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

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Abstract

We exploit India's adoption of inflation targeting as a natural experiment to identify the causal effects of a decline in inflation expectations on household consumption and portfolio choices. Leveraging granular geographic variation in pre-policy inflation expectations, we provide direct evidence that the transmission mechanism depends on household balance-sheet positions. Consistent with the consumption Euler equation, high-liquidity households respond to lower expected inflation by reducing consumption, increasing savings, and reallocating portfolios from risky assets toward bank deposits. In contrast, low-liquidity households exhibit weaker precautionary motives and increase consumption while reducing savings. We quantify these empirical responses using a life-cycle model and show that household behavior is shaped by the pass-through from inflation expectations to expected returns.

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 are a central determinant of households' intertemporal choices but have been shown to affect consumption in different directions.[1] These mixed consumption responses reflect the multiple channels through which inflation expectations shape household behavior. Nonetheless, the empirical literature has focused disproportionately on consumption, with far less attention to how inflation expectations affect savings, asset allocation, and the structure of household balance sheets (D'Acunto et al. 2023; Schnorpfeil et al. 2025). This paper adds to the discussion by examining how shifts in inflation expectations jointly influence consumption and portfolio choices. We further show how household balance sheets mediate these responses, allowing us to identify the conditions under which different economic channels dominate.

Despite its importance, the causal relationship between inflation expectations and household portfolio rebalancing remains poorly understood. The main difficulty is finding plausibly exogenous movements in households' expectations. Monetary policy announcements are infrequent, and households often display limited attention to them (D'Acunto et al. 2022). Even major policy reforms, such as the shift from flexible to average inflation targeting in the United States, were largely unnoticed by consumers (Coibion et al. 2023). We address this challenge by exploiting a large and salient natural experiment in India: the adoption of inflation targeting. On 20 February 2015, the Reserve Bank of India (RBI) introduced inflation targeting as the country's new monetary policy framework. This was the first time the central bank articulated a numerical inflation target, and the change created a credible shift in how monetary policy was communicated and understood. The reform drew substantial public attention and, consistent with historical evidence on major policy regime changes (Sargent 1982), generated a meaningful and externally driven shift in inflation expectations.

A second challenge involves data. Understanding how expectations influence consumption, savings, and asset allocation requires both reliable measures of inflation expectations and detailed information on household financial behavior. To meet this requirement, we combine two complementary datasets. The first is the RBI's Inflation Expectations Survey of Households, which provides repeated cross-sectional measures of inflation expectations across consistent geographic locations. The second is a proprietary administrative dataset from a large Indian financial institution with monthly information on credit card spending, debit card use, savings deposits, and stock market investments.

[1] Consistent with the consumption Euler equation under a fixed nominal interest rate, higher inflation expectations raise current consumption in several settings (Burke and Ozdagli (2023), D'Acunto et al. (2021a)). In contrast, consumption falls when households face elevated uncertainty (Candia et al. (2020), Jiang et al. (2024)) or interpret higher expected inflation as a signal of worsening economic conditions (Andre et al. (2022), Coibion et al. (2024)).

Although the datasets cannot be matched at the individual level, both include households' Postal Index Number code, age and gender.[2] We follow the spirit of (Chetty et al. 2024) to map two anonymized datasets at the level that is sufficiently granular to conduct our analysis. This allows us to align the datasets geographically and yields a combined sample of 219 pincodes across six major cities: Ahmedabad, Bhubaneswar, Chennai, Delhi, Kolkata, and Mumbai.

The combined data allow us to track how expectation shocks translate into household financial behavior. Our identification strategy exploits pre-policy differences in inflation expectations across pincodes to generate variation in treatment intensity. Specifically, we rely on the fourth quarter of 2014 RBI survey, the last wave that captures inflation expectations prior to the February 2015 shift to inflation targeting. Under the assumption that financial behavior across regions would have followed similar trends in the absence of the policy change, this structure isolates the effect of inflation targeting on belief updating and allows us to examine how changes in inflation expectations transmit to consumption, savings, and portfolio allocation.

A remaining concern is that differences across pincodes may reflect other unobserved shocks within cities rather than heterogeneity in expectation updates. To address this possibility, we refine our approach by further exploiting within-pincode variation across age groups and gender. We divide respondents into younger and older groups based on the average age in the expectations survey and examine expectation changes at the level of pincode–age group–gender bins. For example, one bin consists of older male respondents in pincode 100001 in Delhi. This three-way grouping produces 622 matched bins across the two datasets and forms our preferred specification. We validate this approach by showing that age and gender are systematically related to inflation expectations in India and that the first and second moments of beliefs move together in our data. Periods with lower inflation expectations tend to coincide with lower inflation uncertainty, and periods with higher expectations tend to coincide with higher uncertainty. This positive association is consistent with prior evidence on household belief formation.[3]

With these bins in place, we implement a difference-in-differences framework that compares households in different pincode–age group–gender bins before and after the introduction of inflation targeting. Our baseline results show no clear relationship between inflation expectations and household financial choices at the aggregate level. This masks substantial heterogeneity across households, which we interpret through two primary economic channels. The first is a real interest rate channel. When nominal deposit rates are

[2]India's postal codes are called Postal Index Numbers (pincodes), which are six-digit codes used by India Post to deliver mail.

[3]See Malmendier and Nagel (2016) for evidence that age is systematically related to inflation expectations in repeated survey settings, and D'Acunto et al. (2021b) for evidence that gender is an important predictor of household inflation beliefs.

slow to adjust, a decline in inflation expectations mechanically raises the perceived real return on deposits through the Fisher equation. The consumption Euler equation then predicts higher saving and lower current consumption, a mechanism that is particularly relevant in environments where deposit rates exhibit nominal rigidities (Neumark and Sharpe 1992; Driscoll and Judson 2013). The second is a precautionary savings channel. Lower inflation expectations tend to coincide with lower inflation uncertainty. As households perceive fewer risks to future purchasing power, the need for precautionary savings diminishes, which increases willingness to consume and reduces saving (Ryngaert 2022; Coibion et al. 2024). Which channel dominates depends on households' balance sheet positions and on the degree of pass-through from inflation expectations to expected returns across assets.

To fix ideas, we characterize nominal adjustment using two pass-through parameters, α_a for deposits and α_s for equities. Each lies between 0 and 1 and measures how much nominal returns adjust when inflation expectations change. A decline in expected inflation therefore need not translate one-for-one into lower nominal returns. For brevity, references to α apply to both parameters. When $\alpha = 0$, nominal returns are fully sticky and real returns rise mechanically as expected inflation falls. When $\alpha = 1$, nominal returns adjust fully and real returns remain unchanged. Intermediate values capture partial pass-through. In our setting, savings deposit rates are effectively fully sticky. As shown in Figure A.1, Panel (a) in the online appendix, the RBI policy rate, Treasury-bill yields, and term-deposit rates all declined during this period, while the savings deposit rate remained fixed at 4 percent.[4] As a result, a fall in inflation expectations mechanically raised real returns on savings deposits.

Our results show that households' liquidity position determines whether the consumption Euler equation or the precautionary channel is dominant. For households with substantial liquidity, the consumption Euler equation channel is stronger because a decline in expected inflation raises the real return on saving. For households with limited liquidity, the precautionary savings channel dominates because lower inflation expectations reduce perceived income risk and allow households to consume more today. We find that when inflation expectations decreased by 1 percentage point, for households with the highest savings quintile, consumption fell by 82 rupees[5] (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.

[4]Savings deposit rates were fixed at 4 percent across all major banks in India during this period, reflecting highly sticky deposit pricing.

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

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 that households with low liquidity are more vulnerable to changes in the 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 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 prior 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 asym-

metric impact on nominal returns, resulting in an asymmetric impact on the real returns of risky investments and bank deposit rates. As mentioned earlier, bank deposit rates are sticky. 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 A.1 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 consider several potential confounding factors that might influence household decisions around the introduction of inflation targeting. One concern is that changes in inflation expectations may coincide with shifts in broader macroeconomic sentiment. For example, the policy could have raised confidence by signaling greater monetary discipline, or households might have advanced future consumption in anticipation of a tighter policy cycle. While possible, these mechanisms would likely affect high- and low-liquidity households in similar ways, whereas our results show sharply heterogeneous responses concentrated among low-liquidity groups. A second concern is that concurrent macroeconomic or financial developments, such as movements in interest rates, exchange rates, or equity markets, might drive changes in portfolio allocation. These factors, however, are unlikely to explain our findings because our difference-in-differences strategy relies on variation in inflation expectations that is orthogonal to households' stockholdings and isolates belief updating rather than exposure to market conditions.

In summary, we provide direct evidence on how inflation expectations shape households' consumption, saving, and portfolio choices. By moving beyond aggregate macroeconomic outcomes and focusing on household-level behavior, we show how inflation targeting affects both beliefs and financial decisions. A central contribution of the paper is to highlight that different households respond through different channels, and that these channels depend on the pass-through of inflation expectations into nominal returns across assets, much like estimating heterogeneous marginal propensities to consume.

To formalize these mechanisms and assess their quantitative importance, we build a partial-equilibrium life-cycle model in which households choose consumption and allocate wealth between a safe and a risky asset. Inflation targeting enters the framework as a permanent decline in inflation expectations together with a reduction in labor-income risk, allowing the model to capture both the Euler-equation channel and the precautionary-savings channel observed in the data. A central feature of the environment is that households form rational expectations about future inflation, so any shift in inflation expectations changes their beliefs about nominal returns. Two pass-through parameters govern how strongly safe and risky returns adjust, and these parameters determine the strength of the transmission from expected inflation to saving and portfolio decisions. We

demonstrate that when the pass-through parameters are set to $\alpha_a = 0$ (for safe asset) and $\alpha_s = 0.75$ (for risky asset), the resulting model predictions qualitatively and quantitatively align with our reduced-form results. This calibrated model successfully captures the heterogeneous response to falling inflation expectations: high liquidity households reduce consumption and shift portfolios toward bank deposits, while low liquidity households increase consumption and decrease savings due to reduced uncertainty.

These findings have important policy implications. First, because the effects of inflation expectations vary across households with different balance-sheet positions and liquidity, policy changes can generate offsetting behavioral responses that dampen aggregate effects. Our results therefore underscore the need for targeted communication and policy design. Managing inflation expectations is unlikely to produce uniform outcomes; instead, its distributional consequences depend critically on household balance sheets and the channels through which expectations translate into financial decisions. Second, the mechanism through which inflation targeting impacts aggregate household outcomes is dependent on the pass-through of inflation expectations to return expectations on both safe and risky assets. The differential pass-through parameters for safe versus risky assets are key drivers of household portfolio choices. Specifically, a higher pass-through parameter for risky assets means their expected returns fall more sharply than safe assets, incentivizing a shift in portfolios toward bank deposits.

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. 2023). 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 focus on savings, the counterpart to consumption. While prior work shows that households often shift into real assets such as housing when seeking an inflation hedge (Malmendier and Nagel 2016; Brunnermeier and Julliard 2008), we examine bank deposits and risky financial assets, which make up a substantial share of household balance sheets. In the United States, bank deposits amount to roughly 80 percent of GDP, and equity holdings exceed USD $32 trillion, comparable in

size to total housing wealth (Di Maggio et al. 2020). By studying how households adjust both deposits and risky investments, we provide new evidence on portfolio rebalancing decisions, a channel that remains relatively underexplored. Consistent with the notion that households "reach for yield" when real interest rates fall (Borio and Zhu 2012), we show that when the consumption Euler equation dominates, higher real interest rates lead households to shift away from risky assets towards risk-free savings. These results imply that changes in inflation expectations can influence households' risk-taking behavior, a margin relevant for understanding how expectation shifts propagate through balance sheet.

Related to the portfolio channel, we also connect to the literature on inflation and risky-asset behavior. Earlier studies have 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 directly on households' inflation beliefs and examine how changes in those beliefs shape portfolio decisions.

Finally, we relate to the literature examining how information shapes households' inflation expectations and economic choices. Prior work shows that monetary policy communication can shift households' beliefs about inflation (Coibion et al. 2022). Evidence from information experiments further demonstrates that both the consumption–smoothing and precautionary channels can arise when expectations change (Kostyshyna and Petersen 2024). Other studies exploit natural experiments, such as the announcement of the value-added tax in Germany (D'Acunto et al. (2022), Bachmann et al. (2021)), to identify the causal effects of inflation expectations. We contribute to this literature by showing how the introduction of inflation targeting in India reshaped household behavior, offering new evidence on the transmission of policy-driven expectation shifts into real economic decisions.

The remainder of the paper is organized as follows. Section 2 provides background on Inflation Targeting in India and describes the data. Section 3 presents the empirical methodology and main results. Section 4 develops a life-cycle model that formalizes the mechanisms suggested by the reduced-form evidence and evaluates their quantitative importance. Finally, Section 5 concludes.

2 Background and Data

This section outlines the institutional setting and the data. We first describe India's move to Inflation Targeting and then present the RBI expectations survey and the administrative bank data, which we merge at the pincode, age, and gender level for our analysis.

2.1 Inflation Targeting in India

Inflation Targeting is a monetary policy framework in which the central bank commits to steering inflation toward a publicly announced numerical objective. By specifying a clear target, the framework enhances the transparency and credibility of monetary policy, and it increases the visibility of policy intentions to households and firms. Since its introduction in New Zealand in 1990, many central banks have adopted this strategy, including seventeen G20 economies and thirty-five of the thirty-six OECD members (Mishkin and Kiley 2025; Rose 2020). A large macroeconomic literature has documented its effects. Inflation expectations tend to fall and converge after adoption (Johnson 2002), inflation levels and volatility decline (Mishkin 2000; Ball and Sheridan 2004), and monetary credibility improves as communication becomes more explicit (Bhalla et al. 2023). Despite these advances, relatively little is known about how households respond to Inflation Targeting at the micro level. Most evidence is based on macro aggregates.

