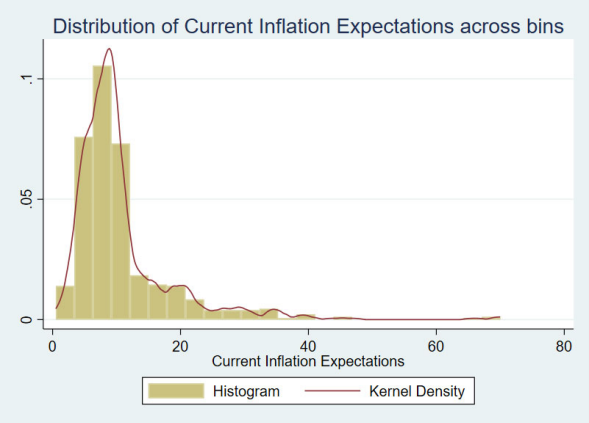
Panel A:



Panel B:

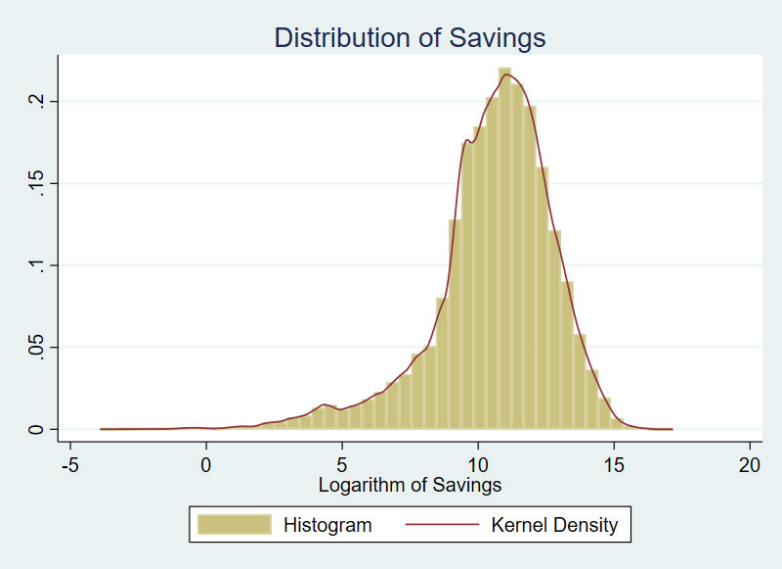


Panel C:



Note: This figure illustrates the distribution of inflation expectations across bins. Panels A, B, and C report the distribution of 1 year, 3 months, and current inflation expectations, respectively. The data is based on inflation expectations for our main specification in the fourth quarter of 2014.

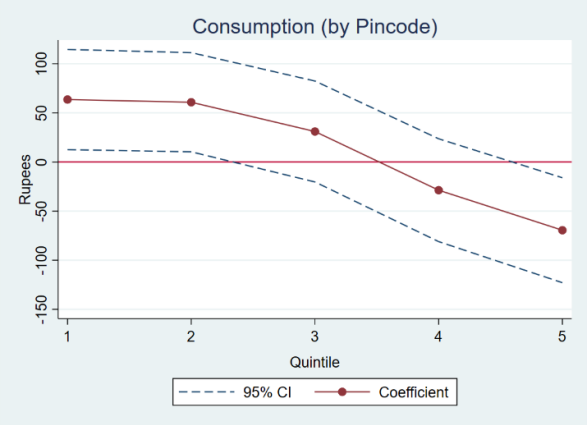
Figure A7. Distribution of Savings



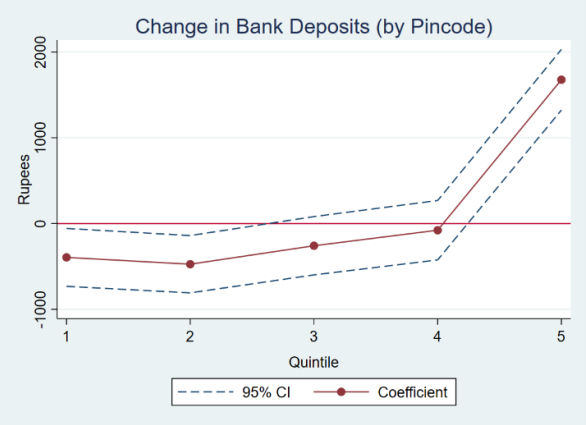
Note: This figure illustrates the distribution of savings across all households. The x-axis reports the logarithm of savings. The data is based on the administrative bank data in the fourth quarter of 2014.

