IARIW 2023

IARIW – BANK OF ITALY 2023

Wednesday, March 29 - Saturday, April 1

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

Sugata Sen
(Panskura Banamali College)
sensugata@gmail.com

Susmita Banerjee
(Charu Chandra College)
bsusmita@rediffmail.com

Soumitra Kundu
(Narasinha Dutt College)
skundu1969@gmail.com

Paper prepared for the Conference on Central Banks, Financial Markets, and Inequality
March 29 – April 1, 2023

Session 2: Monetary Policy and Income Inequality - II

Time: Thursday, March 30, 2023 [11:00 AM -12:30 PM CEST]

Behaviour, Expectation and Monetary Policy:

A comparative analysis to study economic inequality

Sugata Sen,[1] Susmita Banerjee[2], Soumitra Kundu[3]

JEL Code: C23, C61, D81, D91, E12, E31, E42, E58, E63, E71

Abstract: *Economics is increasingly accepting debates about different distributional aspects of monetary policy. Among different channels to transmit the distributional impact the income heterogeneity channel ensures that the efficacy of monetary policy to successfully implement the targets largely depends upon its ability to control expected rates of inflation. The process to form expectations about the future rates is not homogeneous and different individuals accept different rates about the future. In an unequal society this heterogeneity can be explained through expenditure cascading hypothesis and related reference to context. It is observed that the poor generally tend to accept higher expected rates where the richer accept the lower rates. In this perspective the current study has tried to establish an alternative hypothesis with the help of mental schema based salience to explain this expectation heterogeneity. With the help of a dynamic inter-temporal algebraic model and econometric analysis the current study has observed from a primary survey that individuals increase their marginal propensity to consume with higher expected rate of inflation and this higher rate is associated with the comparatively lower income groups. This outcome heterogeneity is strongly associated with heterogeneity in past-experience based mental models, the impending context of references, the inherent idea about prospect and the interaction among these three. Unless this complexity of heterogeneity is overturned the monetary policy will continue to fail to achieve the monetary targets. So to ensure the implementation of the targets it is required to supplement the monetary policy with fiscal interventions and to mitigate the social inequality at first instance.*

[1]Associate Professor of Economics, Panskura Banamali College, Panskura, INDIA. Email: sensugata@gmail.com
[2]Associate Professor of Economics, Charu Chandra College, Kolkata, INDIA
[3]Associate Professor of Economics, Narasinha Dutt College, Howrah, INDIA

Keywords: Heterogenous enculturated agent, Asymmetric credit market, Mental schema, Context of reference, Prospect of outcome, Salience, Expectation, Monetary policy, Fiscal Interventions

1. Introduction

Along with its effort to stabilise the economy the monetary policy is thought to leave some deep distributional impacts on the economy. It is observed that this stabilisation and the effective implementation of monetary targets largely depend upon the controlling of expected inflation. The expectation about the future rate of inflation is not homogenous across different groups of individuals within the economy. Naturally it is a challenge to the monetary authorities to accommodate different expected rates within a single policy to effectively stabilise the economy. The formation of expectations about the future rates is not exogenous to the individuals and it is influenced by the past experiences, salience, culture and the context of the point of decision. As enculturated individuals human-beings assign disproportionate salience based weights to the expected future rates on the basis of a reference point. Here each of the expected rates corresponds to a mental schema which gets primed on the basis of the context. In the presence of expenditure cascading the said context always induce the poor to accept the higher expected rate and the rich the lower one. Thus it is the structure of the society which helps to sustain the expectation heterogeneity with the support from individual behavioural traits. So this work wants to develop a theoretical as well as an algebraic model on the basis of the sequence discussed above. More specifically this work wants to understand the importance of salience based behavioural traits within a heterogeneous society on formations of expectations about future rates of inflation and in maintaining the expectation divergence by making monetary policy redundant. Subsequently, the developed model is tested with the help of panel data regression over a set of data collected through primary survey. The study concludes with a policy prescription and suggestions towards further extensions.

2. Review of existing literature

Christina D. Romer and David H. Romer (Romer & Romer, 2009) have examined the role and influences of monetary policy on poverty and inequality. Their study observed the diametrically opposite impact of the monetary policy in short run and long run perspectives. They found that the short run and long run relationships move in opposite directions. But the

paper found that the conditions of the poor improved in both the short run and the long run periods. But the short run gains are temporary in nature whereas the long run gains are stable which permanently improve the economic conditions for the poor. Coibion et. al. (Coibion, Gorodnichenko, Kueng, & Silvia, 2012) have shown that the heterogeneous impact of monetary policy is not confined only within the rich and poor. This heterogeneity can be ramified due to the existence of different transmission channels like income composition channel, financial segmentation channel, savings redistribution channel and earning heterogeneity channel. These channels help monetary policy shocks to create sustained effects on inequality which leads to income and consumption inequality across the economy. Mersch (Mersch, 2014) has also observed that monetary policy largely impacts the distributional consequences through the mechanism of monetary transmission. His study observed that monetary policy created strong distributional impacts leading to widespread inequalities. Monetary shocks impact the savers and the debtors differently. The ultra low interest rates have helped to gain the net borrowers like the young households while the others have been affected severely. On the other hand quantitative easing helps to increase the asset prices which excludes the lower earners and thereby increases the inequality. But finally, mentioning different real world examples the author concluded that the impact of monetary policy on inequality is not straightforward and does not always follow the same rule.

