Behaviour, Expectation and Monetary Policy:
A comparative analysis to study economic inequality

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Underpinning

- Monetary policy has distributional impact
- Effective implementation of monetary targets is all about controlling the expected rate of inflation
- Expectation about the future rates is not homogenous across different groups
- This formation is not exogenous
- Salience, culture and context of point of decision play the most important role.

Existing studies ..

- Mester (Mester, 2022) has observed that well anchored inflation expectations play the most important role in achieving monetary policy goals. But the inflation expectation of different groups are different. It is also not clear which expected rate plays the most important role in implementation of monetary targets.

- Singh et. al. (Singh, Mishra & Shaw 2022) Kaplan et. al. (Kaplan & Schulhofer-Wohf 2017) have tried to say that expectations vary among different individuals and apart from different baskets individuals are moved differently along with different motives.

- Gasper et. al. (Gasper, Smets &Vestin, 2010) have found that history plays an significant role in expectation formation but this history keeps on updating continuously.

Existing studies ...

- Hoff and Stiglitz (Hoff & Stiglitz, 2016) have also said that history helps human beings to conceptualise and create alternative **mental schema or mental models**. These models interact with specific contexts to take decisions which leads to over-weightage of a particular alternative.

- This phenomena of overweighting an element from a set of alternatives has been referred to as **salience** by Taylor and Thompsom (Taylor & Thompson, 1982)

- The interaction between context and mental models send a cue to generate salience for a particular alternative. In the construction of context the point of reference plays the most important role.

Existing studies ….

- Kahneman and Tversky (Kahneman & Tversky, 1979) (Tversky & Kahneman, 1991) have shown that human beings always try to compare prospects on the basis of a neutral reference point.

- In the construction of the reference point expenditure cascade hypothesis play an important role (Frank, Levine, & Dijk, 2014).

- Payne et. al. (Payne, Brown-Iannuzzi, & Hannay, 2017) have found that economic inequality seriously impacts the reference point and risk taking behaviour as human beings are upward looking. Higher inequality has same behavioural effect as if everyone else is earning more. The upward comparison increases perceived needs and people accept greater risk to meet those needs.

- According to Orozco (Orozco, 2011) human beings take greater risk when they found themselves below of a reference point and take lower risk when they are above.

Objectives

- Firstly, to understand the importance of salience in selection of expected rate of inflation.
- Secondly, to understand the impact of behavioural traits on implementation of monetary policy targets.
- Thirdly, to understand the role of economic inequality when the monetary authority fails to influence the expected rate of inflation.
- Fourthly, to prescribe measures within a heterogeneous society to effectively implement monetary policy targets.

Methodology

- Theoretical framework
- An algebraic model using Kuhn-Tucker conditions of constrained maximisation and Taylor expansion
- Tested over a primary data of 250 households
- Difference in difference estimation

Assumptions

- Two groups of individuals with different productivities – higher and lower income
- Only higher income group has access to formal credit market
- Considered only *earnings heterogeneity channel*
- *Two periods – t and t+1*
- Two rates of expected inflation π_1 and π_2 with corresponding probabilities p_1 and p_2 where $\pi_2 > \pi_1$

Model

- Individuals want to maximise lifetime utility
- Utility is a function of value functions
- Value functions depend upon consumption and labour supply
- Consumption depends upon price level, expected rate of interest, income and past savings. So the utility as well as value functions depend upon expected rate of inflations.
- Each element from the set of expected inflation relates to a mental schema – which ultimately creates a particular value function

Model

- Individuals are upward looking so the reference points are set through the average consumption of the higher income group.
- Lower income group accepts the higher expected inflation as they take greater risk to follow the higher income group
- So the utility functions are different for the each group
- Naturally the objective functions of each group are different

Model

- The budget constraints for each group are also different as the higher income group has access to the formal credit market
- Apart from these differences it is observed through the constraint maximisation that consumption varies distinctly with the variation of salience even though the other variables remain unchanged.
- So it is the character of salience function which define the consumption, value and the utility functions
- Thus existing inequality would lead to salience heterogeneity and monetary policy will fail to achieve the targets.
- Thus to realise the targets it is needed to eradicate the inequality first through other measures

Model.

- Households' objective is to maximise lifetime utility: $Z = U_t + \beta U_{t+1}$ subject to inter-temporal budget constraints

- Period specific utilities depend upon mental schema based value functions.