Figure A8: Heterogenous Effects for 1 Year inflation expectations based on Savings Quintiles (by pin code)

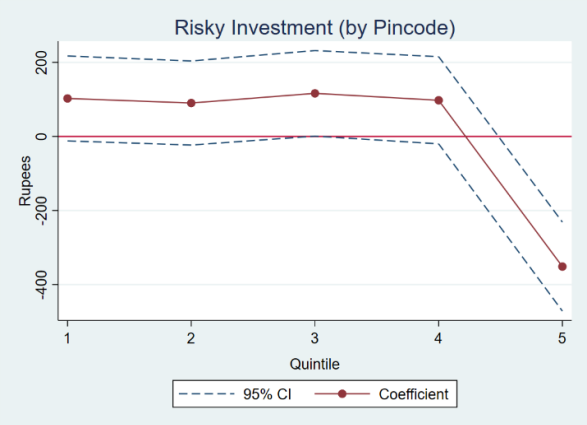
Panel A:



Panel B:



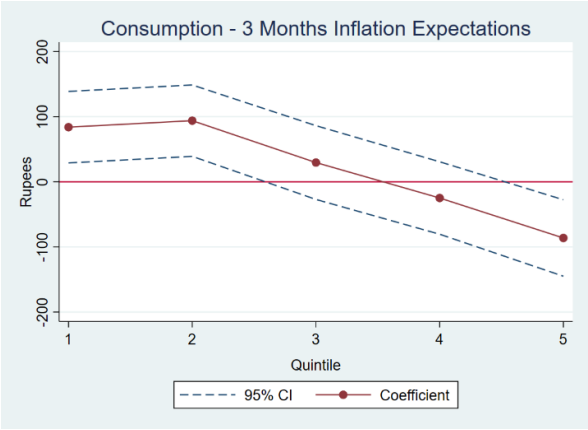
Panel C:



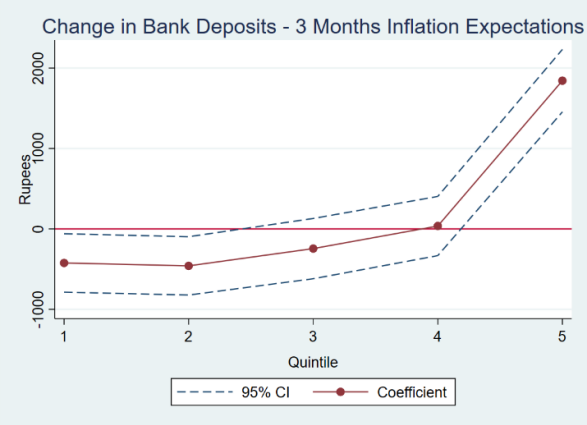
Notes: This figure shows the heterogenous impact of 1 year inflation expectations on consumption (Panel A), changes in bank deposits (Panel B) and investments in risky assets (Panel C) by liquid savings quintiles. In this specification, inflation expectations are being grouped at the pin code levels.

Figure A9: Heterogenous Effects for 3-month inflation expectations based on Savings Quintiles (by pin code-age group-gender bins)

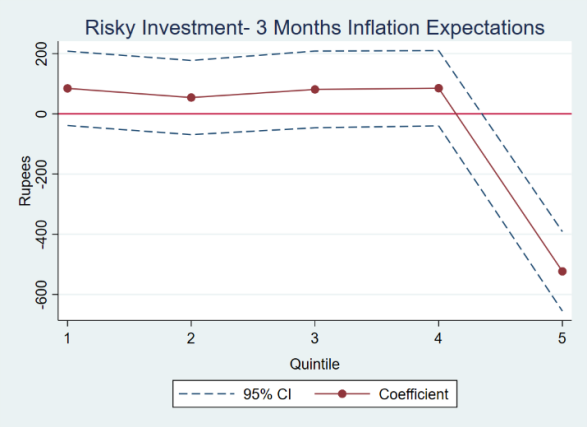
Panel A:



Panel B:



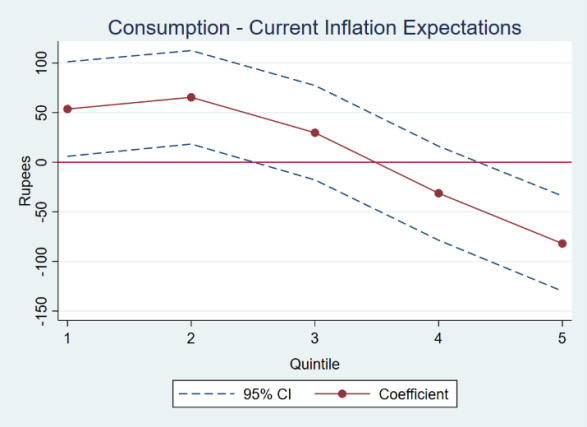
Panel C:



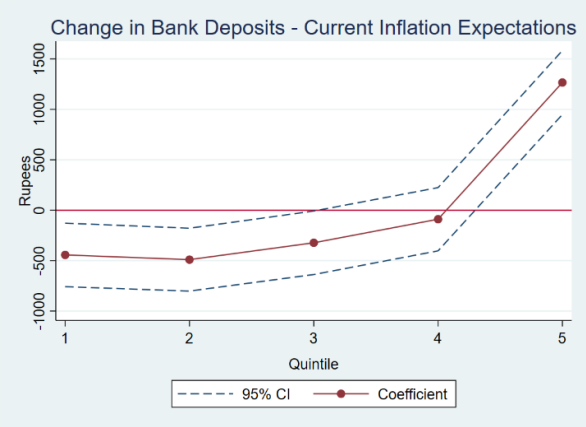
Notes: This figure shows the heterogenous impact of 3-months inflation expectations on consumption (Panel A), changes in bank deposits (Panel B) and investments in risky assets (Panel C) by liquid savings quintiles. In this specification, inflation expectations are being categorized by pin code-age group-gender bins.

Figure A10: Heterogenous Effects for current inflation expectations based on Savings Quintiles (by pin code-age group-gender bins)

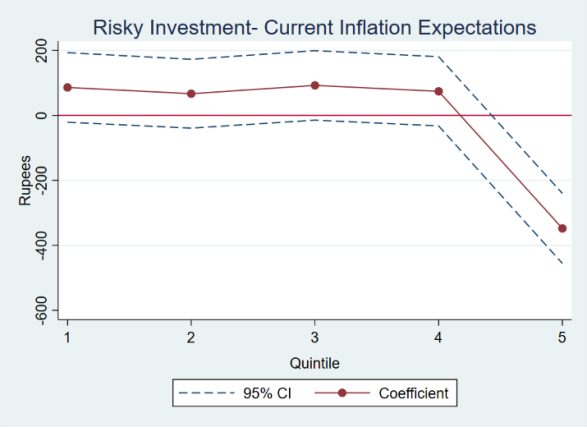
Panel A:



Panel B:



Panel C:



Notes: This figure shows the heterogenous impact of current inflation expectations on consumption (Panel A), changes in bank deposits (Panel B) and investments in risky assets (Panel C) by liquid savings quintiles. In this specification, inflation expectations are being categorized by pin code-age group-gender bins.