Ampudia et. al (Ampudia, Georgarakos, Slacalek, Tristani, Vermeulen, & Violante, 2018) have tried to review the distributional impact of monetary policy on household income, wealth and consumption. They have seen that a reduction in policy interest rate leads to reduce income inequality as this reduction or quantitative easing creates a favourable atmosphere towards increase in employment of the low-income households. But monetary policy creates heterogeneous impact through direct and indirect effects. As a direct effect interest rate changes can influence the net lenders and net borrowers differently. On the other hand the indirect impact can influence the society differently through the general equilibrium framework. But the implication of these direct and indirect impacts is not trivial across households. For the poor household with less liquid assets this impact on consumption is large whereas for the rich – with large liquid assets, this impact is negligible. Interestingly, they observed that due to financial easing the poor either remained unaffected or experienced a net increase in financial income. But the rich suffered an income loss after the easing.

Further they observed that indirect effect is quantitatively more important and all the households benefitted from it.

Casiraghi et. al. (Casiraghi, Gaiotti, Rodano, & Secchi, 2018) have tried to estimate the short run distributional impact of monetary policy on inequality through earning composition channel, savings remuneration channel and asset price channel; compare the individual impact of these channel and to assess the joint impact of these channels on inequality index. To that respect they first tried to capture the impact of monetary policy changes on a series of macroeconomic and financial variables. Then they tried to map the responses of these variables through the aforestated channels on the household characteristics and individual balance sheets. Finally they combine the results of responses from macroeconomic and financial variables from the households to compute the inequality indexes. They did not find that the effects of non-standard measures are different from that of conventional monetary measures. They found that due to favourable impact on business cycles the expansionary monetary policy supports the poor through wage and employment. Richer households undoubtedly benefits from the capital gains of their financial assets but the poor also gains from the strong leverages. Conclusions based on a single channel outcome, like savings expropriations are misleading as the decrease in savings outcome is compensated by the increase in labour income and capital gains.

As a contrast to the above mentioned studies Turdaliev (Turdaliev, 2019) has observed that the monetary policy which is concerned about equality within a population with heterogeneous productivity demonstrates a higher than efficient level of inflation. According to the study monetary tools are not adequate to look after the problem of inequality and Pareto efficient allocation can only be achieved through following Friedman rule. There exists a trade-off between equality and efficiency. Interventions to correct any distribution which follow Friedman rule can follow deviations from the efficient frontier. The concern about equality through monetary policy can only deliver a higher level of inflation. The study showed that up to certain extent inflation helps redistribution in favour of low productivity workers from high productivity workers. So they have advocated to put a higher weight on the high productivity workers instead of equal weight and concluded that equality should not be the concern of monetary authorities.

Vellekoop et. al. (Vellekoop & Wiederholt, 2019) have tried to understand whether expected inflation influence individual choice. To that respect they have examined the basic premise of

New Keynesian proposition of tight link between expected inflation and consumption-savings decisions. To come to conclusion the study has used panel data analysis on secondary data. They found that households with higher expected inflation save less. Households form expectations on the basis of different signals and increases in expected rates stimulate spending.

Mester (Mester, 2022) has tried to show that the effectiveness of monetary policy depends largely upon the proper estimation of expected inflation. Inflation dynamics depend upon forward looking measures of inflation expectations. The study observed that well anchored inflation expectations play the most important role in achieving monetary policy goals. Well anchored inflation expectations help to reduce the impact of resource gap on inflation. But the inflation expectations of different groups can be different and it is not clear which inflation would play important role in implementing the monetary policy goals. At the same time the direction of causal relation between observed inflation and expected inflation is also not clear. So it is not clear how the individuals form expectations about the rate of inflation.

Singh et al (Singh, Mishra, & Shaw, 2022) have tried to say that different households have different baskets of goods and services along with different motives which determine their inflation expectations. Naturally, expectation about the inflation depends upon the concerned basket and the purpose for which that basket would be used. The wage earners, the financial asset owners and the entrepreneurs have different reasons to form expected inflation rates standing upon their corresponding baskets and quite plausibly have different values of expected inflation.

Gaspar et. al. (Gaspar, Smets, & Vestin, 2010) have tried to understand the process through which the individuals form expectations. They have assumed that the individual agents are not fully knowledgeable about the economy and naturally form expectation on the basis of the historical behaviour of the concerned variable. But the individuals continuously update their understanding about the variable with the changes in available information. The continuous updating of the information collected through historical behaviour with the current available information has been termed as adaptive learning. This adaptive learning can be understood as adjusted rational expectation framework. This study has tried to analyse the implication of adaptive learning for the conduct of monetary policy. They actually have tried to understand whether monetary policy can become a robust instrument in the management of inflation expectation - like rational expectation models under New Keynesian

economics, when agents use adaptive learning. In this perspective they have also tried to observe the monetary policy responses to shocks and associated macro-economic outcomes when the central bank minimises an explicit loss function and have full understanding about the economy including the private sector expectations. They found that the model consistent expectations are strengthened with the adaptive learning. The gains from anchoring of inflation or inflation expectation increase significantly when expectations are formed according to adaptive learning.

The study of Kaplan et. al. (Kaplan & Schulhofer-Wohl, Inflation at the household level, 2017) has tried to disclose that the aggregate price index may not be able to accommodate the commodity bundles, prices and the inflation rates experienced by different households. To access the impact of monetary policy on household choices it is needed to know the behaviour of inflation at the household levels rather than aggregate level. They found that the inflation at the household levels is distinctly different from the aggregate. The lower income households have experienced higher inflation over the same time frame as compared to the higher income households. This negative correlation between income and inflation rate implies that the inequality of real income is moving faster than the nominal income. They also observed, as expected, that the households substitute towards lower priced commodities in the face of inflation. But this substitution pattern also varied largely among the households like the inflation rate.