In this study, we exploit India's transition to Inflation Targeting as a unique and externally driven shock to inflation expectations. India formally adopted Inflation Targeting on 20 February 2015, when the Reserve Bank of India (RBI) and the Government signed the Monetary Policy Framework Agreement. This agreement committed the central bank to keep inflation below 6 percent by January 2016 and to pursue a target of 4 percent with a tolerance band of two percentage points thereafter. The shift marked a substantial departure from the previous Multiple Indicators Approach, which monitored a wide range of variables without stating a numerical goal. The move from qualitative indicators to an explicit target created the conditions for a sharp change in expectations formation, which is central to our empirical strategy. Consistent with earlier evidence (Eichengreen et al. 2020), inflation expectations converge after adoption, suggesting that Inflation Targeting served as an anchor for beliefs previously dispersed across households.

To contextualize the policy shift, Figure A.2 presents a timeline of key events between 2013 and 2016. The sequence highlights the appointment of Governor Raghuram Rajan in 2013, the Urjit Patel Committee Report in 2014, the formal adoption of Inflation Targeting in 2015, and the legal institutionalization of the framework in 2016. The timeline illustrates that the 2015 Agreement represented the first credible commitment

by both the Reserve Bank of India and the Government to a numerical inflation target. It also highlights the distinction between intention and implementation: the 2014 Urjit Patel Report recommended Inflation Targeting, while the 2015 Agreement made it an operative policy. Expectations began to respond after the policy announcement, even though legal codification under the amended RBI Act occurred a year later.

India provides an especially valuable setting for studying belief formation because observable, sudden, and exogenous changes in household inflation expectations are rare in real-world environments. Unlike controlled experimental settings where expectations can be manipulated with information treatments, macroeconomic environments seldom generate sharp shifts in beliefs. India's experience is unusual because the adoption of Inflation Targeting occurred during a period of persistently high inflation, which reduces household inattention to monetary policy (Weber et al. 2025). This combination of a clearly defined policy shift and a highly salient inflation environment enhances the likelihood that households noticed and responded to the new framework. Thus, India's adoption of Inflation Targeting provides a natural experiment for studying how expectation shocks influence household financial choices.

The shift was also accompanied by an intense public debate that shaped how households perceived the credibility and feasibility of the policy. Before 2014, the concept of Inflation Targeting was largely unfamiliar in India, and the Urjit Patel Committee Report triggered widespread discussion about whether the framework was appropriate for an economy facing significant structural constraints. Disagreements between the Government and the RBI created uncertainty about adoption. Newspaper articles summarized in Table A.1 reflect skepticism regarding the policy's suitability. This debate, set against a backdrop of high and volatile inflation, heightened public attention and rendered inflation policy unusually salient during this period. Google Trends data from 2012 to 2015, shown in Figure A.3, confirm that public interest in Inflation Targeting was minimal before 2014 but rose sharply after the release of the Urjit Patel Committee Report. Interest increased even further as the 2015 Agreement was signed. The appointment of Raghuram Rajan, a high-profile governor, drew additional attention to monetary policy, as reflected in international media coverage portraying him as a "rock star" central banker.[6]

The final policy announcement in February 2015 marked a clear shift in India's monetary framework. It resolved a long-standing disagreement between the Government and the RBI and introduced a more explicit and transparent regime. Its timing created a discrete break in how households formed and updated inflation expectations. As Mohan and Ray (2019) documents, the reform was unexpected in its final form, strengthening its value as an exogenous source of variation. These features provide a credible setting to

[6]Examples include BBC News, "Raghuram Rajan: India's 'rock star' central banker", and the *Wall Street Journal*, "Raghuram Rajan: India's Unlikely Rock Star".

study how a salient monetary policy reform shapes household consumption, saving, and portfolio choices.

A natural starting point is to examine how the reform altered the inflation environment that households actually faced. Figure 1 plots the monthly inflation rate between January 2013 and January 2017 for the six cities in our sample: Ahmedabad, Bhubaneswar, Chennai, Delhi, Kolkata, and Mumbai. Consistent with the policy's objective, the data reveal two key patterns. First, there is substantial dispersion in inflation outcomes across cities before the introduction of Inflation Targeting, reflecting well-documented regional heterogeneity in price dynamics. Second, following the February 2015 announcement, inflation volatility declines meaningfully and inflation rates begin to stabilize across locations. These patterns provide ex-post confirmation that the framework improved clarity and reduced uncertainty in the inflation environment households faced.

< Insert Figure 1>

The regional patterns are consistent with a large body of work documenting persistent inflation differentials across space. For example, Beck et al. (2009) compare regional inflation gaps in the Eurozone and the United States, Nagayasu (2011) study variation across Japanese prefectures, and Brown et al. (2018) analyze disparities across Russian regions. In the Indian context, Kundu et al. (2018) show that inflation rates vary widely across states due to heterogeneous economic structures, supply conditions, and market integration. Building on this literature, our analysis shifts attention from realized inflation to inflation expectations, asking whether the Inflation Targeting framework not only stabilized actual inflation, but also anchored expectations across diverse regional and demographic groups. This step is crucial for our empirical strategy, as the convergence of expectations following the reform provides the basis for identifying how shifts in beliefs translate into household consumption, saving, and portfolio decisions.

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 pincode (based on their home location). Known as the Postal Index Number code, the pincode is a six-digit code used in the Indian postal code system that identifies the post office where one's address is located.

Existing studies have shown that inflation expectations vary systematically across demographic and regional groups. Prior inflation perceptions (Malmendier and Nagel 2016; Cavallo et al. 2017), personal experiences (D'Acunto et al. 2021a; Agarwal et al. 2022), media exposure (Carroll 2003; Pfajfar and Santoro 2013), and knowledge of monetary policy (Christelis et al. 2020) all shape household views. Women and older respondents tend to report higher inflation expectations (D'Acunto et al. 2021b). These patterns imply that the response to India's adoption of Inflation Targeting will differ across cities, genders, and age groups.

In what follows, we link the survey to proprietary administrative data from a major Indian financial institution to examine how differences in expectations translate into economic behavior. The initial linkage occurs at the pincode level and yields 219 pincodes across six large cities (Ahmedabad, Bhubaneswar, Chennai, Delhi, Kolkata, and Mumbai). This provides a suitable setting for studying regional heterogeneity. To capture additional cross-sectional variation, we then form bins based on pincode, gender, and age group. Age is split at the survey average of 43 years. This procedure yields 622 bins that form the basis of our empirical analysis.

Since the Monetary Policy Framework Agreement (MPFA) was signed on 20 February 2015, marking the formal adoption of inflation targeting, we focus on households' last inflation expectations prior to the policy change, as measured in the fourth quarter of 2014. Table 1 Panel A and B report the average inflation expectations by pincode and by bin, respectively. At the pincode 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 exceed the actual 2014 inflation rate of 6.67 percent. This pattern is consistent with evidence that households systematically report expectations above realized inflation.

The Online Appendix provides additional individual-level evidence from the RBI Inflation Expectations Survey of Households that complements the main analysis. Table A.2 reports summary statistics for the full survey from 2010 to 2019 alongside our 2014Q4 sample. Expectations in 2014Q4 are noticeably lower than in the broader dataset, a pattern consistent with the downward shift occurring around the period of the policy reform. Table A.3 further shows that inflation expectations declined by roughly 2.4 to 3.4 percentage points across all horizons following the announcement of the Inflation Targeting framework. Together, these patterns underscore the significant ex post adjustment in household beliefs surrounding the introduction of the new monetary regime.

Before turning to the main analysis, we assess whether the survey's demographic and geographic structure supports stratification at the bin level. Table A.4 examines how inflation expectations vary systematically with age, gender, and pincode using the 2014Q4 sample. The estimates align closely with established findings in the expectations literature: women and older individuals tend to report higher inflation expectations (D'Acunto et al. 2021b). The regressions produce R^2 values between 0.71 and 0.77, indicating that this binning captures a large share of the cross-sectional variation in expectations. Because prior work emphasizes the joint behavior of the mean and variance of expectations, we also explore whether lower average expectations are associated with lower dispersion. Table A.5 presents a regression of the within-bin standard deviation on the within-bin mean, and the positive correlation we document supports the internal consistency of our stratification.

To ensure that the construction of bins is not unduly influenced by extreme values, we also examine the distribution of respondents and inflation expectations at both the pincode level and the bin level. Figure A.7 shows the distribution of respondent counts, with an average of around 15 respondents per pincode and around 5 respondents per bin, and fewer than 10 percent of units consisting of only one respondent. Figures A.8 and A.9 present the distributions of inflation expectations at each aggregation level. The corresponding histograms and kernel densities show that extreme values form only a small fraction of the overall mass, indicating that outliers are unlikely to drive our baseline results.

First Stage. With these distributional checks in place, we next examine whether inflation expectations converged following the introduction of Inflation Targeting in 2015. We restrict the sample to the six major cities used throughout the analysis and to the period 2011Q1–2019Q4, which provides a balanced pre- and post-policy window and avoids COVID-19 disruptions. Observations above the 95th percentile are trimmed, and the data are collapsed to pincode–age group–gender bins.[7] A central implication of the policy is that belief updating should vary systematically with households' initial expectations. We therefore test whether convergence was stronger among bins starting farther from the target. To assess this heterogeneity, we construct a bin-level measure of baseline expectations and examine how individual beliefs evolve after the policy change.

This step serves as the first stage of our empirical strategy because it establishes the systematic variation in expectations that underpins our later analysis of consumption and portfolio responses. Showing that the reform induced heterogeneous belief updating provides the necessary treatment variation for linking changing expectations to household behavior. For each bin b, we define the post-policy period as beginning in 2015Q1. We compute the bin's pre-policy mean one-year-ahead inflation expectation, $\bar{\pi}_b^{\text{pre}}$, and assign

[7] Results are similar when using pincode averages.

this value to all individuals in that bin. We then estimate the following specification, which relates individual expectations to pre-policy belief levels and the post-policy period:

$$\pi_{i,b,t} = \beta_1 \bar{\pi}_b^{\text{pre}} + \beta_2 \left(\bar{\pi}_b^{\text{pre}} \times \text{Post}_t\right) + \mu_b + \tau_t + \varepsilon_{i,b,t}. \tag{1}$$

In this equation, $\pi_{i,b,t}$ denotes the inflation expectation of respondent i in bin b at time t, while μ_b and τ_t capture bin and time fixed effects. Standard errors are clustered at the bin level. The interaction coefficient β_2 measures whether bins with higher initial expectations experienced larger declines after the policy announcement. The estimates in Table A.6 indicate substantial convergence: bins starting with higher expectations saw a reduction of about 94 basis points following the reform.

To visualize this pattern nonparametrically, we use the bin-level data to compute:

$$\Delta\pi_b \equiv \bar{\pi}_b^{\text{post}} - \bar{\pi}_b^{\text{pre}}. \tag{2}$$

Plotting $\Delta\pi_b$ against $\bar{\pi}_b^{\text{pre}}$ in Figure 2 reveals a pronounced negative relationship: households that entered the Inflation Targeting regime with higher expectations saw much larger subsequent declines. This pattern closely mirrors the regression estimates and offers corroborating evidence of convergence in expectations following the policy change. A simple pre-post test shows that there is a fall in inflation expectations by 259 basis points.

< Insert Figure 2>

A potential concern is that the convergence we document could reflect mechanical mean reversion rather than a response to the new monetary framework. To assess this possibility, we examine the persistence of inflation expectations by plotting current one-year-ahead expectations against their lagged values at the city level during the pre-policy period (2011Q1 - 2014Q4).[8] Figure A.5 shows a strong positive relationship with no indication of a pull toward the overall mean. The absence of such a pattern suggests that mechanical mean reversion cannot account for the magnitude of convergence observed after the introduction of Inflation Targeting.

Finally, the broader pattern of stabilization is visible in Figure A.6, which documents a sustained decline in the cross-sectional variance of inflation expectations following the policy announcement. The reduction in disagreement is consistent with expectations becoming more tightly anchored, providing complementary evidence that the introduction

[8]This check is implemented at the city level because the bin structure does not provide sufficient within-bin observations at the required quarterly frequency.

of Inflation Targeting was associated with a broad-based anchoring of household inflation expectations.

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 pincodes in 6 cities: Ahmedabad, Bhubaneswar, 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 pincode and city in which they stay. This allows us to map directly to the RBI Inflation Expectations Survey of Households.

We focus on the period from October 2014 to June 2015 (the fourth quarter of 2014 to the second quarter of 2015). This window covers the months immediately before, during, and after the announcement of the Inflation Targeting framework on 20 February 2015 and allows us to observe households' short-run behavioral responses around the policy shift. It also avoids contamination from longer-run adjustments or unrelated macroeconomic developments later in the year. Table 1 Panels C to E reports descriptive statistics for this matched sample. To limit the influence of outliers, we winsorize consumption, changes in savings, and risky investments at the 1st and 99th percentiles. The final sample contains 43,272 households with an average age of 47, of whom 63 percent are married and 22 percent are female.[9]

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

[9]Table A.7 compares key demographics between the RBI survey and the administrative data.

(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 relates to households' liquidity. Figure A.10 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[10]. In Table A.8 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.

3 Empirical Methodology and Results

In this section, we describe our empirical strategy and present our main findings. We begin with benchmark difference-in-differences estimates that relate changes in inflation expectations to household consumption, savings, and risky investment. We then use heterogeneity in liquid wealth to distinguish between the consumption Euler equation channel and the precautionary savings channel. Thereafter, we analyze portfolio rebalancing in light of a standard portfolio choice framework. We conclude the section with robustness checks and a discussion of alternative interpretations.

3.1 Benchmark Analysis

We compare the outcomes of households experiencing different changes in inflation expectations using a difference-in-differences strategy from October 2014 to June 2015. Identification requires that, absent the policy, cross-sectional differences in inflation expectations across pincodes would have remained stable over time. The two datasets

[10]To ensure the robustness of our findings, we demonstrate that our regression estimates remain consistent when using deciles instead of quintiles.

provide consistent geographic coverage and allow us to align observations at both the pincode level and the finer pincode–age–gender level. Although average expectations differ across regions, the key requirement is that these differences would have followed parallel trends in the absence of Inflation Targeting.