Table A1. Selected Newspaper Articles regarding Inflation Targeting

Date		Quotes
(1)		(2)
23 Jan 2014		Recently, in a panel discussion in the national capital where we had three former RBI governors; all three of them agreed that this kind of a single-minded focus, or even a predominant focus on inflation targeting may not be advisable, particularly for an emerging market like India
5 Feb 2014		The world has abandoned inflation-targeting after the financial crisis, why ask India to swallow that reject?
22 March 2014		The Reserve Bank of India has not yet set the path of inflation targeting as is depicted in the Urjit Patel committee report and is still exploring suggestions on the subject, governor Raghuram Rajan said on Friday."We haven't moved into inflation targeting as yet... That's something the Urjit Patel committee has suggested, and it's not something the RBI has accepted," Rajan said while addressing a convocation of the central bank-run Indira Gandhi Institute for Development Research.
16 April 2014		Inflation targeting has become a contentious issue in India ever since the a committee headed by Urjit Patel, a deputy governor, recommended that RBI target consumer price inflation rate of 4% with a two percentage point band.
2 May 2014		The Reserve Bank of India's steps towards inflation targeting are fraught with disappointments as an emerging economy like India with many welfare measures and subsidies will make it meaningless.
7 March 2015		Rajan triumphed this week by binding the government to a monetary strategy built around inflation targeting, following a trend at other major central banks in both developed and emerging market economies.

Notes: This table presents some excerpts from the Economics Times in India. It traces the evolving debate and policy direction regarding inflation targeting in India from January 2014 to March 2015.

Table A2. Summary Statistics of Household-Level Inflation Expectations

	Number	Mean	SD
	(1)	(2)	(3)
Panel A: Entire RBI Survey Data from 2010Q1 to 2019Q4			
Current inflation expectations	199,402	13.48	12.98
3 Months inflation expectations	199,402	12.07	11.02
1 Year inflation expectations	199,402	11.16	10.13
Panel B: Entire RBI Survey Data at 2014Q4			
Current inflation expectations	4,629	11.60	11.53
3 Months inflation expectations	4,629	10.31	9.37
1 Year inflation expectations	4,629	10.57	9.91
Panel C: Our Sample at 2014Q4			
Current inflation expectations	2,487	11.49	11.59
3 Months inflation expectations	2,487	10.12	9.57
1 Year inflation expectations	2,487	10.44	9.35

Notes: This table reports the summary statistics for the Inflation Expectations Survey of Households conducted by the Reserve Bank of India at the household level. In Panel A, we examine the inflation expectations data from the first quarter of 2010 to the last quarter of 2019 for the entire sample. In Panel B, we present inflation expectations data for the entire sample in the fourth quarter of 2014. In Panel C, we focus on inflation expectations data for households in the fourth quarter of 2014, which is utilized in our analysis (after mapping with the bank data).

Table A3. Changes in Inflation Expectations post policy

Dep. Var.:	1 Year	1 Year	3 Months	3 Months	Current	Current
	(1)	(2)	(3)	(4)	(5)	(6)
Post	-3.414***	-3.437***	-2.377***	-2.387***	-2.381***	-2.383***
	(0.0601)	(0.0601)	(0.0511)	(0.0512)	(0.0470)	(0.0470)
Bin Fixed Effects	N	Y	N	Y	N	Y
Obs.	199,402	199,402	199,402	199,402	199,402	199,402
R Square	0.016	0.018	0.011	0.012	0.013	0.015

Notes: This table reports changes in inflation expectations post inflation targeting policy. The results presented in this table are obtained using the inflation expectations data from the first quarter of 2010 to the last quarter of 2019, with Post being an indicator variable that depicts the time period after the fourth quarter of 2014. Each column represents the estimation of its corresponding dependent variable (inflation expectations of varying period) that is indicated in the first row. Bin Fixed Effects refer to pin code-age group-gender bins. Robust standard errors are reported in parenthesis. *,**,*** denote statistically significant levels at 10%, 5% and 1%, respectively.

Table A4. Relationship between Inflation Expectations and Bin Classification

Dep. Var.:	1 Year	3 Months	Current
	(1)	(2)	(3)
Old	0.828***	0.140***	0.746***
	(0.0401)	(0.0296)	(0.0357)
Female	1.527***	0.990***	0.777***
	(0.0479)	(0.0354)	(0.0425)
Pin Code Fixed Effect	Y	Y	Y
Obs.	43,272	43,272	43,272
R Square	0.716	0.770	0.714

Notes: This table illustrates the relationship between inflation expectations and our bin classification of age, gender and pin-code. Each column represents the estimation of its corresponding dependent variable that is indicated in the first row. The robust standard errors are reported in parenthesis. *,**,*** denote statistically significant levels at 10%, 5% and 1%, respectively.