As human beings are subject to idiosyncratic shocks the formation of expectation about future rates of inflation can vary from one another. So accepting a certain expected rate of inflation is nothing but explaining the choice from a set of alternative expected inflations. Following the study of Hoff and Stiglitz (Hoff & E. Stiglitz, 2016) it can be stated that the set of alternative inflation rates within an agent is created through past social experiences and the social structures through which the agent has traversed. History within a human being helps him or her to process information and to conceptualise the context. These conceptualizations and processing create alternative mental models or *schemas* within the psychological space of the agent. Any one of these *schemas* can be drawn upon to interpret a situation or to explain a choice. The social context of the decision moment and the mental models interact to influence the agent to take the decision. So *culture* prints durable effects on individual behaviour which ultimately influence the *enculturated agent* to take any sort of decision – economic or non-economic. Naturally the individual perception about the future rates of inflation can differ from each other on the basis of the diverse *culture*, context and *mental*

models of that particular agent. This individual perception can induce an individual to overweight an element from a set of alternatives. This phenomenon of overweighing an element from a set of alternatives has been referred to as salience by Taylor and Thompson (S.E.Taylor & Thompson, 1982); "*Salience refers to the phenomenon that when one's attention is differently directed to one portion on the environment rather than to others, the information contained in that portion will receive disproportionate weighing in subsequent judgments*". Bordalo et. al. (Bordalo, Gennaioli, & Shleifer, 2013) have also stressed the interplay of attention and choice in the picking of an alternative from an available set. This salience can also depend upon rational expectations about any attribute concerned with the selection. Their study has tried to show that the salient feature is based on *ex-post* attention allocation within a set of alternatives. Bruin et al (Bruin, Vanderklaauw, Downs, Fischhoff, Topa, & Armantier, 2010) have found that higher price rise is more salient than the lower price rises while increase in prices is more salient than decrease in prices or stable prices. But this impact of salience is more pronounced among the individuals with lower financial planning horizons. As the lower income individuals have lower planning horizons they are more sensitive about the higher expected inflation. At the same time individuals without financial literacy and lower levels of education generally tend to overestimate the expected inflation rate.

This salience behaviour can be influenced strongly by the ideas of context dependent choice and reference points (Kahneman & Tversky, 1979) (Tversky & Kahneman, 1991). Human beings always try to compare the prospect of any event through a given neutral reference point – which may be the current asset position. People normally perceive the outcome of any event as gain or loss from that reference point. Further, every prospect – gain or loss, can be defined as risky as well as riskless components i.e. the decomposed elements of a prospect can be understood as risky as well as riskless outcomes. The acceptance of any element from the set of decomposed elements of any prospect is guided by the *reflection effects* present within human choice behaviour. This dominance of any decomposed element over the set of prospects is based upon the cancellation of the alternatives available within the set of probable prospects. This cancellation is related to the construction of a value function containing the elements of the prospect set of an event. In case of loss human beings accept the value function containing the sure loss which corresponds to the prospect with minimum probability.

In the construction of reference point the *Expenditure Cascade Hypothesis* developed by Frank et al (Frank, Levine, & Dijk, 2014) plays an important role. According to this hypothesis current consumption depends upon the context apart from the permanent income. They have advanced an extended version of the *Permanent Income Hypothesis*[4] where they have shown that people generally looks upward on the income distribution scale. On the basis of this context dependence the change in consumption of any income group percolates to the lower income groups subsequently. Thus a change in current consumption is time and space specific. Further, as current consumption is impacted by cascading effect, income inequality within a group leads to reduction in average savings related to that group. As an extension of this hypothesis Payne et al (Payne, Brown-Iannuzzi, & Hannay, 2017) have observed that economic inequality seriously impacts the risk taking behaviour of the human beings. More specifically, ability to accept risk has positive relationship with economic inequality 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. This risk taking behaviour of the human beings has nicely been presented by Orozco (Orozco, 2011). According to his observation human beings take greater risk when they found themselves below of a reference point and take lower risk when they are above.

Thus it appears that monetary policy can leave divergent distributional impacts on different groups of human beings which can create sustained inequality within the society. But the effectiveness and efficiency of the monetary policy largely depends upon the proper estimation of the expected inflation. So it is not the observed impact of the monetary policy but the expectation about the possible impact of monetary policy on different groups of individual which plays the most important role in effective implementation of monetary targets. As different groups of individuals form expectations differently the impact of expected rates on different groups are also different. This formation of expectations can be explained as choice behaviour where an individual choose a particular expected rate from a basket of future rates. These alternatives are created through the history based mental models within the said individual and the socio-economic culture that the said person nurtures. This history and culture helps to develop salience based overweight for a particular choice through interaction with the context of decision. It is thought that the salience function is composed of

[4] Friedman, M. (1957). The Permanent Income Hypothesis. In M. Friedman, *A Theory of the Consumption Function* (pp. 20 - 37). Princeton University Press.

a reference point which is constructed through expenditure cascading hypothesis. Thus the interaction between endogenous behavioural traits along with the context of decision plays the most important role in the effective implementation of the monetary policy. Naturally it is the cultural history of the individuals along with the context of decision which explains the character of monetary policy induced inequality within a society. So the specific objectives of this study are the following.

3. 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 dynamics behind 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.