Figure A.4 in the online appendix provides a hypothetical illustration. Households beginning with higher inflation expectations, for example 9 percent, are farther from the announced 4 percent target and therefore update more sharply after 2015. In contrast, those closer to the target, for example 5 percent, adjust less. The policy therefore generates heterogeneous belief updating that is proportional to the initial distance from the target. Formally, we estimate

$$Y_{i,j,t} = \gamma_i + \lambda_t + \beta_1 Treat_j \times Post_t + \epsilon_{i,j,t}. \tag{3}$$

Here, $Y_{i,j,t}$ denotes the outcome for household i in group j at time t. The index j denotes either the pincode level or the pincode–age–gender bin, depending on the specification. The variable $Treat_j$ captures the one-year-ahead inflation expectation in 2014Q4 for unit j, and $Post_t$ equals one in months following the introduction of Inflation Targeting. The household fixed effect γ_i absorbs all time-invariant heterogeneity across households, while the time fixed effect λ_t captures aggregate shocks in each month. Because $Treat_j$ is constant within each unit and $Post_t$ varies only over time, their interaction identifies β through within-household variation. The coefficient β measures the differential change in outcomes after the policy across units that began the policy period with higher versus lower inflation expectations. Identification therefore relies on within-household changes over time that differ systematically across units j.

In the baseline analysis, we focus on one-year inflation expectations and report results based on three-month and current inflation expectations in the online appendix. We begin by constructing treatment intensity at the pincode level. To address concerns that city-level expectations may capture only shocks common to the city, we refine the cross-sectional variation by incorporating gender and age group. This refinement allows us to assign expectations at the pincode–age–gender level, which generates substantially more variation and constitutes our preferred specification.

Table 2 reports the benchmark estimates for the average treatment effect based on one-year inflation expectations. Panel A presents results using treatment defined at the pincode level, and Panel B presents the corresponding results using treatment defined at the pincode–age–gender level. This progression from coarser to finer units demonstrates how additional cross-sectional variation strengthens identification and confirms that the estimated effects are not driven by shocks common to larger geographic aggregates.

⟨ Insert Table 2 ⟩

In Panel A, a 1-percentage-point decline in inflation expectations is associated with a 7-rupee increase in consumption, a 40-rupee increase in bank deposits, and a 16-rupee increase in risky investments. Panel B shows smaller and mixed effects: consumption rises by 1 rupee, while bank deposits and risky investments fall by 38 and 7 rupees respectively. None of these coefficients are statistically significant at the 10 percent level. Taken together, we find no evidence that one-year inflation expectations meaningfully influence households' consumption or portfolio decisions at the aggregate level.

We further examine dynamic responses using a distributed lag specification. Building on Equation 3, we include lead and lag terms relative to the announcement date:

$$Y_{i,j,t} = \gamma_i + \lambda_t + \sum_{\tau=-3}^{3} \beta_\tau I_{j,t+\tau} + \epsilon_{i,j,t}. \tag{4}$$

$I_{j,t+\tau}$ denotes the inflation expectation for unit j defined earlier in Equation 3 , evaluated τ periods before or after the policy change. The lead coefficients β_{-1}, β_{-2}, and β_{-3} capture pre-policy differences, while the lag coefficients β_1, β_2, and β_3 capture marginal responses following the policy announcement. As in Equation 3, γ_i and λ_t absorb time-invariant household heterogeneity and aggregate monthly shocks.

In Figure 3, we present the results of the distributed lag model for changes in one-year inflation expectations. These event-study graphs plot coefficients for three months before the announcement and three months after. The x-axis spans the months before the announcement (-3 to -1), the announcement month (0), and the months after the announcement (1 to 3) of the inflation-targeting regime.

⟨ Insert Figure 3 ⟩

There are no economically or statistically significant differences in consumption, bank deposits, or risky investments over this period. This is consistent with the mixed empirical evidence on the causal role of inflation expectations in spending; for example, Burke and Ozdagli (2023) find that such expectations typically have limited effects. Households may also adjust to changes in inflation expectations through alternative channels. To investigate these mechanisms, we next examine the household balance sheet and the composition of assets and liabilities.

3.2 Economic Mechanisms

Inflation expectations shape households' consumption and saving choices through multiple, sometimes competing, forces. Prior research highlights several channels through

which expectations influence intertemporal decisions. In this paper, we focus on two mechanisms that generate clear, testable predictions. The first is the consumption Euler-equation channel, where changes in the expected real return alter the intertemporal price of consumption. The second is the precautionary-savings channel, where variation in perceived uncertainty about future income affects the value of building precautionary buffers. These mechanisms capture the central theoretical forces in our setting. Section 3.4 evaluates alternative explanations and macro-financial confounds and shows that the liquidity-based heterogeneity we document persists across all robustness exercises.

The consumption Euler-equation channel implies that a decrease in inflation expectations will increase savings and reduce consumption when nominal interest rates are held constant. In this case, the perceived real return on deposits rises through the Fisher equation, increasing the opportunity cost of consuming today. In contrast, the precautionary-savings channel predicts that a decrease in inflation uncertainty reduces the need to hold precautionary buffers, leading households to raise consumption and lower savings. When expectations become more stable and perceived uncertainty falls, households feel more confident about future income and thus reduce precautionary saving. Hence, under the precautionary channel, 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:

$$Y_{i,j,t} = \gamma_i + \lambda_t + \sum_{k=1}^{5} \beta_k Treat_j \times Post_t \times Z_k + \delta_k Z_k \times Post_t + \epsilon_{i,j,t} \tag{5}$$

Based on Equation 5, Z_k is a binary variable that is equal to 1 if the household belongs to the k^{th} quintile. For instance, Z_5 refers to households in the 5^{th} 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 pincode 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 A.9 in the online appendix).

Table 3 presents the heterogeneous effects of liquidity by pincode-age group-gender bins. We begin by examining households with the least and most liquidity. For households in the lowest savings quintile, a 1 percentage point fall in 1-year inflation expectations 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 meaningful differences in their financial positions. Households with lower levels of liquid savings increase consumption and reduce bank deposits, consistent with a weaker need for precautionary buffers. In contrast, households with higher liquid savings reduce consumption and increase bank deposits, in line with the higher real return on deposits when inflation expectations decline. These higher-liquidity households also scale back their investments in risky assets. The offsetting behavior across the liquidity distribution implies that aggregate effects appear muted, even though underlying household responses are sizable. To establish the robustness of these patterns, we conduct additional analyses based on changes in three-month inflation expectations (Table A.10) and current inflation expectations (Table A.11). We also confirm that our results are not sensitive to the number of liquidity groups. Table A.12 replicates the analysis using deciles instead of quintiles, and the core findings remain unchanged across all specifications.

To improve clarity, we present these heterogeneous effects graphically. Figure 4 plots the coefficients reported in Table 3, which are based on changes in one-year inflation expectations at the pincode–age–gender level.[11] Panel (a) shows a clear downward gra-

[11]Figure A.11 presents the corresponding estimates at the pincode level. The qualitative patterns are similar.

dient in consumption: households in the lowest savings quintile increase spending, while those in the highest quintile reduce it. Panel (b) shows the opposite pattern for bank deposits, with higher-liquidity households increasing savings more strongly. Panel (c) indicates that reductions in risky investment occur primarily among households in the highest liquidity group. For households in the remaining quintiles, investments in risky assets remain relatively stable.

< Insert Figure 4>

These findings align with the two economic channels discussed earlier. For households with substantial liquid savings, the consumption Euler equation dominates: a higher real return on deposits raises the incentive to postpone consumption, leading them to reduce spending and increase savings in bank accounts. By contrast, households with limited liquidity are more sensitive to shifts in the broader economic outlook, including inflation conditions. As inflation uncertainty falls, these households perceive the environment as more stable and are therefore more inclined to increase current consumption and reduce saving.

To provide evidence for the precautionary channel, we focus on the consumption uncertainty of households. Specifically, 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. Following Equation 3, 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:

$$Y_{i,j,t} = \gamma_i + \lambda_t + \beta_1 Treat_j \times Post_t \times CV_i + \epsilon_{i,j,t} \tag{6}$$

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 is associated with 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>

We further test the consumption Euler equation mechanism for households with the most liquid savings. If changes in real interest rates shape their behavior, we should observe adjustments not only in consumption but also in other financial decisions. Borrowing provides a clear setting. When real interest rates rise because inflation expectations fall while nominal rates remain constant, the real cost of borrowing increases, which should lead to higher loan prepayments. To examine this prediction, we focus on households with existing loans from the institution in our data.[12] We then re-estimate Equation 5, adding loan repayments as an additional outcome variable. Table 5 reports the results.

< Insert Table 5>

From Table 5, households in the highest savings quintile increase their loan repayments by 760 rupees in response to a 1-percentage-point fall in inflation expectations, significant at the 5 percent level. This pattern is consistent with borrowers actively prepaying their loans due to higher real interest rates. For fixed-rate loans, scheduled installments remain unchanged because nominal rates are constant. For floating-rate loans, scheduled repayments should even fall, since the RBI discount rate and treasury bill yields declined over this period (Figure A.1 in the online appendix). In the absence of prepayments, repayments should therefore stay constant or decrease. The observed increase among high-savings households is thus consistent with active prepayment triggered by higher real borrowing costs. For these borrowers, consumption falls slightly by 7 rupees (not statistically significant), bank deposits rise by 1,506 rupees (significant at 5 percent), and risky investments decline by 422 rupees (significant at 5 percent), mirroring our baseline portfolio-rebalancing results.

To verify that our mechanism is not confounded by risky-asset participation, we examine households with and without exposure to such investments. The first group comprises individuals holding stock brokerage accounts (referred to as demat accounts in India) or

[12]This group represents about 14 percent of the sample.

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 5 for each sub-group separately. The regression results for individuals with and without exposure to risky investments are presented in Table A.13 and A.14 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 and examine why households with high liquid savings shift from risky to risk-free assets when inflation expectations fall. This pattern is consistent with the classical Merton (1969) portfolio choice framework. In Merton's model, the optimal share of wealth allocated to risky assets is

$$\theta_t = \frac{\mu - r}{\sigma^2 \gamma}, \tag{7}$$

where μ and σ denote the expected real return and volatility of the risky asset, r is the real return on the risk-free asset, and γ is the coefficient of relative risk aversion. The risky asset evolves according to

$$dS_t = \mu S_t \, dt + \sigma S_t \, dz_t, \tag{8}$$

implying that any policy change that alters μ or r affects the optimal allocation. A rise in r relative to μ reduces $(\mu - r)$ and therefore lowers the optimal risky share.

For households, the relevant risk-free return is the bank deposit rate. Access to bond markets is limited, and government securities are largely inaccessible to retail investors. Most households save through deposits, which are liquid, insured, and widely used across India. Low direct household participation in bond markets is common internationally; in the United States, for example, only about 1.3 percent of households directly hold bonds (2016 Survey of Consumer Finances).

A key feature of the Indian household portfolio environment is the nominal rigidity of deposit rates. Savings-account rates exhibit little to no pass-through to monetary policy or inflation conditions (Neumark and Sharpe 1992; Driscoll and Judson 2013). In our administrative dataset, the posted savings rate remains fixed at 4 percent throughout

the sample period (Figure A.1), unaffected by movements in the RBI discount rate, treasury yields, realized inflation, or inflation expectations. Only term-deposit rates adjust. Consequently, when inflation expectations fall, the nominal savings rate does not change, causing the real deposit rate to rise mechanically via the Fisher equation.

We formalize this rigidity using two pass-through parameters (α_a, α_s), which capture how nominal returns on deposits and equities respond to changes in expected inflation. Deposits have $\alpha_a = 0$ because their nominal rates do not adjust, while equities have $\alpha_s > 0$ because equity returns track real asset values (Campbell and Vuolteenaho 2004), and inflation risk is priced in expected returns (Boons et al. 2020). As a result, a decline in inflation expectations increases the real return on deposits but leaves the real return on equities largely unchanged.

This asymmetric shift in real returns maps directly into the Merton allocation. A fall in expected inflation raises r while leaving μ roughly constant, shrinking $(\mu - r)$ and reducing the optimal risky-asset share. Households with large liquid buffers exhibit the strongest rebalancing toward deposits, consistent with their greater exposure to assets whose nominal returns are rigid. The portfolio responses in our data therefore align closely with the predictions of standard portfolio theory once the institutional features of the Indian household saving environment are taken into account.

The broader implications of this mechanism also resonate with evidence from other settings. Prior work documents that falling nominal interest rates induce investors to "reach for income" (Daniel et al. 2021; Jiang and Sun 2020) and that depositors shift toward riskier investments when real deposit rates decline (Agarwal et al. 2023). These results arise under stable inflation expectations. Our findings highlight the symmetric case: when real deposit rates rise due to a fall in expected inflation, households reduce their demand for risky assets. This contrast underscores that risk-taking behavior depends critically on real, rather than nominal, shifts in returns.

We also document meaningful demographic heterogeneity in these responses. Older households reduce their risky-asset exposure more sharply than younger households, consistent with greater risk aversion at later stages of the life cycle. Gender differences are also evident: women reduce consumption more than men when real interest rates rise (Table A.15 in the online appendix). These patterns suggest that the effects of changes in inflation expectations and real interest rates are not uniform across households. Incorporating demographic variation is therefore important for policy design. Understanding which groups are most responsive to real-rate changes can help tailor financial education programs or targeted incentives that address distinct needs across age and gender groups.

3.4 Robustness and Alternative Explanations

We now address several potential concerns to reinforce the robustness of our findings. We begin by showing that our results remain stable across alternative measures of inflation expectations and across different levels of aggregation. Specifically, the key patterns hold at both the pincode level and the pincode–age group–gender bin level, as well as across multiple time horizons. Figure A.11 in the online appendix presents the heterogeneous effects of liquidity across savings quintiles at the pincode level. We further report results based on three-month and current inflation expectations at the pincode–age group–gender level in Figures A.12 and A.13, respectively. Across all specifications, the estimates closely align 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 evidence against them as the only 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 makes it unlikely that these factors drive our findings, as any uniform shift in sentiment would generate similar responses across households.