Table A5 . Relationship between mean and dispersion of inflation expectations

Dep. Var.:	1 Year	3 Months	Current
	Mean	Mean	Mean
	(1)	(2)	(3)
Standard Deviation	0.806***	0.665***	0.880***
	(0.00473)	(0.00528)	(0.00484)
Obs.	43,272	43,272	43,272
R Square	0.402	0.268	0.434

Notes: This table reports the relationship between inflation expectations and their dispersion, as measured using bins classified by age, gender, and pin code. Each column corresponds to a separate regression, with the dependent variable indicated in the first row. The independent variable is the standard deviation of inflation expectations within each bin. The robust standard errors are reported in parenthesis. *,**,*** denote statistically significant levels at 10%, 5% and 1%, respectively.

Table A6. Summary Statistics of Household-Level Demographics

	RBI Survey Data			Bank Data		
Dep. Var.:	Number	Mean	SD	Number	Mean	SD
	(1)	(2)	(3)	(4)	(5)	(6)
Age	2,487	42.8	15.9	43,272	47.4	14.7
Gender	2,487	0.43	0.49	43,272	0.22	0.42

Notes: This table compares the demographics of households from the Inflation Expectations Survey of Households conducted by the Reserve Bank of India and the administrative bank data. Data is at the household-level.

Table A7. Summary Statistics by Liquid Savings Quintiles

	Number	Mean	SD
	(1)	(2)	(3)
Panel A: Savings			
Group 1	78,255	22,899	102,759
Group 2	78,237	50,479	120,972
Group 3	75,726	101,686	169,959
Group 4	76,284	220,440	293,069
Group 5	64,431	623,595	910,663
Panel B: Consumption			
Group 1	78,255	11,141	44,614
Group 2	78,237	14,547	45,802
Group 3	75,726	20,729	46,760
Group 4	76,284	25,146	53,140
Group 5	64,431	28,154	61,266
Panel C: Change in Bank Deposits			
Group 1	78,255	2,674	118,091
Group 2	78,237	3.326	114,992
Group 3	75,726	4,337	172,531
Group 4	76,284	3,963	284,213
Group 5	64,431	-2,910	531,506
Panel D: Risky Investments			
Group 1	78,255	-116	36,725
Group 2	78,237	149	47,304
Group 3	75,726	1,001	74,105
Group 4	76,284	3,427	100,995
Group 5	64,431	12,712	175,906

Notes: This table reports the summary statistics of Savings balances, as well as the main outcome variables: Consumption, Change in Bank Deposits, Risky Investments across different savings quintiles. The summary statistics is based on the administrative dataset from October 2014 to June 2015. Group i relates to the savings quintiles; with Group 1 having the lowest savings, and Group 5 having the highest savings. We divide the groups into 5 different bins based on the amount of savings in October 2014.

Table A8. Relationship of inflation expectations and savings quintiles in October 2014

Dep. Var.:	1 Year	3 Months	Current
	(1)	(2)	(3)
Group 1	0.117	0.0149	-0.0695
	(0.190)	(0.156)	(0.168)
Group 2	0.199	0.0224	0.125
	(0.190)	(0.156)	(0.168)
Group 3	0.0553	-0.135	0.0726
	(0.190)	(0.156)	(0.168)
Group 4	-0.0392	-0.184	0.0463
	(0.190)	(0.156)	(0.168)
Group 5	0.204	-0.0895	0.258
	(0.193)	(0.159)	(0.171)
Obs.	43,272	43,272	43,272
R Square	0.000	0.000	0.000

Notes: This table illustrates the relationship between inflation expectations among households across various savings quintiles in October 2014. Group i relates to the savings quintiles; with Group 1 having the lowest savings, and Group 5 having the highest savings. Each column represents the estimation of its corresponding dependent variable that is indicated in the first row. The robust standard errors are reported in parenthesis. *,**,*** denote statistically significant levels at 10%, 5% and 1%, respectively.