4. Methodology

Apart from developing a theoretical understanding this study has tried to supplement that with an algebraic interpretation. The current mathematical model has extensively used Kuhn-Tucker conditions for constraint maximisation (Zornig, 2014) and Taylor expansion of the functional forms (Roy, 2021). Subsequently the model is tested over a sample of 250 households. Data were collected through questionnaire based door to door primary survey from different locations of the province of West Bengal in India. Sampling followed multi-stage stratified random sampling procedure. After clearing the noise and out-liars the sample size reduced to the current figure. The study collected primary data on consumption, expected inflation and fiscal policy intervention from the said 250 households comprising formal as well as informal sector workers from urban, semi urban and rural locations of West Bengal, using the method of stratified random sampling technique, for two different time periods in 2021 and 2022. 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. In May 2021 the Reserve Bank of India declared cash reserve ratio was 3.5 percent, bank rate was 4.25 percent and repo rate was 4 percent. In October 2022

the cash reserve ratio became 4.5 percent, bank rate became 6.15 percent and repo rate became 5.9 percent (Reserve Bank of India, 2021) (Reserve Bank of India, 2022). Collected data comprised of information on consumption of per capita intakes of pulses, animal protein, milk, edible oils as well of consumption of energy (fuel). These data on consumption are used to construct an index of consumption, using suitable price weights (Government of India, 2023) (Ministry of Labour and Employment, Government of India, 2021) (Ministry of Labour and Employment, Government of India, 2022). Data on short term expected inflation is also collected from the sample households. Within the current study the high productivity (high income) workers are termed as workers from formal sector and low productivity (low income) worker are termed as workers from informal sector.

Using econometric methods like the difference in difference estimation the present paper intends to understand the character of the asymmetric impact of expected inflation on different income groups. To that respect the current study has used the pooled regression analysis, regressing the per capita consumption (C) expenditure on expected inflation (EI), a dummy variable for sector (SD), which takes the value of 1 if the household belongs to formal sector, 0 otherwise, a period dummy (PD) which is assigned the value of 1 for May 2021(period with comparatively expansionary monetary policy) and 0 for October 2022, and an interaction term between Sector Dummy and Expected Inflation (ISE). Thus the regression equation is

$$C = \alpha + \beta\, SD + \gamma\, PD + \delta\, EI + \eta\, ISE$$

The interaction term is introduced to examine the differential effect of expected inflation on per capita consumption for households belonging to informal sector. A statistically significant coefficient of this interaction term implies asymmetric impact of expected inflation on different income groups.

To examine the difference in expectation formation about short term inflation between the households belonging to different (formal and informal) sectors, if any, the regression of the following form is used.

$$EI = a + b\, SD$$

Using the pooled data collected from our survey a statistically significant coefficient of SD (b) would indicate difference in short term expected inflation across sectors. Here EI is

expected inflation and SD is a dummy variable for sector, which takes the value of 1 if the household belongs to formal sector, 0 otherwise,

To examine the differential effects, if any, on expected inflation among the households belonging to informal sector itself, resulting from a fiscal intervention which bestows 'free health insurance benefits' to a significant numbers of informal sector households during our study period, regression from the pooled data of following form is used.

$$EI = a_1 + b_1 HI$$

Here EI is expected inflation and HI is dummy variable which takes the value of 1 for those informal sector households who are covered under the free health insurance scheme, 0 otherwise.

5. Conceptual framework

The model developed within the current study assumes two groups of individuals with different productivities and corresponding different income levels. Irrespective of productivities all households intend to maximise their lifetime utility which is an increasing function of both income and consumption. However, the higher income group has easy access to the formal credit market and the lower income group is assumed to have no access to the said market. As the higher income group has access to the credit market consumption smoothing (Hall, 1978) is easier for them as compared to the other. So, the higher actual inflation affects the richer less as compared to the poorer. Though the higher income group has easy access to credit market, this model assumes that the relative importance of labour income is much higher than the other sources of earnings for the higher income individuals to consider the consumption choices. More specifically, this work has studied the impact of monetary policy on inequality through *earnings heterogeneity channel* (Coibion, Gorodnichenko, Kueng, & Silvia, 2012).

Let us assume that time is discrete and the individual lives for two periods, period t and period t+1. Individuals discount the future at $\beta \in (0,1)$. All agents consume perfectly divisible goods. Households possess a separable utility function, U_t which is a positive function of consumption, C_t, and a negative function of labour supply, η_t, total labour hour. Now, $T = \eta + l$, where, T represents total available time and l denotes leisure.

If household n consumes $C_t > 0$ goods and supplies $\eta_t > 0$ labour on period t, then the household's utility U_t, ($\frac{dU}{dc} > 0$ and $\frac{dU}{d\eta} < 0$) is twice continuously differentiable, strictly increasing, and concave, and g is convex with g(0). Here C_t is a function of P_t – price level in period t, π - expected rate of inflation, $W_t(\eta_t)$ – wage in period t and S_{t-1} - savings accrued in period t-1. Households' objective is to maximise lifetime utility: $Z = U_t + \beta U_{t+1}$

The current model assumed that there are two types of individuals, high-skilled and low-skilled. For the first type of individuals, $\eta_t = \eta_{ht,}$ and for the low-skilled individuals, $\eta_t = \eta_{ut}$. The wage rate is a function of, η_t :$W_{ht} = W(\eta_{ht})$ and $W_{ut} = W(\eta_{ut})$, where $W_{ht} > W_{ut.}$

Let us assume that, 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. Past experiences leave durable imprints on individual psychological spaces and create alternative mental models or *mental schema*. At the point of choice the socio-economic atmosphere sends cues to activate a particular *mental schema.* The context of the point of decision not only prime the mental model it also interacts to draw the equilibrium outcome. Thus the individuals are not only rational actors they are enculturated agents also (Hoff & E. Stiglitz, 2016). 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. It is established that consumers attach disproportionate high weight to salient attributes. This weight is generated through group specific salience functions (Bordalo, Gennaioli, & Shleifer, 2013). The current study accepts that the consumer's choice is shaped by the most salient aspects in the choice context he faces. It is accepted here that the interaction between the context of decision and existing mental models help to construct salient behaviour. In this study the 'rate of expected inflation' is considered as the salient feature, which plays a crucial role on individual consumption behaviour.