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 A.1 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 A.16 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 may 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 (pincode and pincode-age group-gender bins). These robust findings underscore the validity of our analysis and reinforce the credibility of our conclusions.

4 Theoretical Model

So far, our reduced-form analysis shows that the effects of inflation targeting depend on households' liquidity positions. When inflation expectations declined, households in the highest savings quintile reduced consumption, lowered their risky investment, and increased their bank deposits. Households in the lowest savings quintile moved in the opposite direction and increased consumption while reducing deposits. Our explanation is that a household's liquidity position determines which mechanism dominates. For households with substantial liquidity, the consumption Euler equation channel is stronger as a decline in expected inflation raises the real return on saving. For households with limited liquidity, the precautionary savings channel dominates because lower inflation expectations reduce perceived income risk and allow households to consume more today.

To formalize these mechanisms and to evaluate their quantitative importance, we develop a partial-equilibrium life-cycle model in which a representative household chooses consumption and allocates wealth between a safe asset and a risky asset. The model is designed to reproduce the contrasting consumption and portfolio responses observed in the data. Inflation targeting enters the model as a permanent decline in inflation expectations and a reduction in labor-income risk, which together allow the framework to capture both the Euler-equation response and the precautionary-savings response. A key feature of the model is that households form rational expectations about future inflation. Any change in inflation expectations therefore alters their expectations about safe-asset and risky-asset returns. The strength of this transmission depends on how strongly expected nominal returns adjust when inflation expectations shift.

4.1 Model Environment

We begin by describing the household's decision environment. The representative household maximizes lifetime utility over a finite horizon of length T. Per-period utility follows a constant relative risk aversion (CRRA) specification:

$$u(c_t) = \begin{cases} \dfrac{c_t^{1-\sigma} - 1}{1-\sigma}, & \sigma \neq 1, \\ \log(c_t), & \sigma = 1. \end{cases} \tag{9}$$

where c_t denotes real consumption and σ is the coefficient of relative risk aversion. Households allocate savings across a safe asset, interpreted as bank deposits, and a risky asset, interpreted as stocks and mutual funds. The safe asset yields a nominal return R_t^a and the risky asset yields i.i.d. stochastic returns R_t^s. Additional details appear in Internet Appendix B.

At the start of each period t, the household brings into the period its existing asset holdings (a_t, s_t), where a_t denotes deposits and s_t denotes risky asset holdings. During the period, uncertainty resolves and the household observes the realization of risky asset and labor income. The household receives the gross return on deposits, $R_t^a a_t$, the gross return on risky assets, $R_t^s s_t$, and income y_t. These resources finance current consumption c_t, next-period asset positions (a_{t+1}, s_{t+1}), and any transaction costs incurred from adjusting risky holdings. The period-by-period budget constraint is:

$$c_t = R_t^a a_t + R_t^s s_t + y_t - a_{t+1} - s_{t+1} - \kappa \left| R_t^s s_t - s_{t+1} \right|, \tag{10}$$

subject to $c_t \geq 0$, $a_{t+1} \geq 0$, and $s_{t+1} \geq 0$, where $\kappa > 0$ denotes proportional transaction costs associated with adjustments in risky holdings. The recursive problem is:

$$V_t(a, s, j, y) = \max_{a', s'} u(c_t) + \beta \, \mathbb{E}_{j'}[V_{t+1}(a', s', j', y')] \,, \tag{11}$$

where the expectation is taken over the distribution of next-period return states j_{t+1} and labor income state y_{t+1}.

A key innovation of our framework is how households map changes in inflation expectations into beliefs about nominal returns. We capture this mechanism using two pass-through parameters, α_a for deposits and α_s for equities. Each lies between 0 and 1 and measures the extent to which nominal returns adjust when expected inflation changes. When $\alpha = 0$, nominal returns are fully sticky and real returns rise one-for-one as expected inflation falls. When $\alpha = 1$, nominal returns adjust fully and real returns remain unchanged. Intermediate values capture partial pass-through. Because deposit rates are effectively fixed in our setting, we set $\alpha_a = 0$.

Using these policy functions, we simulate two economies. In the baseline economy, inflation expectations remain constant at π^{base}. In the policy economy, expected inflation falls permanently to π^{shock} beginning in period $t = \tau$. The two economies are identical up to period $\tau - 1$, which allows us to isolate the causal effect of the inflation-expectations shock. Parameter choices for preferences and the environment are discussed in Section B.3 of the Online Appendix.

In the policy economy, the decline in expected inflation modifies nominal returns according to:

$$R^a_{\text{post}} = R^a_{\text{pre}} + \alpha_a(\pi^{\text{shock}} - \pi^{\text{base}}) \tag{12}$$

$$R^s_{\text{post}} = R^s_{\text{pre}} + \alpha_s(\pi^{\text{shock}} - \pi^{\text{base}}) \tag{13}$$

These expressions summarize how inflation targeting alters the real return structure faced by households and thus drives the heterogeneous consumption and portfolio responses in the model.

4.2 Inflation Targeting Policy Calibration

We now compare consumption and asset paths in the baseline and policy economies. In the baseline economy, expected inflation remains constant, keeping nominal returns and income risk unchanged. Households accumulate wealth gradually, and consumption adjusts predictably in the absence of shocks. By contrast, in the policy economy, the decline in inflation expectations at time τ alters the intertemporal price of consumption and the expected return structure. Because deposit rates are fixed, lower expected inflation raises the real return on deposits. Separately, it also reduces the perceived riskiness of future income. Consequently, high-liquidity households respond to higher real returns by

reducing current consumption and increasing saving. Low-liquidity households respond to lower perceived income risk by increasing consumption.

To summarize the impact of the inflation-expectations shock, we compute treatment effects at the shock date as differences in cross-sectional averages between the policy and baseline economies. Table 6 compares these model-implied effects with their empirical counterparts. We report percentage changes in consumption, risky holdings, and safe holdings for low- and high-income households. The calibrated treatment effects at $t = \tau$ correspond to a 2-percentage-point decline in expected inflation, moving from the baseline economy (high expected inflation) to the policy economy (low expected inflation). The first two rows present the treatment effects for low-income (low-liquidity) and high-income (high-liquidity) households from Table 3. The third and fourth rows report the corresponding effects in the calibration, which adopts the preference parameters in Section B.3 and sets $\alpha_a = 0$ and $\alpha_s = 0.75$.

< Insert Table 6>

The calibration predicts that high-income households reduce consumption by roughly 2 percent and cut risky-asset holdings by more than 7 percent, while increasing deposits by about 16 percent. The decline in consumption reflects the Euler-equation channel: when inflation expectations fall and deposit rates are rigid, the real return on saving rises and households shift consumption into the future. The reduction in risky investment arises from the asymmetric nominal pass-through: with $\alpha_a = 0$, the real return on the safe asset increases one-for-one as expected inflation falls, while with $\alpha_s = 0.75$, the risky return adjusts only partially. This differential adjustment raises the relative attractiveness of the safe asset and induces a sharp reallocation toward deposits.

Low-income households increase consumption by about 3 percent and reduce safe-asset holdings by about 37 percent. The increase in consumption arises because the precautionary-savings channel dominates the Euler-equation channel. Although the Euler-equation mechanism is still present, the reduction in income risk has a stronger effect, especially for low-liquidity households with high marginal utility of consumption. Lower perceived income risk reduces the need to maintain precautionary buffers, leading these households to increase consumption and draw down their holdings of safe assets.

Overall, we find that the calibration with $\alpha_a = 0$ and $\alpha_s = 0.75$ generates treatment effects that closely mirror our reduced-form evidence. High-liquidity households display strong Euler-equation responses, shifting sharply toward deposits and away from risky assets, while low-liquidity households behave in line with the precautionary-savings channel, increasing consumption and drawing down safe assets. The model therefore reproduces the asymmetric responses we observe empirically and shows how shifts in inflation expectations can produce sharply divergent behavioral adjustments across liquidity groups.

5 Conclusion

In conclusion, this paper uses India's adoption of Inflation Targeting to identify how shifts in inflation expectations translate into household behavior. Although aggregate adjustments appear modest, our results reveal substantial heterogeneity across the liquidity distribution. Households modify their consumption, saving, and portfolio choices in ways that depend strongly on their liquidity positions. High-liquidity households respond through the consumption Euler equation channel. When inflation expectations fall and deposit rates are sticky, the real return on saving rises, creating an incentive to shift consumption into the future. Low-liquidity households respond through the precautionary-savings channel. Lower expected inflation reduces perceived background risk, allowing these households to ease consumption smoothing and raise current consumption. Our findings thus show that the household balance sheet is central for understanding the transmission of inflation expectations into real behavior.

Portfolio adjustments provide complementary evidence. When expected inflation declines, households reduce their investments in risky assets. We propose a structural model that clarifies the mechanism behind this pattern. The responsiveness of expected nominal returns to changes in expected inflation is governed by two pass-through parameters. The first, which governs deposits, is effectively zero because savings deposit rates did not adjust during the time period. The second governs risky assets. When the pass-through for risky assets is less than complete, households perceive a relative improvement in the attractiveness of safe assets. This combination of rigid deposit rates and partial adjustment of risky returns explains both the observed decline in risky investment and the shift toward deposits among high-liquidity households. The strength of these pass-through parameters therefore plays an important role in shaping household responses to changes in inflation expectations.

The combined empirical and structural results suggest that expectation-based policies can have heterogeneous effects across the household distribution. Lower inflation expectations can strengthen saving among high-liquidity households while increasing consumption among liquidity-poor households. They can also alter risk-taking in ways that depend on how expected returns adjust when inflation expectations shift. Policymakers who rely on communication strategies or expectation management should therefore consider these distributional effects. Differences in liquidity positions and in exposure to safe and risky assets imply that changes in inflation expectations do not have uniform consequences across households. Understanding these frictions will help clarify how households absorb and process macroeconomic information and how policy communication can be designed to improve decision making.

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Tables and Figures

Table 1: Summary Statistics

	Number	Mean	SD
	(1)	(2)	(3)
Panel A: Inflation Expectations (by pincode)			
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 pincode level, while Panel B relates to the average inflation expectations at the pincode-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 pincode			
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 pincode, whereas Panel B focuses on inflation expectations by pincode-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 pincode-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 pincode-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

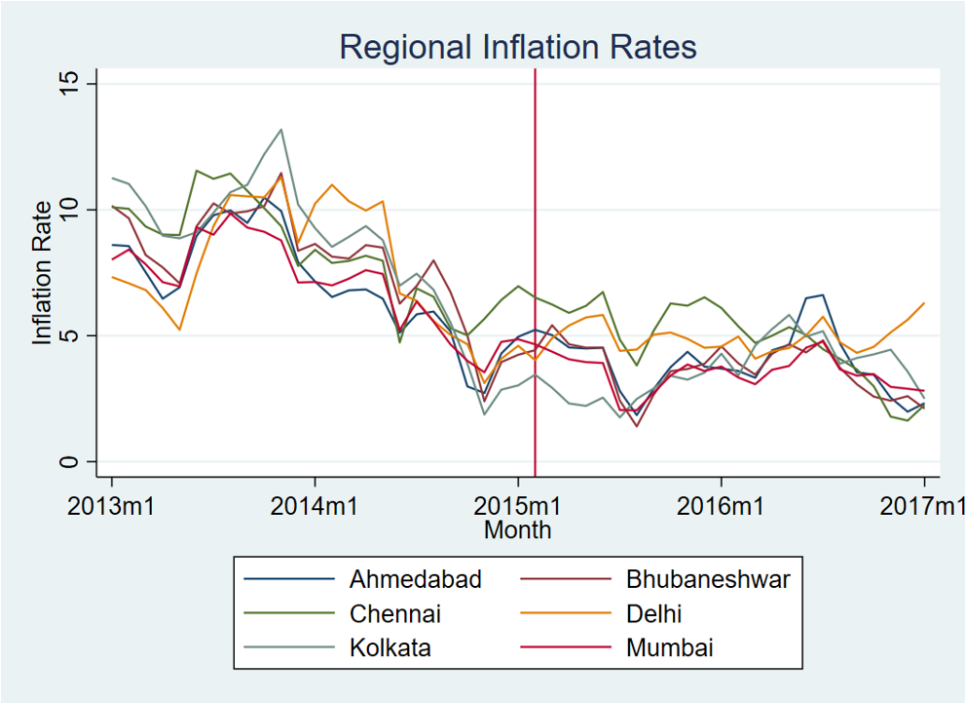
Notes: This table reports the heterogeneous effects of prior 1 year inflation expectations (before the announcement of inflation targeting) by individuals' savings quintiles for the sub-sample: borrowers. Borrowers refer to individuals with an existing loan with the bank. Based on individuals' liquid 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 pincode-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 6: Calibration

Treatment effect(%)	Consumption	Safe assets	Risky assets
Low Income (Empirical)	+1%	−24%	Not Significant
High Income (Empirical)	−0.6%	+16%	−4.6%
Low Income (Calibration)	+2.9%	−37%	0%
High Income (Calubration)	−2.2%	+16%	−7.3%

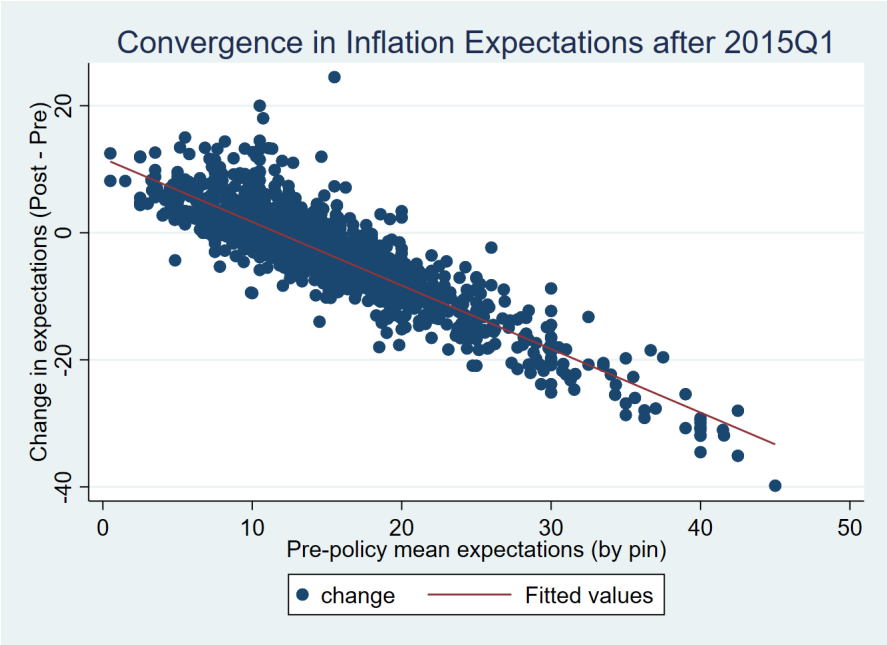
Notes: This table compares the empirical treatment effects with those generated by the calibrated model. We report model-implied effects at $t = \tau$ when inflation expectations fall by 2 percentage points, using the preference parameters described in Section B.3. The first two rows reproduce the empirical effects for low-income (low-liquidity) and high-income (high-liquidity) households reported in Table 3. The last two rows show the corresponding effects in the calibration. All values are percentage changes in consumption and portfolio holdings.