Table A9. Estimates of 3 months inflation expectations and Savings Quintiles

Dep. Var.:	Consumption	Δ Bank Deposits	Risky Investments
	(1)	(2)	(3)
3 months Inflation Expectations * Post * Quintile 1	83.90**	-423.3*	84.60
	(33.28)	(220.2)	(74.82)
3 months Inflation Expectations * Post * Quintile 2	93.89***	-459.7**	54.12
	(33.21)	(219.7)	(74.65)
3 months Inflation Expectations * Post * Quintile 3	29.57	-244.9	81.08
	(34.32)	(227.1)	(77.16)
3 months Inflation Expectations * Post * Quintile 4	-24.83	35.87	85.17
	(33.71)	(223.0)	(75.78)
3 months Inflation Expectations * Post * Quintile 5	-86.24**	1,843***	-523.2***
	(35.56)	(235.3)	(79.95)
Obs.	389,448	389,448	389,448
R Square	0.332	0.019	0.069
Individual Fixed Effects	Y	Y	Y
Month Fixed Effects	Y	Y	Y

Notes: This table reports the heterogeneous effects of prior 3 months inflation expectations (before the announcement of inflation targeting) by individuals' savings quintiles. Based on individuals' liquid wealth position in October 2014, we separate them into 5 different groups. Quintile 1 refers to those with the least liquid savings, while Quintile 5 are those with the highest liquid savings. In this specification, inflation expectations are being categorized by pin code-age group-gender bins. The results presented in this table are obtained using monthly data from October 2014 to June 2015, with Post being an indicator variable that depicts the time period after February 2015. Each column represents the estimation of its corresponding dependent variable that is indicated in the first row. For all the regressions, individual fixed effects and month fixed effects are imposed. Standard errors are clustered at the bin level. The robust standard errors are reported in parenthesis. *,**,*** denote statistically significant levels at 10%, 5% and 1%, respectively.

Table A10. Estimates of current inflation expectations and Savings Quintiles

Dep. Var.:	Consumption	Δ Bank Deposits	Risky Investments
	(1)	(2)	(3)
Current Inflation Expectations * Post * Quintile 1	47.08	-522.0**	120.5*
	(32.28)	(213.6)	(72.57)
Current Inflation Expectations * Post * Quintile 2	73.00**	-581.1***	97.08
	(31.73)	(209.9)	(71.33)
Current Inflation Expectations * Post * Quintile 3	27.70	-368.9*	149.3**
	(31.88)	(210.9)	(71.66)
Current Inflation Expectations * Post * Quintile 4	-41.52	-125.4	131.1*
	(31.24)	(206.7)	(70.23)
Current Inflation Expectations * Post * Quintile 5	-87.83***	1,342***	-342.0***
	(31.35)	(207.4)	(70.47)
Obs.	389,448	389,448	389,448
R Square	0.332	0.019	0.069
Individual Fixed Effects	Y	Y	Y
Month Fixed Effects	Y	Y	Y

Notes: This table reports the heterogeneous effects of prior current inflation expectations (before the announcement of inflation targeting) by individuals' savings quintiles. Based on individuals' liquid wealth position in October 2014, we separate them into 5 different groups. Quintile 1 refers to those with the least liquid savings, while Quintile 5 are those with the highest liquid savings. In this specification, inflation expectations are being categorized by pin code-age group-gender bins. The results presented in this table are obtained using monthly data from October 2014 to June 2015, with Post being an indicator variable that depicts the time period after February 2015. Each column represents the estimation of its corresponding dependent variable that is indicated in the first row. For all the regressions, individual fixed effects and month fixed effects are imposed. Standard errors are clustered at the bin level. The robust standard errors are reported in parenthesis. *,**,*** denote statistically significant levels at 10%, 5% and 1% respectively.