Let there be two expected rate of inflations π_1 and π_2 with corresponding probabilities p_1 and p_2 . Following these rates let us consider two states (which can be termed as the *mental schema*): a state of high expected rate of inflation (State A) and a state of low expected rate of inflation (State B). Here State A is related to π_2 and State B is related to π_1. Individual utility depends upon the salience of each of the two *mental schemas*. Let U_t be the weighted sum of the values from these two *schemas* at period t, such that

$$U_t = \alpha(\theta).\, V_t^A + [1 - \alpha(\theta)].\, V_t^B \quad \text{and}$$

$$U_{t+1} = \alpha(\theta).\ V_{t+1}^{A} + [1 - \alpha(\theta)].\ V_{t+1}^{B}$$

Here θ is the salience of choice behaviour, in this case related to the expected rate of inflation. α(θ) is the extent of disproportionate weight developed by salience θ.

V^A is the value function of the individual in State A.

V^B is the value function of the individual in State B.

Now the set of expected inflation can be defined as

$$EI = \{(\pi_1, p_1), (\pi_2, p_2)\ \}$$

Where $\pi_1 < \pi_2$ and $p_1 + p_1 = 1$

If there is no definite salience and an individual is not concerned about the attribute called "expected rate of inflation" then reference level of the attribute may be regarded as $\bar{\pi}$ where

$$\bar{\pi} = \frac{\pi_1 + \pi_2}{2}$$

Now in the presence of mental schema induced salience the set of expected inflation for low productivity workers and the high productivity workers would be different. A salient thinker inflates the relative weight attached to the attribute he perceives to be more salient. Let the set of expected inflation being followed by the low productivity workers is EI^u and the same for the high productivity workers is EI^h.

It is assumed that the low productivity households maintain inadequate savings and they cannot enter the credit market. Naturally their mental schema would always put their salience on higher expected inflation and take steps to cover their consumption basket in anticipation of unexpected shocks. Here it is to be kept in mind that due to *reflection effect* (Kahneman & Tversky, 1979) human beings accept lowest expected loss as the sure loss. In this model the set of expected inflations is strictly positive and hence the corresponding outcome set is strictly negative showing only the loss from the *reference point* (Kahneman & Tversky, 1979) (Tversky & Kahneman, 1991). Though the prospect theory advocates about the acceptance of minimum loss as sure loss and shows the acceptance of that sure loss as the natural human behaviour this work wants to depart from that conclusion. As the low productivity individuals have lesser savings and restrictions to credit market they accept the higher expected rate of inflation as the natural choice. This acceptance of higher rate helps them to restructure their commodity basket in advance from any unanticipated transitory

shocks. The motive behind this restructuring can be understood from the *Expenditure Cascading Hypothesis* (Frank, Levine, & Dijk, 2014). This motive is undoubtedly influenced by inequality induced risk (Payne, Brown-Iannuzzi, & Hannay, 2017). From these studies it has been observed that human-beings accept greater risk when they find themselves lagging from a reference context. The relative position with respect to that reference plays the most important role in explaining choice behaviour in the presence of risk. Within the current study the reference point may be determined through the average consumption of the higher productivity workers – as described by the *expenditure cascading hypothesis*. Following that the lower productivity workers would like to pull greater risk in comparison to the high income individuals (Orozco, 2011). So, in the presence of salience the set of expected inflation for the lower productivity households can be written as

$$EI^u = \{(\bar{\pi}, p_1), (\alpha^u(\theta^u).\pi_2, p_2)\}$$

Where π_2, $\bar{\pi} > 0$ and $p_1 + p_2 = 1$

Here $\alpha^u(\theta^u)$ is the extent of disproportionate weight developed by salience θ^u of the lower productivity workers where $\alpha^u(\theta^u) = 1$.

The salience function of the lower productivity household can be defined as $\theta^u = \theta^u(M_u^A, M_u^B, \psi^t)$, where M_u^A and M_u^B are *mental schemas* of the lower productivity workers related to state A and state B respectively. ψ^t is the context being faced by both lower productivity workers and higher productivity workers in period t.