Figure 1: Inflation Rate Across Cities in India



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

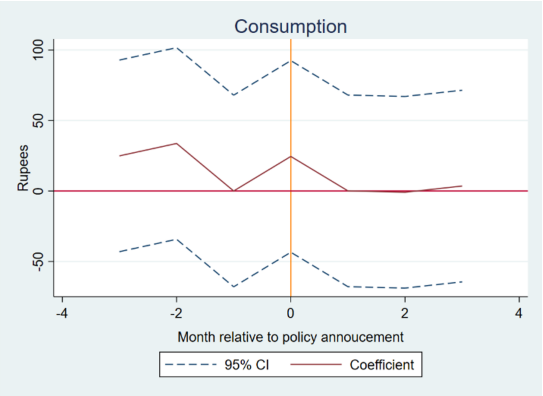
Figure 2: Impact of Inflation Targeting: First Stage



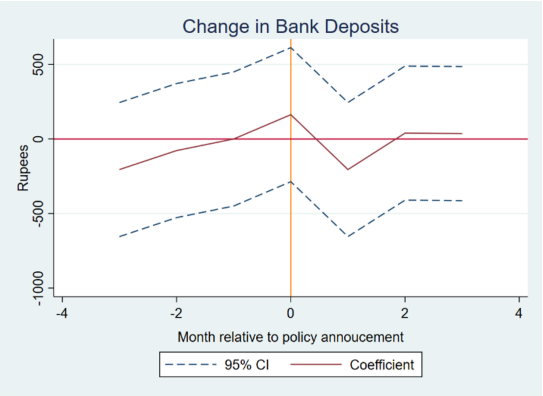
Notes: This figure presents the relationship between pre-policy inflation expectations and the change in expectations after the introduction of inflation targeting. A one-percentage-point higher pre-policy expectation is associated with a 0.94-percentage-point larger reduction.

Figure 3: Event Study Graphs of Average Treatment Effect
(by pincode-age group-gender bins)

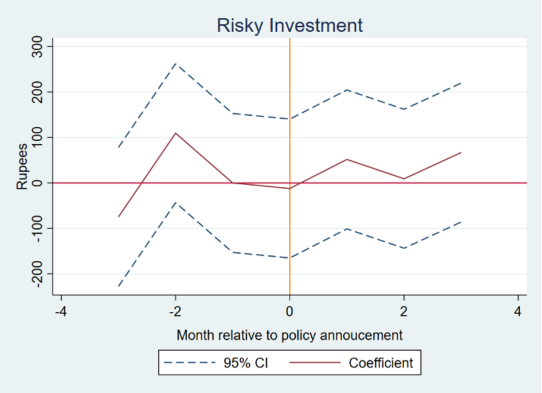
(a)



(b)



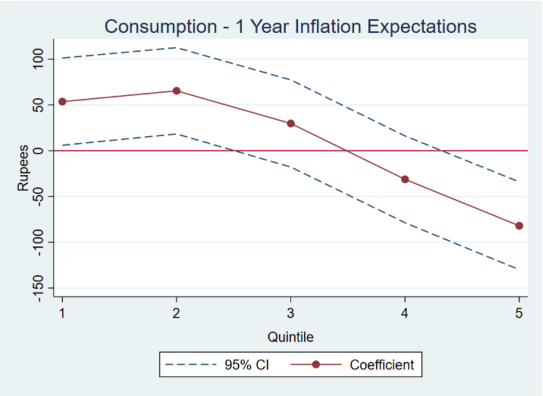
(c)



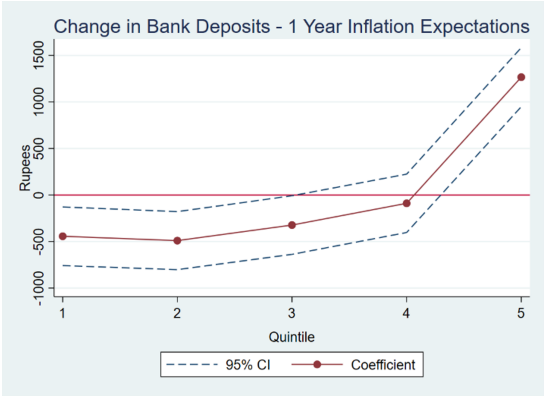
Notes: This figure shows the dynamics of the average treatment effect on consumption (Panel (a)), changes in bank deposits (Panel (b)), and risky investment (Panel (c)). In this specification, inflation expectations are categorized by pincode-age group-gender bins. The x-axis denotes the month after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

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

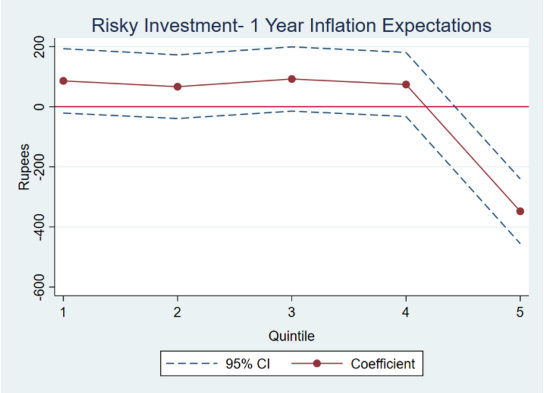
(a)



(b)

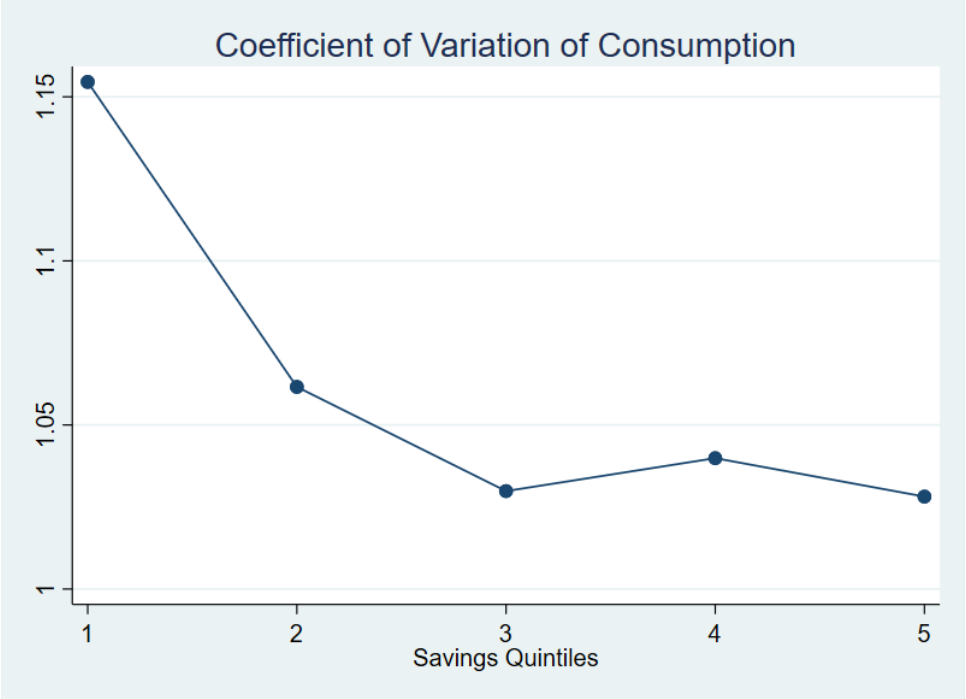


(c)



Notes: This figure shows the heterogeneous 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 pincode-age group-gender bins.

Figure 5: Consumption Uncertainty



Notes: 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

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

A Internet Appendix

A.1 Additional Tables

Table A.1: 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 A.2: 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			
Age	43,272	47.4	14.7
Married	43,272	0.63	0.48
Female	43,272	0.22	0.42

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 A.3: Changes in Inflation Expectations post policy

	1 Year		3 Months		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 pincode-age group-gender bins. Robust standard errors are reported in parenthesis. *,**,*** denote statistically significant levels at 10%, 5% and 1%, respectively.

Table A.4: 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)
pincode 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 pincode. 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 A.5: Relationship between mean and dispersion of inflation expectations

Dep. Var.:	1 Year	3 Months	Current
	(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 pincode. 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 A.6: First-Stage Regression Corresponding to Equation (1)

	(2)
VARIABLES	Inflation Expectation π_{ibt}
Interaction: $\bar{\pi}_b^{\text{pre}} \times \text{Post}_t$	-0.943***
	(0.0405)
Pre-policy mean $\bar{\pi}_b^{\text{pre}}$	0.956***
	(0.0169)
Observations	18,337
R-squared	0.259

Notes: This table reports estimates from Equation (1). The robust standard errors are reported in parenthesis. *,**,*** denote statistically significant levels at 10%, 5% and 1%, respectively

Table A.7: Summary Statistics of Household-Level Demographics

	RBI Survey Data			Bank Data		
	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 A.8: 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 A.9: 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 A.10: 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 pincode-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 A.11: 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 pincode-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 A.12: 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)

Continued on next page

Table A.12: Regression Estimates by Savings Deciles (Continued)

Dep. Var.:	Consumption	Δ Bank Deposits	Risky Investments
	(1)	(2)	(3)
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 pincode-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 A.13: 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 pincode-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 A.14: 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 pincode-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 A.15: Heterogeneous 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 pincode-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 A.16: Relationship of stock holdings and inflation expectations in October 2014

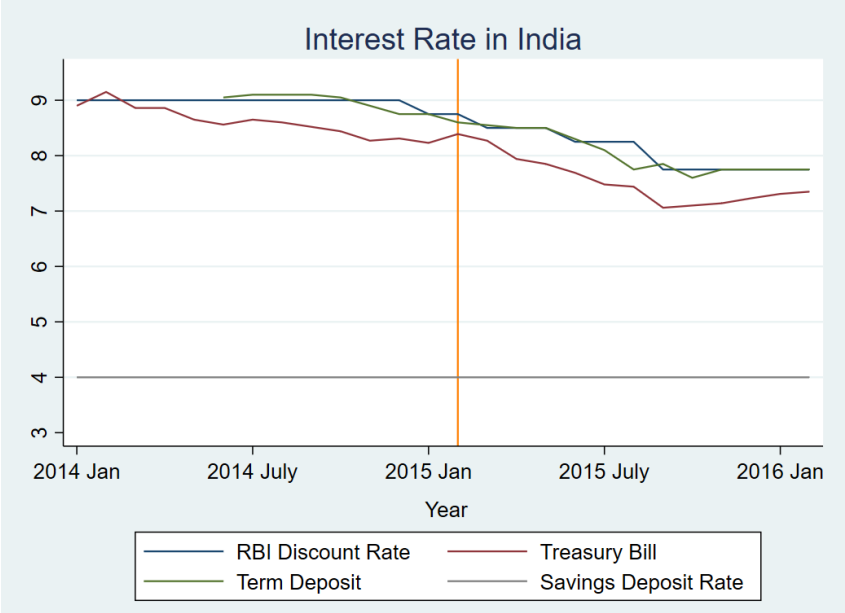
Dep. Var.:	Average Stock Holdings		
	(1)	(2)	(3)
1 Year Inflation Expectations	2,392		
	(2,245)		
3 Months Inflation Expectations		794.2	
		(2,736)	
Current Inflation Expectations			3,818
			(2,539)
Obs.	43,272	43,272	43,272
R Square	0.000	0.000	0.000

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.