Table A11. Regression Estimates by Savings Deciles

Dep. Var.:	Consumption	Δ Bank Deposits	Risky Investments
	(1)	(2)	(3)
1 Year Inflation Expectations * Post * Decile 1	54.51	-438.8*	81.24
	(38.66)	(255.8)	(86.90)
1 Year Inflation Expectations * Post * Decile 2	52.43	-448.4*	91.08
	(36.99)	(244.7)	(83.15)
1 Year Inflation Expectations * Post * Decile 3	83.65**	-520.2**	113.3
	(36.85)	(243.8)	(82.83)
1 Year Inflation Expectations * Post * Decile 4	45.61	-459.2*	17.75
	(37.99)	(251.4)	(85.41)
1 Year Inflation Expectations * Post * Decile 5	49.47	-448.2*	93.29
	(37.50)	(248.1)	(84.30)
1 Year Inflation Expectations * Post * Decile 6	8.855	-193.6	92.02
	(38.31)	(253.5)	(86.12)
1 Year Inflation Expectations * Post * Decile 7	-33.60	-118.7	55.20
	(37.44)	(247.7)	(84.18)
1 Year Inflation Expectations * Post * Decile 8	-29.17	-60.27	94.35
	(38.08)	(252.0)	(85.62)
1 Year Inflation Expectations * Post * Decile 9	-90.98**	599.7**	-161.0*
	(36.95)	(244.5)	(83.06)
1 Year Inflation Expectations * Post * Decile 10	-71.07*	2,099***	-580.7***
	(40.65)	(269.0)	(91.39)
Obs.	389,448	389,448	389,448
R Square	0.332	0.019	0.069
Individual Fixed Effects	Y	Y	Y
Month Fixed Effects	Y	Y	Y

Notes: This table reports the heterogeneous effects of prior 1 year inflation expectations (before the announcement of inflation targeting) by individuals' savings quintiles. Based on individuals' liquid wealth position in October 2014, we separate them into 10 different groups. Decile 1 refers to those with the least liquid savings, while Decile 10 are those with the highest liquid savings. In this specification, inflation expectations are being categorized by pin code-age group-gender bins. The results presented in this table are obtained using monthly data from October 2014 to June 2015, with Post being an indicator variable that depicts the time period after February 2015. Each column represents the estimation of its corresponding dependent variable that is indicated in the first row. For all the regressions, individual fixed effects and month fixed effects are imposed. Standard errors are clustered at the bin level. The robust standard errors are reported in parenthesis. *,**,*** denote statistically significant levels at 10%, 5% and 1%, respectively.

Table A12. Regression Estimates by sub-sample with risky investments

Dep. Var.:	Consumption	Δ Bank Deposits	Risky Investments
	(1)	(2)	(3)
1 Year Inflation Expectations * Post * Quintile 1	19.54	-611.1*	184.3
	(47.22)	(344.4)	(145.2)
1 Year Inflation Expectations * Post * Quintile 2	74.28*	-604.6*	132.1
	(42.41)	(309.3)	(130.4)
1 Year Inflation Expectations * Post * Quintile 3	15.05	-490.1*	180.1
	(40.31)	(293.9)	(124.0)
1 Year Inflation Expectations * Post * Quintile 4	-33.74	-129.4	150.8
	(39.10)	(285.1)	(120.2)
1 Year Inflation Expectations * Post * Quintile 5	-83.29**	1,203***	-482.4***
	(37.44)	(273.0)	(115.1)
Obs.	199,782	199,782	199,782
R Square	0.351	0.020	0.068
Individual Fixed Effects	Y	Y	Y
Month Fixed Effects	Y	Y	Y

Notes: This table reports the heterogeneous effects of prior 1 year inflation expectations (before the announcement of inflation targeting) by individuals' savings quintiles for the sub-sample: households with risky investments. Based on individuals' liquid wealth position in October 2014, we separate them into 5 different groups. Quintile 1 refers to those with the least liquid savings, while Quintile 5 are those with the highest liquid savings. In this specification, inflation expectations are being categorized by pin code-age group-gender bins. The results presented in this table are obtained using monthly data from October 2014 to June 2015, with Post being an indicator variable that depicts the time period after February 2015. Each column represents the estimation of its corresponding dependent variable that is indicated in the first row. For all the regressions, individual fixed effects and month fixed effects are imposed. Standard errors are clustered at the bin level. The robust standard errors are reported in parenthesis. *,**,*** denote statistically significant levels at 10%, 5% and 1%, respectively.