Then $U_t^u = \alpha_t^u(\theta^u).V_{u.t}^A + [1 - \alpha_t^u(\theta^u)].V_{u.t}^B$

Here $V_{u.t}^A$ is the value function of low productivity workers in period t for state A, which is related to higher rate of expected inflation π_2. Likewise $V_{u.t}^B$ is the value function of the low productivity workers in period t for state B, which is related to lower rate of expected inflation π_1. According to the assumptions of this model $\alpha_t^u(\theta^u) = 1$ and hence

$$U_t^u = \alpha_t^u(\theta^u).V_{u.t}^A \text{ and similarly}$$

$$U_{t+1}^u = \alpha_{t+1}^u(\theta^u).V_{u.t+1}^A$$

On the other hand, the higher productivity workers have access to credit market and can save adequately to smooth any unanticipated transitory shock. So their mental schema would always induce them to accept less risky lower or sure loss. So they would always induce their salience for lower expected inflation. This is the transitory risk acceptance behaviour which

induces the human beings to behave differently in the presence of risk. Thus for the higher productivity individuals the set of expected inflation is

$$EI^h = \{(\alpha^h(\theta^h).\ \pi_1,\ p_1\ ),\ (\bar{\pi}, p_2\ )\}$$

Where π_1, $\bar{\pi} > 0$ and $p_1 + p_2 = 1$

Here $\alpha^h(\theta^h)$ is the extent of disproportionate weight developed by salience θ^h of the higher productivity workers where $\alpha^h(\theta^h) = 1$.

The salience function of the higher productivity household can be defined as $\theta^h = \theta^h(M_h^A, M_h^B, \psi^t)$, where M_h^A and M_h^B are *mental schemas* of the higher productivity workers related to state A and state B respectively. ψ^t is the context being faced by both lower productivity workers and higher productivity workers in period t.

Then $U_t^h = \alpha_t^h(\theta^h).V_{h.t}^B + [1 - \alpha_t^h(\theta^h)].V_{h.t}^A$

Here $V_{h.t}^A$ is the value function of higher productivity workers in period t for state A, which is related to higher rate of expected inflation π_2. Likewise $V_{h.t}^B$ is the value function of the higher productivity workers in period t for state B, which is related to lower rate of expected inflation π_1. According to the assumptions of this model $\alpha_t^h(\theta^h) = 1$ and hence

$$U_t^h = \alpha_t^h(\theta^h).V_{h.t}^B \text{ and similarly}$$

$$U_{t+1}^h = \alpha_{t+1}^h(\theta^h).V_{h.t+1}^B$$

Now, we know that $Z = U_t + \beta U_{t+1}$

Then $Z^h = U_t^h + \beta U_{t+1}^h$ is the value function for high-skilled labour force and $Z^u = U_t^u + \beta U_{t+1}^u$ is the value function for low-skilled labour force. And, $\frac{dZ^u}{d\pi_2} < \frac{dZ^h}{d\pi_1}$, where $\frac{dZ^i}{d\pi_j} < 0$ and i = u, h ; j = 1, 2; $\left|\frac{dZ^u}{d\pi_2}\right| > \left|\frac{dZ^h}{d\pi_1}\right|$.

Now, let, consumption, C_t is a function of prices of commodities (p_t), expected rate of inflation (π), income ($W_t\eta_t$) and past savings (S_{t-1}). Savings include certain income from the bank [$S_{0,t-1}(r)$] plus income from the bond market [$S_{b,t-1}(r)$]. Further, low-skilled households are not allowed to formal credit and they do not invest in bond market as well. B_t is the amount of credit available to the high-skilled household.

Then for high-skilled workers the inter-temporal budget constraints can be written as:

For First period: $W_h\eta_{ht} + B_t \geq C_{h.t} + S_{h.t}$

i.e. $W_h\eta_{ht} \leq C_{h.t} + S_{h.t}$

For second period: $W_h\eta_{h,t+1} + (1+r)S_{h.t} \geq C_{t+1} + (1+r)\ B_t$

Intertemporal budget equation:

$[W_h\eta_{ht} + B_t] + [W_h\eta_{h,t+1} + (1+r)S_{h.t}]/(1+r) \geq [C_{h.t} + S_{h.t}] + [C_{h.t+1} + (1+r)\ B_t]/(1+r)$

And, $W_h\eta_{ht} \leq C_{h.t} + S_{h.t}$

And for the low-skilled household, the inter-temporal budget constraint is

$[W_u\eta_{ut}] + [W_u\eta_{u,t+1} + (1+r)S_{u.t}]/(1+r) \geq [C_{u.t} + S_{u.t}] + [C_{u.t+1}]/(1+r)$

And, i.e. $W_u\eta_{ut} \geq C_{u.t} + S_{u.t}$

Thus, this study has made an attempt to solve two problems; one for high-skilled households and another for the low-skilled household.

Now, for the high productivity workers

Max $Z^h = U_t^h + \beta U_{t+1}^h$

Subject to, $[W_h\eta_{ht} + B_t] + [W_h\eta_{h,t+1} + (1+r)S_{h.t}]/(1+r) \geq [C_{h.t} + S_{h.t}] + [C_{h.t+1} + (1+r)\ B_t]/(1+r)$

And, $W_h\eta_{ht} \leq C_{h.t} + S_{h.t}$

Where $U_t^h = \alpha_t^h(\theta^h).V_{h.t}^B$ and similarly

$U_{t+1}^h = \alpha_{t+1}^h(\theta^h).V_{h.t+1}^B$

Again $V_{h.t}^B = [u(C_{h.t}^B) - g(\eta_{ht})] = V_{h.t}^B(C_{h.t}, \eta_{ht})$

and $V_{h.t+1}^B = [u(C_{h.t+1}^B) - g(\eta_{ht+1})] = V_{h.t+1}^B(C_{h.t+1}, \eta_{ht+1})$