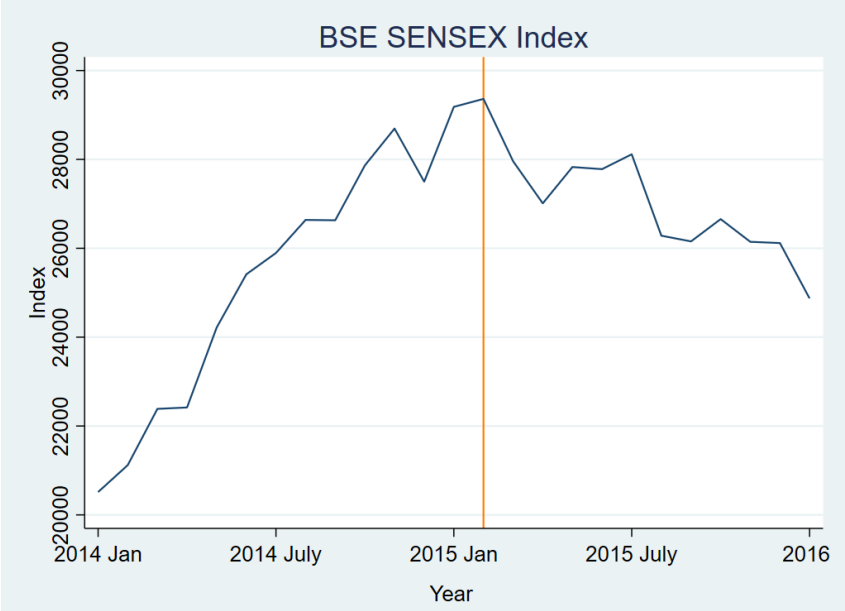
A.2 Additional Figures

Figure A.1: Time Series of Interest Rates and Stock Market Index

(a)



(b)



Notes: 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 A.2: India's Shift to Inflation Targeting (2013–2016)

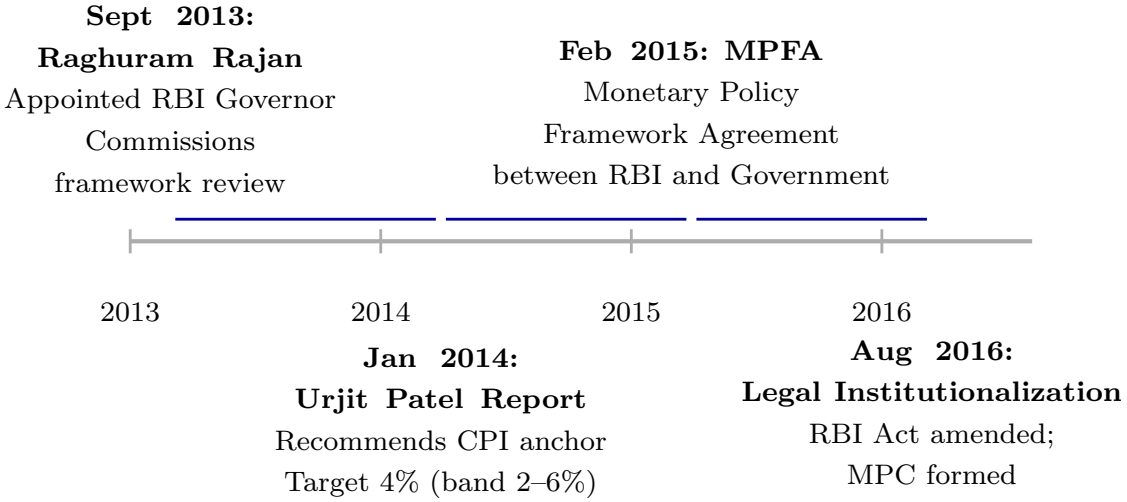
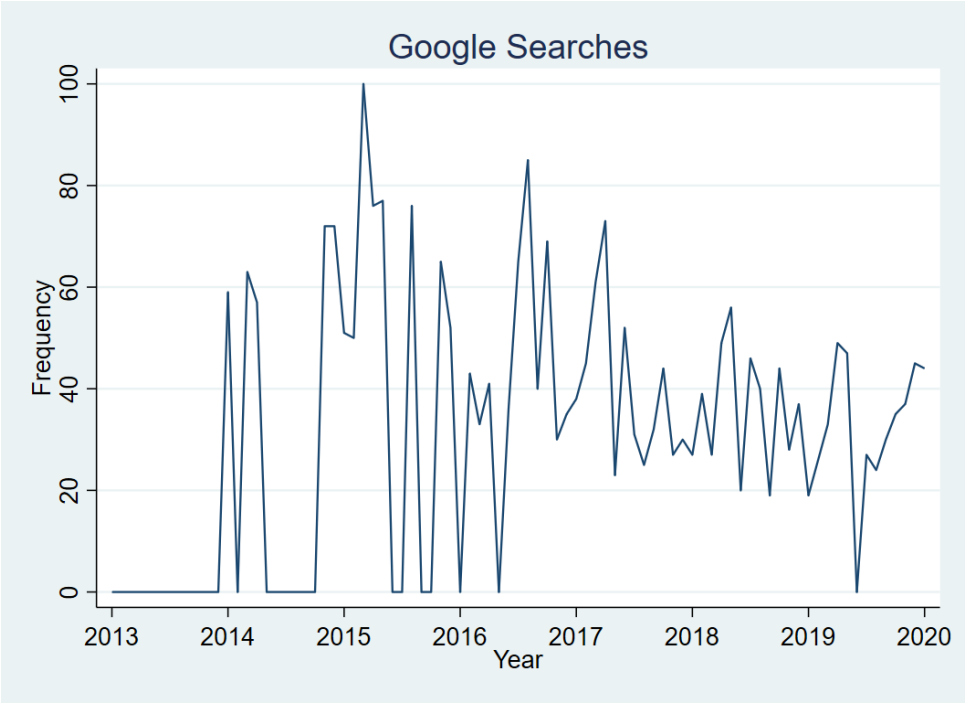
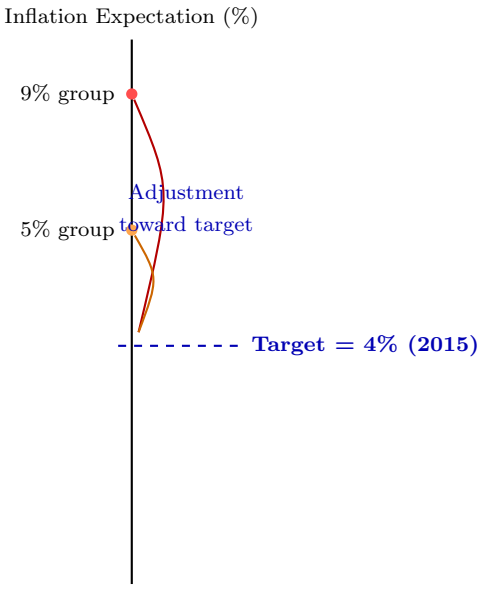


Figure A.3: Interest in Inflation Targeting



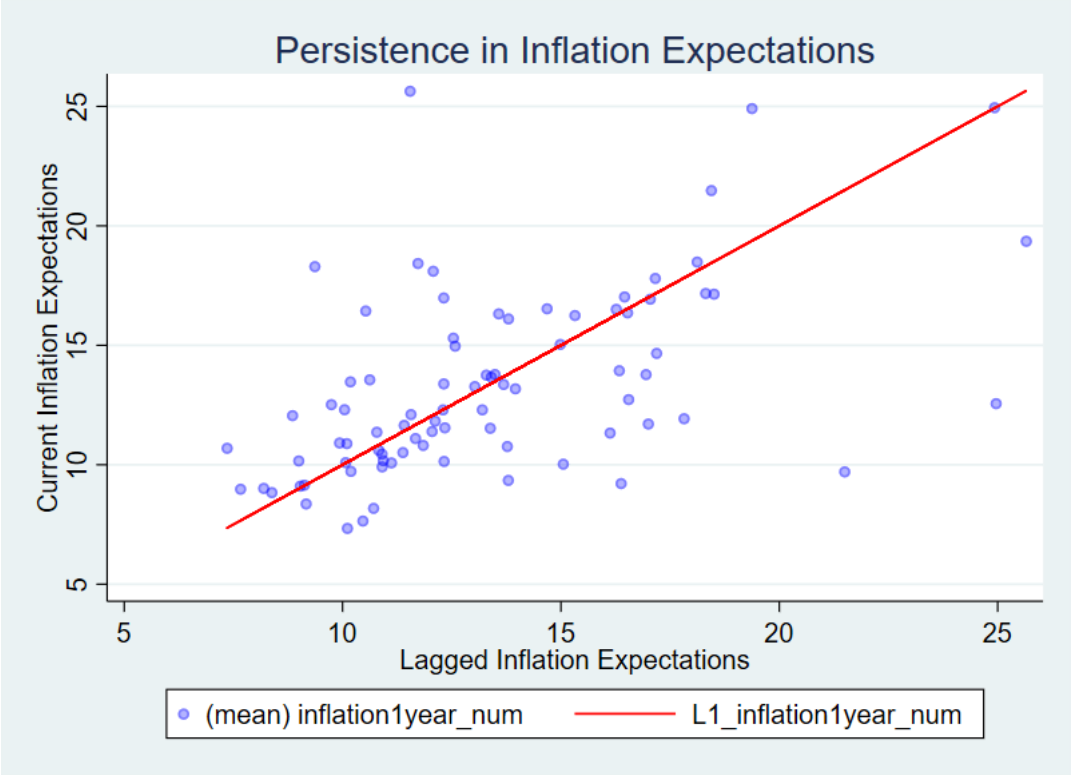
Notes: This figure illustrates changes in search interest for the term "Inflation Targeting" in India, as measured by Google Trends data from 2013 to 2019. An index value of 100 indicates the peak popularity of the term during the observed period.

Figure A.4: Distance to Target and Adjustment of Inflation Expectations



Notes: This figure offers a hypothetical example in which households starting farther from the 4 percent target exhibit larger belief updates in response to the policy shock.

Figure A.5: Movement of Inflation Expectations by City before 2015

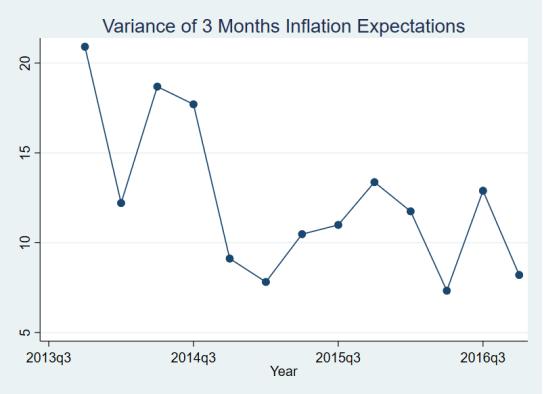


Notes: This figure plots current one-year-ahead inflation expectations against their lagged values at the city level.

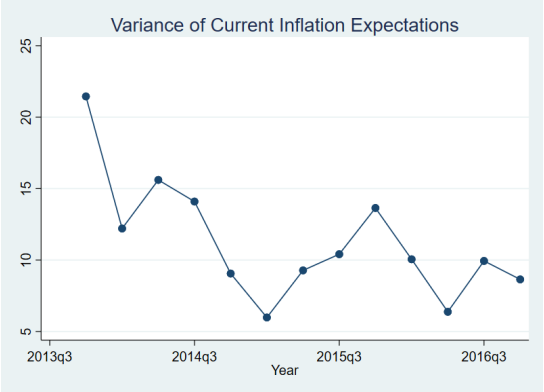
Figure A.6: Variance of inflation expectations across time

(a)

(b)



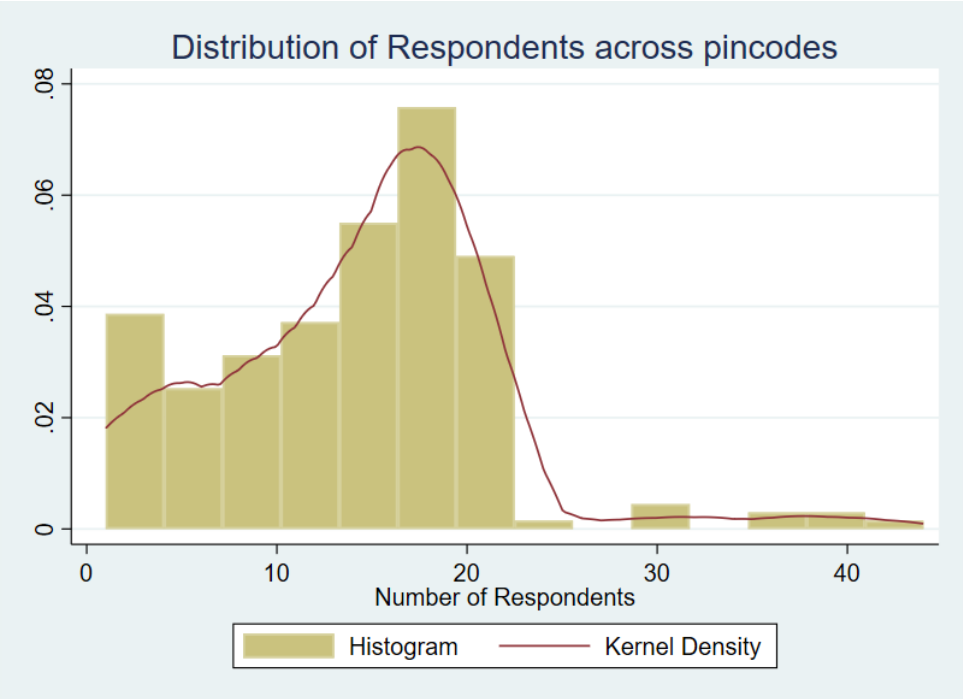
(c)



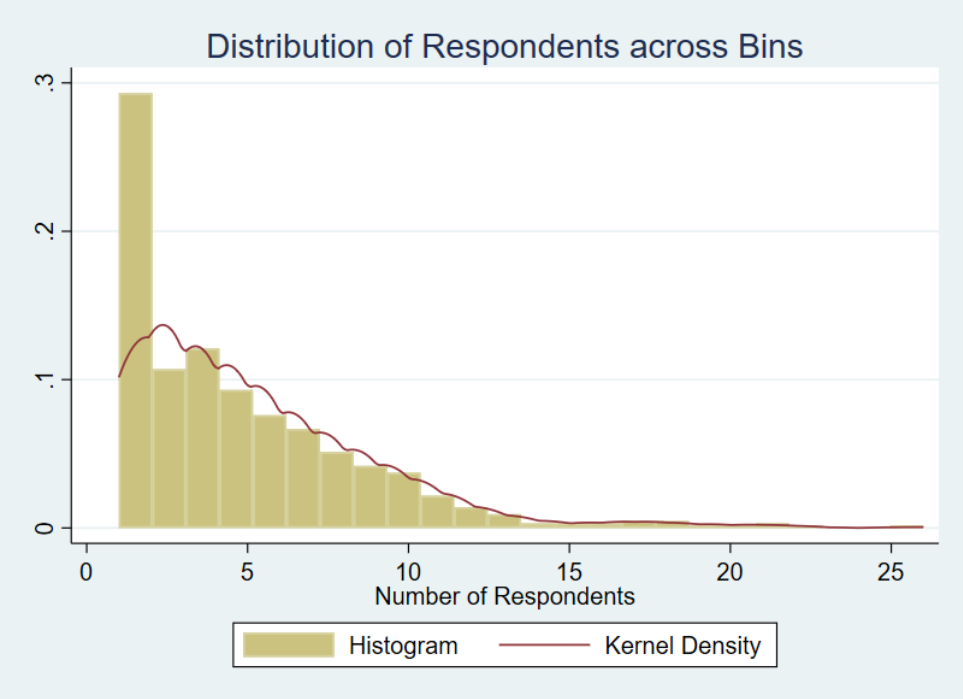
Notes: This figure presents changes in the variance of inflation expectations among all households from the fourth quarter of 2013 to the fourth quarter of 2016. Panel (a) reports the variance of 1-year inflation expectations, Panel (b) displays the variance of 3-months inflation expectations, while Panel (c) depicts the variance of current inflation expectations.