- Thus the selected value functions as well as the weights towards the value functions $\alpha(\theta)$ are different for lower and higher income groups.

- Utility and value functions are positive function of consumption and negative function of labour supply irrespective of salience.

Model..

- Past experiences leave durable imprints on individual psychological spaces and create alternative mental models or *mental schema*. So individual behaviour in confronting a particular choice set are endogenous and influenced by the social context, including the actions and beliefs of those around the person and culture. Naturally these mental schemas influence the expectation formation as well as the value functions.

- The context of the point of decision not only prime the mental model it also interacts to draw the context dependent equilibrium outcome.

Model

- The current study aims to present a theory of context-dependent choice in which a consumer's attention is drawn to salient attributes of the concerned variable.
- consumers attach disproportionately high weight to salient attributes.
- In this study the 'rate of expected inflation' is considered as the salient feature
- Both the individuals want to maximise salience based lifetime utility subject to an inter-temporal budget constraint.

Model

- On the basis of the objective function and the budget constraint a Lagrange function is developed.

- Following Kuhn-Tucker condition the system have six equations, with six unknowns.

- Found that consumption expenditure is a function of three factors; $\alpha(\theta)$ – the weight of the mental schema developed with the help of salience, rate of interest and wage rate.

Model

- Heterogeneity of consumption expenditure, however, depends on the functional form of $\alpha(\theta)$.

- Maclaurin series of $\alpha(\theta)$ is formed

- Observed that depending on the functional form of $\alpha(\theta)$, individual household may have different consumption pattern, given same rate of interest and wage rate.

Model

- With fiscal intervention this salience heterogeneity converges to a homogenous value function.

- For efficient distributional impact of the monetary policy and to achieve its target it is needed to be supplemented by fiscal interventions like income transfer in favour of the poor and easy access to credit market for all the individuals within a society.

- In other words, for efficient and optimum operation of monetary policy social inequality is required to be eradicated first. Otherwise, monetary policy would become redundant.

Empirical findings

- Empirical testing is based on primary data collected through questionnaire based door to door survey.
- Sampling followed multi-stage stratified random sampling procedure.
- Survey was conducted twice over the same households using the same questionnaire – initially during May and June 2021 and later during October 2022. During the month of May 2021 the monetary policy was comparatively expansionary with respect to that for the month of October 2022.

Empirical findings

- Collected data comprised of information on different consumptions which are used to construct an index of consumption, using suitable price weights

- Data on short term expected inflation is also collected

- Using econometric methods like the difference in difference estimation the present paper has regressed the per capita consumption expenditure on expected inflation, a dummy variable for sector, which takes the value of 1 if the household belongs to formal sector, 0 otherwise, a period dummy which has assigned the value of 1 for May 2021 and 0 for October 2022,and an interaction term between Sector Dummy and Expected Inflation .

Empirical findings .

- Found that per capita household consumption is positively associated with sector - households employed in formal sector have statistically significant higher consumption compared to households employed in informal sector.

- It is also noteworthy that the coefficient of expected inflation is positive and statistically significant, implying higher expected inflation induces higher increase in consumption.

- Remarkably, coefficient of the interaction term between sector dummy and expected inflation is significantly negative, which indicates that increase in per capita consumption induced by higher expected inflation is significantly higher for households belonging to informal sector.

Empirical findings ..

- The study also examined the difference in expectation formation about short term inflation between the households belonging to formal and informal sectors.

- Again the result indicates that expected inflation of households belonging to formal sector is significantly lower than expected inflation of the households belonging to informal sector.

- This proves that the lower income households put greater salience or higher weight on higher expected inflation.

Empirical findings …

- The current study has also found significantly positive impact of fiscal interventions on reduction of expected inflation.
- In other words it can be said that fiscal interventions has significant impact on formation of expectations about future rates of inflation.
- All these findings corroborate the conclusion as determined by the algebraic model of the current study.

Conclusion

- Found that divergence in expectation formation due to existing inequality within the society makes the monetary policy redundant in achieving the targets.

- To overturn this process of divergence it is needed to bring parity among the risk acceptance attitude of different social groups within the society through mitigating the social inequality.

Conclusion ..

- To that respect fiscal measures can supplement the monetary arrangement and converge the risk acceptance behaviour of the divergent social groups.

- Measures like income transfers in favour of the poor and access of them to the formal credit market can play an important role in developing a consensus about the prospect of a monetary intervention.

- Consensus about the prospect can only initiate a process about the convergence of salience of all the social groups.

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