$\beta \in (0,1)$

$\alpha^h(\theta^h) \in (0,1)$ and $\frac{d\alpha}{d\theta} > 0$

$C_t^h = C_t^h(P_t, \pi_1, W_t.\eta_{ht}, S_{h.t-1})$

$S_{h.t-1} = S_{h.0,t-1}(r) + S_{b,t-1}(r).$

Then, for the low productivity workers

Max $Z^u = U_t^u + \beta U_{t+1}^u$

Subject to, $[W_u\eta_{Lt}] + [W_u\eta_{L,t+1} + (1+r)S_{u.t}]/(1+r) \geq [C_{u.t} + S_{u.t}] + [C_{u.t+1}]/(1+r)$

And, $W_u\eta_{Lt} \geq C_{u.t} + S_{u.t}$

Where $U_t^u = \alpha_t^u(\theta^u).V_{u.t}^A$ and similarly

$U_{t+1}^u = \alpha_{t+1}^u(\theta^u).V_{u.t+1}^A$

Again $V_{u.t}^A = [u(C_{u.t}^A) - g(\eta_{ut})] = V_{u.t}^A(C_{u.t}, \eta_{ut})$

and $V^A_{u.t+1}$ = [u($C^A_{u.t+1}$) – g(η_{ut+1})] = $V^A_{u.t+1}$($C_{u.t+1}$, η_{ut+1})

$\beta \epsilon (0,1)$

$\alpha^u(\theta^u) \epsilon (0,1)$ and $\frac{d\alpha}{d\theta}>0$

$C^u_t = C^u_t(P_t , \pi_2 , W_t.\eta_{ut}, S_{u.t-1})$

$S_{t-1} = S_{0,t-1}(r)$

So the optimisation problem for the high skilled workers is

Max $Z^h = U^h_t + \beta U^h_{t+1}$

$= \alpha^h_t(\theta^h).V^B_{h.t} + \beta\alpha^h_{t+1}(\theta^h).V^B_{h.t+1}$

$= \alpha^h_t(\theta^h).V^B_{h.t}(C_{h.t} , \eta_{ht}) + \beta\alpha^h_{t+1}(\theta^h).V^B_{h.t+1}(C_{h.t+1} , \eta_{ht+1})$

Subject to,

$[W_h\eta_{ht} + B_t]+[W_h\eta_{h,t+1} +(1+r)S_{h.t}]/(1+r) \geq [C_{h.t} +S_{h.t}]+ [C_{h.t+1}+(1+r) B_t]/(1+r)$

And, $W_h\eta_{ht} \leq C_{h.t} +S_{h.t}$

Then the Lagrange function can be written as

$L = \alpha^h_t(\theta^h).V^B_{h.t}(C_{h.t} , \eta_{ht}) + \beta\alpha^h_{t+1}(\theta^h).V^B_{h.t+1}(C_{h.t+1} , \eta_{ht+1})$

$+\lambda\{W_h\eta_{ht} + B_t +[W_h\eta_{h,t+1} +(1+r)S_{h.t}]/(1+r) - [C_{h.t} +S_{h.t}]- [C_{h.t+1}+(1+r) B_t]/(1+r)\}+\gamma (W_h\eta_{ht}- C_{h.t} -S_{h.t})$

……(1)

Where, λ, γ Lagrange multiplier and let $\lambda, \gamma \geq 0$

Differentiating Equ(1) with respect to $C_{h.t}$, $C_{h.t+1}$, η_{ht},, η_{ht+1} , λ and γ, we have following Kuhn_Tucker conditions.

$\frac{\partial L}{\partial C_{h.t}} = \alpha^h_t(\theta^h).\frac{\partial V^B_{h.t}}{\partial c_{h.t}} + \lambda(-1) + \gamma(-1) = 0, C_{h.t} > 0$ ..... (2)

$\frac{\partial L}{\partial C_{h.t+1}} = \beta\ \alpha^h_{t+1}(\theta^h)\ \frac{\partial V^B_{h.t+1}}{\partial c_{h.t+1}} + \lambda(-\frac{1}{1+r}) = 0, C_{h.t+1} > 0$ ..... (3)

$\frac{\partial L}{\partial \eta_{h.t}} = \alpha^h_t(\theta^h).\frac{\partial V^B_{h.t}}{\partial \eta_{h.t}} + \lambda(W_h) + \gamma(W_h) = 0, \eta_{h.t} > 0$ ..... (4)

$\frac{\partial L}{\partial \eta_{h.t+1}} = \beta\ \alpha^h_{t+1}(\theta^h)\ \frac{\partial V^B_{h.t+1}}{\partial \eta_{h.t+1}} + \lambda(\frac{W_h}{1+r}) = 0, \eta_{h.t+1} > 0$ ..... (5)

$\frac{\partial L}{\partial \lambda} = W_h.\eta_{h.t} + B_t + \frac{W_h.\eta_{h.t+1}+(1+r)S_{h.t}}{1+r} - (C_{h.t} + S_{h.t}) - \frac{C_{h.t+1}+(1+r)B_t}{1+r} \geq 0\ ,\ \lambda \geq 0,\ \lambda\frac{\partial L}{\partial \lambda} = 0$ .....(6)

$\frac{\partial L}{\partial \gamma} = W_h.\eta_{h.t} - C_{h.t} - S_{h.t} \geq 0, \gamma \geq 0, \gamma\frac{\partial L}{\partial \gamma} = 0$ .....(7)

From equation (3) we get

$\beta\ \alpha_{t+1}^{h}(\theta^{h})\ \frac{\partial V_{h.t+1}^{B}}{\partial c_{h.t+1}} + \lambda(-\frac{1}{1+r}) = 0$

$\Rightarrow \lambda = (1+r)[\ \beta\ \alpha_{t+1}^{h}(\theta^{h})\ \frac{\partial V_{h.t+1}^{B}}{\partial c_{h.t+1}}]$ .....(8)