Figure A.7: Number of Respondents across pincodes
and pincode-age group-gender bins

(a)



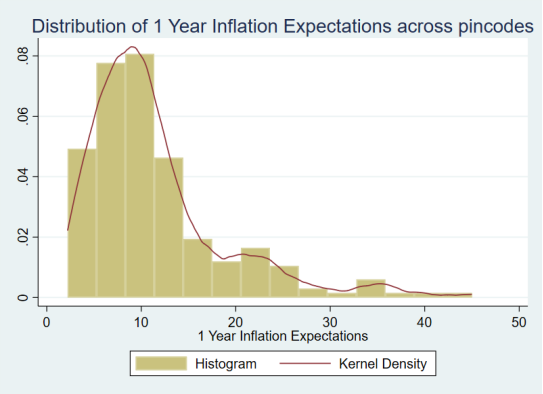
(b)



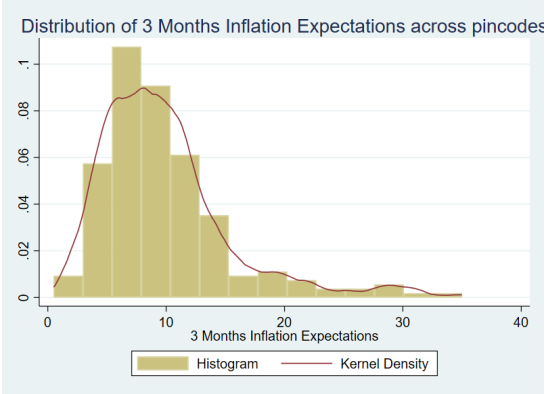
Notes: This figure presents the distribution of the number of respondents across each pincode (Panel (a)) and bins (Panel (b)). The data is based on inflation expectations for our main specification in the fourth quarter of 2014.

Figure A.8: Distribution of inflation expectations across pincodes

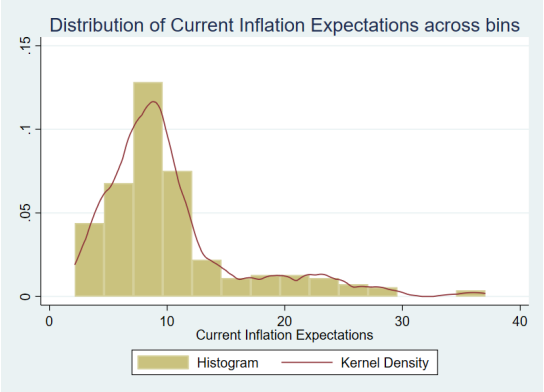
(a)



(b)



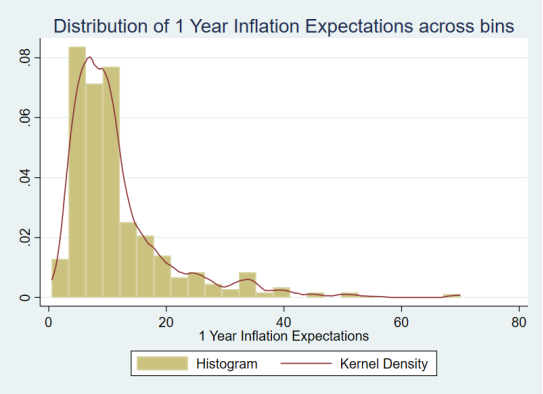
(c)



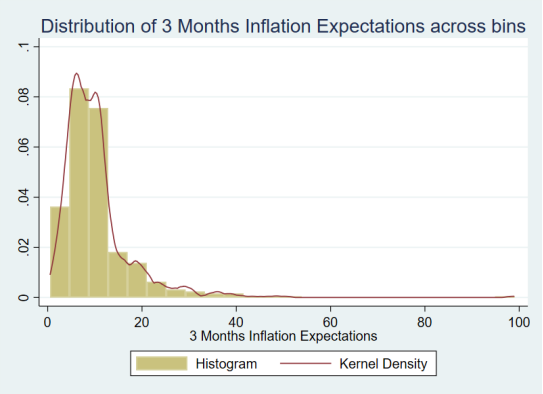
Notes: This figure illustrates the distribution of inflation expectations across pincodes. Panels (a), (b), and (c) report the distribution of 1 year, 3 months and current inflation expectations, respectively. The data is based on inflation expectations for our main specification in the fourth quarter of 2014.

Figure A.9: Distribution of inflation expectations across pincode-age group-gender bins

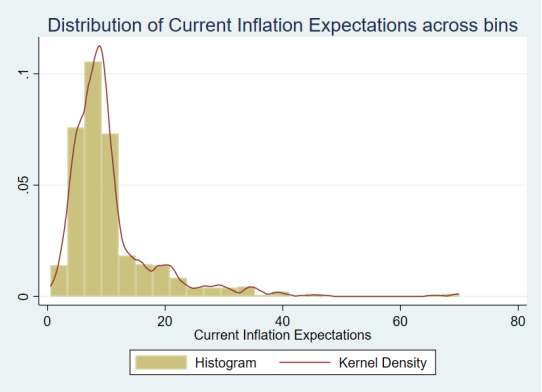
(a)



(b)

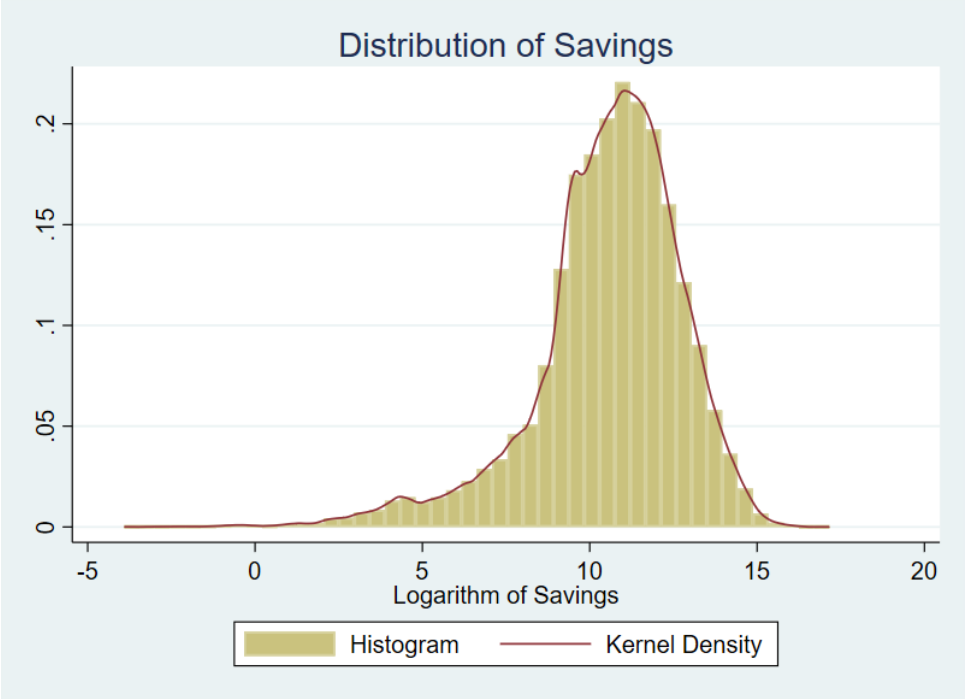


(c)



Notes: 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.

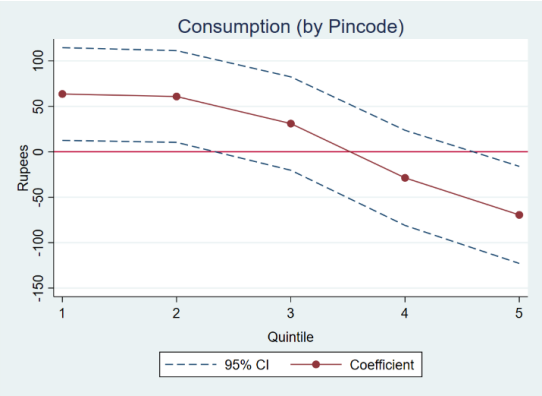
Figure A.10: Distribution of Savings



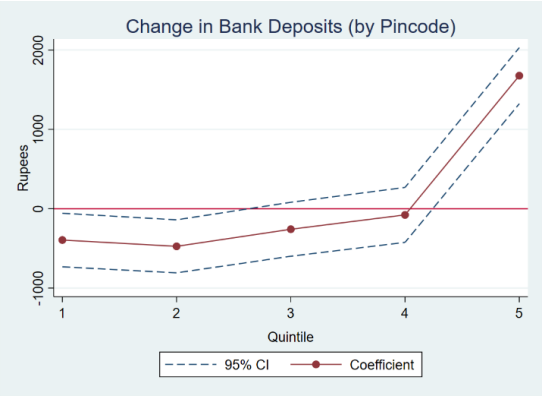
Notes: This figure illustrates the distribution of savings across all households. The x-axis reports the logarithm of savings. The data is based on the administrative bank data in the fourth quarter of 2014.

Figure A.11: Heterogeneous. Effects for 1 Year inflation expectations based on Savings Quintiles (by pincode)

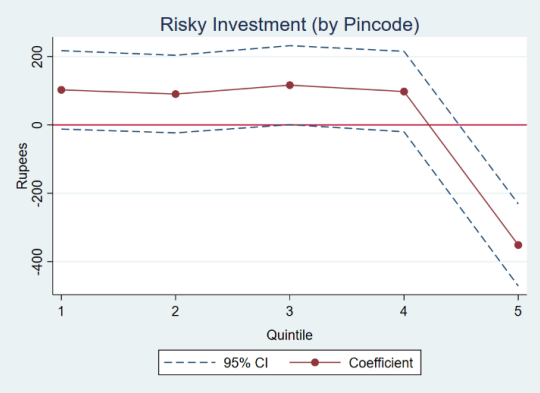
(a)



(b)



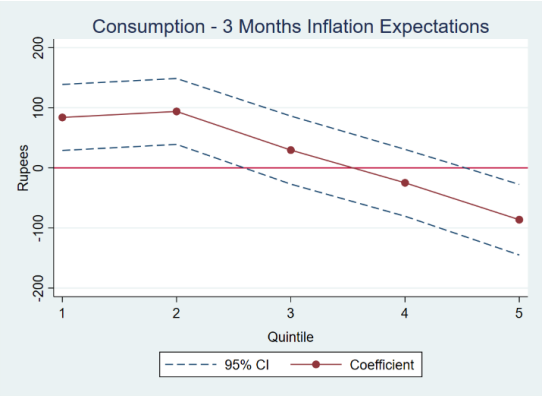
(c)



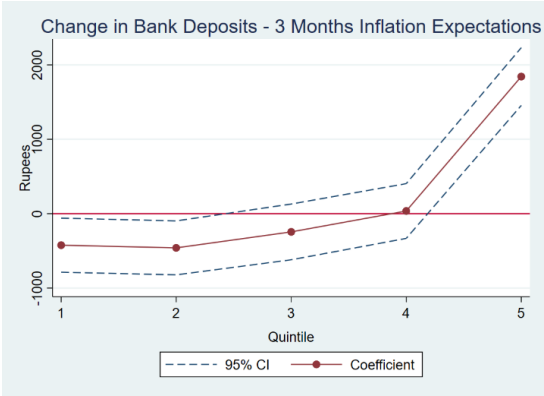
Notes: This figure shows the heterogeneous impact of 1 year inflation expectations on consumption (Panel (a)), changes in bank deposits (Panel (b)) and investments in risky assets (Panel (c)) by liquid savings quintiles. In this specification, inflation expectations are being grouped at the pincode levels.

Figure A.12: Heterogeneous Effects for 3-month inflation expectations based on Savings Quintiles (by pincode-age group-gender bins)

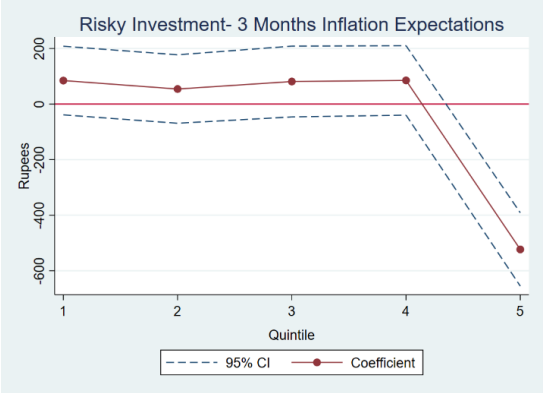
(a)



(b)



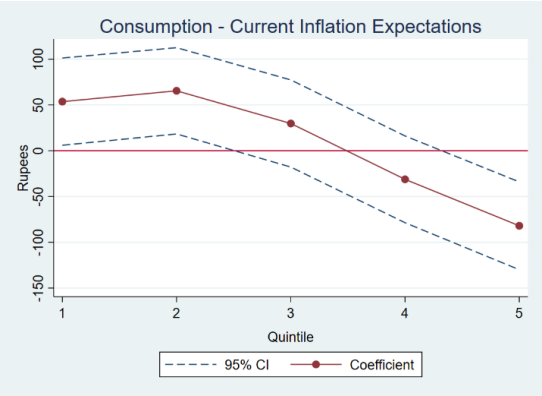
(c)



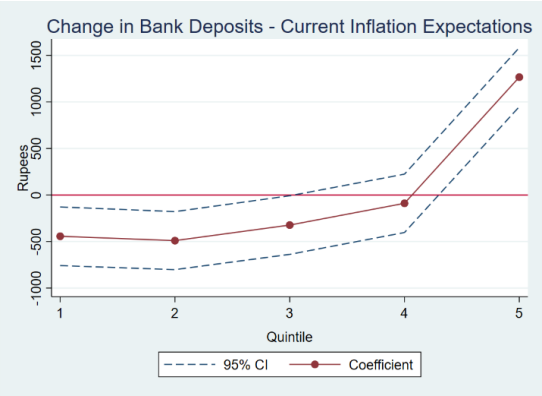
Notes: This figure shows the heterogeneous impact of 3-months inflation expectations on consumption (Panel (a)), changes in bank deposits (Panel (b)) and investments in risky assets (Panel (c)) by liquid savings quintiles. In this specification, inflation expectations are being categorized by pincode-age group-gender bins.