Table A13. Regression Estimates by sub-sample without risky investments

Dep. Var.:	Consumption	Δ Bank Deposits
	(1)	(2)
1 Year Inflation Expectations * Post * Quintile 1	82.98**	-343.9
	(36.56)	(210.0)
1 Year Inflation Expectations * Post * Quintile 2	61.99	-390.8*
	(38.50)	(221.1)
1 Year Inflation Expectations * Post * Quintile 3	44.25	-129.0
	(41.29)	(237.1)
1 Year Inflation Expectations * Post * Quintile 4	-39.15	-33.73
	(42.77)	(245.6)
1 Year Inflation Expectations * Post * Quintile 5	-101.6**	1,391***
	(47.76)	(274.3)
Obs.	189,666	189,666
R Square	0.306	0.017
Individual Fixed Effects	Y	Y
Month Fixed Effects	Y	Y

Notes: This table reports the heterogeneous effects of prior 1 year inflation expectations (before the announcement of inflation targeting) by individuals' savings quintiles for the sub-sample: households without any risky investments.. Based on individuals' liquid wealth position in October 2014, we separate them into 5 different groups. Quintile 1 refers to those with the least liquid savings, while Quintile 5 are those with the highest liquid savings. In this specification, inflation expectations are being categorized by pin code-age group-gender bins. The results presented in this table are obtained using monthly data from October 2014 to June 2015, with Post being an indicator variable that depicts the time period after February 2015. Each column represents the estimation of its corresponding dependent variable that is indicated in the first row. For all the regressions, individual fixed effects and month fixed effects are imposed. Standard errors are clustered at the bin level. The robust standard errors are reported in parenthesis. *,**,*** denote statistically significant levels at 10%, 5% and 1%, respectively.

Table A14. Heterogenous Effects based on individual characteristics

Panel A: Old

Dep. Var.:	Consumption	Δ Bank Deposits	Risky Investments
	(1)	(2)	(3)
1 Year Inflation Expectations * Post	3.151	-96.18	87.83*
	(22.59)	(149.5)	(50.79)
1 Year Inflation Expectations * Post * Old	-3.658	102.5	-167.1***
	(21.67)	(143.4)	(48.72)
Obs.	389,448	389,448	389,448
R Square	0.332	0.018	0.069
Individual Fixed Effects	Y	Y	Y
Month Fixed Effects	Y	Y	Y

Panel B: Female

Dep. Var.:	Consumption	Δ Bank Deposits	Risky Investments
	(1)	(2)	(3)
1 Year Inflation Expectations * Post	19.66	-1.000	-6.912
	(21.84)	(144.5)	(49.10)
1 Year Inflation Expectations * Post * Female	-40.83*	-81.99	0.749
	(23.72)	(156.9)	(53.32)
Obs.	389,448	389,448	389,448
R Square	0.332	0.018	0.069
Individual Fixed Effects	Y	Y	Y
Month Fixed Effects	Y	Y	Y

Notes: This table reports the heterogeneous effects of prior 1 year inflation expectations (before the announcement of inflation targeting) by demographics. In Panel A, old is an indicator variable if the individual is above the age of 45. In Panel B, Female is an indicator variable if the individual is a female. In this specification, inflation expectations are being categorized by pin code-age group-gender bins. The results presented in this table are obtained using monthly data from October 2014 to June 2015, with Post being an indicator variable that depicts the time period after February 2015. Each column represents the estimation of its corresponding dependent variable that is indicated in the first row. For all the regressions, individual fixed effects and month fixed effects are imposed. Standard errors are clustered at the bin level. The robust standard errors are reported in parenthesis. *,**,*** denote statistically significant levels at 10%, 5% and 1%, respectively.

Table A15. Relationship of stock holdings and inflation expectations in October 2014

Dep. Var.:	Average Stock Holdings (1)	Average Stock Holdings (2)	Average Stock Holdings (3)
1 Year Inflation Expectations	2,392		
	(2,245)		
3 Months Inflation Expectations		794.2	
		(2,736)	
Current Inflation Expectations			3,818
			(2,539)
Obs.	43,272	43,272	43,272
R Square	0.000	0.000	0.000

Notes: This table reports the relationship between households' stock holdings (through their Demat account) and different timeframe of inflation expectations in October 2014. The robust standard errors are reported in parenthesis. *,**,*** denote statistically significant levels at 10%, 5% and 1% respectively.