Figure A.13: Heterogeneous Effects for current inflation expectations based on Savings Quintiles (by pincode-age group-gender bins)

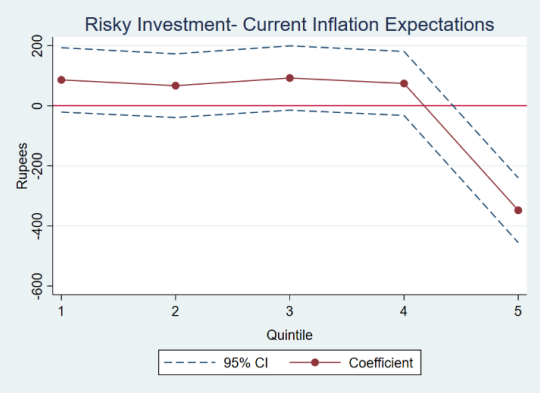
(a)



(b)



(c)



Notes: This figure shows the heterogeneous 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 pincode-age group-gender bins.

B Theoretical Framework

B.1 Model Setup

We develop a finite-horizon, partial-equilibrium portfolio-choice model in which a representative household selects consumption, saving, and portfolio allocations in response to changes in inflation expectations. Time is discrete, $t = 1, \ldots, T$. Per period utility depends on real consumption and follows a constant relative risk aversion (CRRA) specification,

$$u(c_t) = \begin{cases} \dfrac{c_t^{1-\sigma} - 1}{1-\sigma}, & \sigma \neq 1, \\ \log c_t, & \sigma = 1, \end{cases}$$

with c_t denoting real consumption and σ the coefficient of relative risk aversion. Lifetime utility is

$$\max_{\{c_t\}} \sum_{t=0}^{T-1} \beta^t u(c_t).$$

The household allocates savings across two assets. A safe asset, interpreted as bank deposits, offers a nominal return R_t^a. A risky asset, representing equities and mutual funds, pays i.i.d. nominal returns $R_t^s(j_t)$, where j_t indexes the return state. Inflation expectations enters the problem exclusively through expected nominal returns. To capture this linkage parsimoniously, we introduce two pass-through parameters, α_a and α_s, which govern how nominal returns adjust when there are changes in inflation expectations. Labor income is exogenous and does not react to the policy.

Safe asset (bank deposits). Deposits pay a nominal gross return

$$R_t^a = \begin{cases} R_{\text{pre}}^a, & t < \tau, \\ R_{\text{pre}}^a + \alpha_a(\pi^{\text{shock}} - \pi^{\text{base}}), & t \geq \tau. \end{cases}$$

Motivated by the rigid institutional structure of the Indian retail deposit market during this period, we set $\alpha_a = 0$, implying that nominal deposit rates remain fixed even when inflation expectations fall. This rigidity is central for identifying heterogeneous real return effects across households.

Risky asset. The risky asset follows a discrete i.i.d. process:

$$R_t^s(j_t) \in \{R_1^s, \ldots, R_N^s\}, \qquad \Pr(R_t^s = R_n^s) = p_n.$$

After the Inflation Targeting policy,

$$R_{\text{post}}^s = R_{\text{pre}}^s + \alpha_s(\pi^{\text{shock}} - \pi^{\text{base}}),$$

where $\alpha_s \in [0, 1]$ governs the degree of nominal adjustment. In our calibration, we use $\alpha_s = 0.75$, consistent with partial but incomplete pass-through.

Income. Labor income follows an exogenous deterministic path,

$$y_t = \begin{cases} y^{\text{work}}, & t < T_{\text{ret}}, \\ y^{\text{ret}}, & t \geq T_{\text{ret}}. \end{cases}$$

Budget constraint. At the start of period t, the household enters with deposits a_t and risky holdings s_t. After observing j_t, total nominal inflows are

$$M_t = R_t^a a_t + y_t + R_t^s(j_t) s_t.$$

The household chooses consumption and next-period holdings. The period budget constraint is

$$c_t = M_t - a_{t+1} - s_{t+1} - \kappa \left| R_t^s(j_t) s_t - s_{t+1} \right|,$$

where $\kappa \geq 0$ is a proportional transaction cost for adjusting risky positions. Real consumption is c_t, since we normalize the price level to one and model inflation through nominal returns.

Budget constraint. At the start of period t, the household enters with deposits a_t and risky assets s_t. During the period, it receives nominal inflows from the safe return, the risky return, and income. Total nominal resources are

$$M_t = R_t^a a_t + y_t + R_t^s(j_t) s_t,$$

where j_t indexes the realized risky return.

The household chooses consumption and next-period asset holdings. The budget constraint is

$$c_t = M_t - a_{t+1} - s_{t+1} - \kappa \left| R_t^s(j_t) s_t - s_{t+1} \right|,$$

where $\kappa \geq 0$ is a proportional transaction cost applied to adjustments in risky holdings. Because prices are normalized to one, c_t is both nominal and real consumption; inflation operates through its effect on nominal returns.

B.2 The Dynamic Programming Problem

Next, we present the household's dynamic optimization problem. The household begins each period with a portfolio consisting of deposits a_t and risky assets s_t. At the start of period t, the risky return state j_t is realized. The household then receives nominal inflows from the safe asset, the risky asset, and labor income. After observing the realized return, the household chooses consumption and next-period portfolio positions.

State variables are the beginning-of-period asset holdings (a_t, s_t) and the realized risky return state j_t. The household faces incomplete insurance markets, no borrowing against future income, and proportional transaction costs when adjusting risky positions. These frictions generate realistic portfolio inertia and strengthen the role of expectations in shaping optimal decisions.

Total nominal resources in period t are as follows:

$$M_t = R_t^a a_t + y_t + R_t^s(j_t) s_t,$$

where R_t^a is the nominal return on deposits, $R_t^s(j_t)$ is the realized risky return, and y_t is labor income. After observing j_t, the household allocates these resources across consumption and next-period holdings. The per-period budget constraint is:

$$c_t = M_t - a_{t+1} - s_{t+1} - \kappa \left| R_t^s(j_t) s_t - s_{t+1} \right|,$$

where $\kappa \geq 0$ is a proportional transaction cost applied whenever the risky-asset position is adjusted. This cost prevents arbitrarily frequent portfolio reshuffling and generates smoother adjustment paths following changes in inflation expectations.

The dynamic programming problem is characterized by the Bellman equation

$$V_t(a, s, j) = \max_{a', s' \geq 0} \left\{ u(M_t - a' - s') + \beta \, \mathbb{E}_{j'} \left[V_{t+1}(a', s', j') \right] \right\},$$

subject to $c_t \geq 0$, $a_{t+1} \geq 0$, and $s_{t+1} \geq 0$. Expectations are taken over the distribution of future risky returns. Since inflation affects nominal returns directly, the real return distribution faced by the household depends on its inflation expectations, which is the key channel through which the policy experiment operates.

At the terminal date T, the household consumes all remaining resources:

$$V_T(a, s, j) = u\left(R_T^a a + y_T + R_T^s(j) s\right).$$

This condition completes the problem by eliminating terminal bequests and ensuring that all remaining wealth is optimally consumed.

B.3 Calibration

We now turn to our calibration. Table B.1 provides details on the calibration used in the life-cycle model. It summarizes the parameters governing preferences, the income environment, and the financial return structure. Specifically, the calibration is designed to reflect the institutional features documented in the administrative data as well as the key mechanisms identified in the reduced-form analysis.

Table B.1: Calibration of preferences, income, and financial environment.

Parameter	**Value**	**Description**
σ	3	Risk aversion
β	0.99	Discount factor
T	30	Horizon (periods)
r_{bank}	0.04	Liquid asset return
π^{base}	0.06	Baseline inflation
π^{shock}	0.04	Post-shock inflation
τ	10	Shock period
R^s states	{0.95, 1.05, 1.2}	Risky asset returns
κ	0.1	Transaction fee

Preferences. We set the coefficient of relative risk aversion to $\sigma = 3$, a standard value in quantitative consumption–savings and portfolio-choice models. This choice generates realistic curvature in marginal utility and a reasonable strength of precautionary savings. The discount factor is $\beta = 0.99$, which reflects a high degree of intertemporal patience and is consistent with annual decision frequency.

Horizon. The model is solved over a horizon of $T = 30$ periods. Each period is interpreted as one year, which provides a long planning window while maintaining computational tractability. This horizon is sufficient to capture medium-run adjustments in savings, consumption, and portfolio rebalancing.

Financial environment. A central institutional feature of the Indian setting is the rigidity of savings deposit rates. Consistent with the administrative bank data, we fix the nominal return on liquid deposits at $r_{\text{bank}} = 0.04$. Because this rate does not adjust when inflation expectations change, a decline in expected inflation mechanically raises the real return on deposits. This rigidity underpins the heterogeneous consumption and savings responses documented empirically, particularly among high-liquidity households.

Inflation expectations. We model the inflation-targeting reform as a permanent decline in expected inflation from $\pi^{\text{base}} = 0.06$ to $\pi^{\text{shock}} = 0.04$, consistent with both the RBI's announced target and the magnitude of the shift observed in the Inflation Expectations Survey of Households. The reform occurs in period $\tau = 10$, which captures the mid-sample timing of the policy change in the empirical setting.

Risky asset returns. The risky asset follows a discrete return process with three states, $R^s \in \{0.95, 1.05, 1.20\}$, representing low, normal, and high equity returns. This specification provides empirically plausible variation in risky returns and ensures that households face meaningful portfolio risk. Because equity returns largely adjust with inflation in real terms, this structure also captures the asymmetric movement between the real return on deposits and the real return on risky assets following the inflation shock.

Transaction costs. We include a proportional adjustment cost $\kappa = 0.1$ whenever a household changes its risky asset position. This friction prevents unrealistically high-frequency portfolio adjustment and helps match the sluggish trading behavior observed in the administrative data.

Overall, the calibration reflects the key features of our empirical setting, such as rigid deposit rates and falling inflation expectations. It allows us to study how households adjust through the Euler equation channel and the precautionary channel.

B.4 Policy Experiment

Finally, we evaluate the impact of the inflation-targeting reform by comparing two economies that are identical up to period $t = \tau - 1$. The only difference concerns how nominal asset returns adjust after the shift in inflation expectations. This design mirrors the empirical setting and isolates the role of expected inflation in shaping consumption, savings behavior, and portfolio allocation.

Baseline and policy economies. In the baseline economy, inflation remains constant at π^{base} and both deposit and equity returns follow their pre-shock rules. Households face a stable intertemporal price of consumption and a fixed distribution of real returns.

In the policy economy, expected inflation permanently falls from π^{base} to π^{shock} at time $t = \tau$. This change alters the real return structure by raising the real payoff of assets whose nominal returns do not adjust fully. The difference in real returns across the two economies captures the central mechanism of interest.

Pass-through parameters. The transmission of the reform depends on the pass-through parameters (α_a, α_s) that govern the nominal adjustment of each asset class. The parameter α_a determines whether nominal deposit rates respond to lower expected inflation. When $\alpha_a = 0$, deposit rates are fully rigid, so a fall in expected inflation raises the real return on the safe asset one-for-one.

The parameter α_s governs the nominal adjustment of risky returns. Values of $\alpha_s > 0$ allow partial adjustment, which dampens the rise in real equity returns. When $\alpha_s = 1$, nominal risky returns fully adjust to inflation such that the real return distribution is unchanged. The relative change in real returns across assets is therefore shaped directly by the pair (α_a, α_s).

Treatment effects. Let $x_t \in \{c_t, a_{t+1}, s_{t+1}\}$ denote consumption, safe assets, or risky holdings. Denote cross-sectional averages by $\overline{x}_t^{\text{base}}$ and $\overline{x}_t^{\text{shock}}$ for the baseline and policy economies. The treatment effect at the time of the shock is:

$$\text{TE}_x = \overline{x}_\tau^{\text{shock}} - \overline{x}_\tau^{\text{base}}, \qquad \text{TE}_x^{\%} = 100 \times \frac{\text{TE}_x}{\overline{x}_\tau^{\text{base}}}.$$

These statistics provide a direct comparison of the short-run responses across inflation regimes and map naturally to the reduced-form estimates reported in the empirical analysis.

Impulse responses. To study the dynamic adjustment to the reform, we compute impulse responses, which track how outcomes diverge between the policy and baseline economies after the change in inflation expectations. For any horizon $h = t - \tau$, the impulse response for variable x_t is defined as:

$$\text{IRF}_x(h) = \overline{x}^{\text{shock}}_{\tau+h} - \overline{x}^{\text{base}}_{\tau+h}.$$

This measure captures the difference in average behavior across the two economies at each event time h, allowing us to quantify both the immediate and the subsequent changes in consumption, savings, and portfolio allocations triggered by the reform. Here,we focus primarily on $\text{IRF}_c(0)$, which captures the immediate consumption response, and on $\text{IRF}_a(1)$ and $\text{IRF}_s(1)$, which characterize portfolio adjustments in the period following the shock. These responses allow us to trace how the policy affects the Euler equation channel and the precautionary-savings channel over time.

Overall, the policy experiment provides a transparent and disciplined environment for analyzing how rigid nominal deposit rates and partial adjustment in risky returns generate heterogeneous responses to a decline in inflation expectations. The structure of the model aligns tightly with the empirical design and offers a clear benchmark for interpreting the reduced-form evidence on consumption, saving, and portfolio behavior.