From equation (5) we get

$\beta\ \alpha_{t+1}^{h}(\theta^{h})\ \frac{\partial V_{h.t+1}^{B}}{\partial \eta_{h.t+1}} + \lambda(\frac{W_h}{1+r}) = 0$

$\Rightarrow \lambda = -\ \frac{\beta\ \alpha_{t+1}^{h}(\theta^{h})\frac{\partial V_{h.t+1}^{B}}{\partial \eta_{h.t+1}}}{W_h}(1+r)$ .....(9)

From Equ (8) and Equ (9) we can write

$(1+r)[\ \beta\ \alpha_{t+1}^{h}(\theta^{h})\ \frac{\partial V_{h.t+1}^{B}}{\partial c_{h.t+1}}]\ = -\ \frac{\beta\ \alpha_{t+1}^{h}(\theta^{h})\frac{\partial V_{h.t+1}^{B}}{\partial \eta_{h.t+1}}}{W_h}(1+r)$ ..... (10)

Assuming, $\frac{\partial V^{B}}{\partial \eta_{h,t+1}}$ *as* strictly negative and $\frac{\partial V^{B}}{\partial C_{h.t+1}}$ as strictly positive, from equation (10) we can conclude that $\lambda > 0$.

Hence, we can write equation (6) as

$W_h.\eta_{h.t} + B_{t+}\ \frac{W_h.\eta_{h.t+1} + (1+r)S_{h.t}}{1+r}\ -(C_{h.t} + S_{h.t}) - \frac{C_{h.t+1} + (1+r)B_t}{1+r} = 0$.....(6')

Similarly, from (2) we get

$\alpha_t^h(\theta^h).\ \frac{\partial V_{h.t}^{B}}{\partial c_t} - (\lambda + \gamma) = 0$

$\Rightarrow (\lambda + \gamma) = \alpha_t^h(\theta^h).\ \frac{\partial V_{h.t}^{B}}{\partial c_{h.t}}$

From Equation (4) we get

$\alpha_t^h(\theta^h).\ \frac{\partial V_{h.t}^{B}}{\partial \eta_{h.t}} + W_h(\lambda + \gamma) = 0$

$\Rightarrow (\lambda + \gamma) = -\ \frac{\alpha_t^h(\theta^h).\frac{\partial V_{h.t}^{B}}{\partial \eta_{h.t}}}{W_h}$

Then,

$W_h\alpha_t^h(\theta^h).\ \frac{\partial V_{h.t}^{B}}{\partial c_{h.t}} = -\ \alpha_t^h(\theta^h).\ \frac{\partial V_{h.t}^{B}}{\partial \eta_{h.t}}$ ..... (11)

Similarly $(\lambda + \gamma) > 0$

Thus we have six equations, with six unknowns. Hence, applying trial and error method, we can solve all the endogenous variables, $C_{h.t}$, η_{ht}, $C_{h.t+1}$,η_{ht+1}, λ and γ in terms of the variables

$\alpha(\theta), r \; and \; W_h$. Thus, 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. Heterogeneity of consumption expenditure, however, depends on the functional form of $\alpha(\theta)$. Using Taylor's expansion, which approximates a function such as $\alpha(\theta) \; around \; the \; point \; \theta_0$, we get

$$\alpha(\theta) = \frac{\alpha(\theta_0)}{0!} + \frac{\alpha'(\theta_0)}{1!}(\theta - \theta_0) + \frac{\alpha''(\theta_0)}{2!}(\theta - \theta_0)^2 + \cdots \ldots\ldots\ldots\ldots + \frac{\alpha^{(n)}(\theta_0)}{n!}(\theta - \theta_0)^n$$

If we expand the function around the point "0", we will have Maclaurin series.

$$\alpha(\theta) = \frac{\alpha(0)}{0!} + \frac{\alpha'(0)}{1!}(\theta) + \frac{\alpha''(0)}{2!}(\theta)^2 + \cdots \ldots\ldots\ldots\ldots + \frac{\alpha^{(n)}(0)}{n!}(\theta)^n$$

Thus, we can express any real function $\alpha(\theta)$ into a polynomial form of n^{th} degree.

When n=0, $\alpha(\theta) = \frac{\alpha(0)}{0!}$ Is a constant.

For n=1, we have, $\alpha(\theta) = \frac{\alpha(0)}{0!} + \frac{\alpha'(0)}{1!}(\theta)$, i.e., $\alpha(\theta)$ takes linear form. For n=2, $\alpha(\theta)$ will take quadratic form and so on. Accordingly, depending on the functional form of $\alpha(\theta)$, individual household may have different consumption pattern, given same rate of interest and wage rate.

Same operation can be followed for the low income group also.

Now, as an intervention, the lower productivity workers are benefitted with income transfer and they also get access to the credit market. It is assumed that these interventions reduce inequality and the individuals are almost equal economically to each other. As a result, following *Expenditure Cascading Hypothesis* (Frank, Levine, & Dijk, 2014), in a more equal society all the individuals would try to accept the lowest rate of inflation (Payne, Brown-Iannuzzi, & Hannay, 2017) (Orozco, 2011). In other words it can be said that the salience heterogeneity will be reduced and individuals would attach their salience on lowest expected rate. In this changed scenario

$$EI^u = \{(\alpha^u(\theta^u).\ \pi_1,\ p_1\ ),\ (\bar{\pi}, p_2\ )\} \text{ and}$$

$$EI^h = \{(\alpha^h(\theta^h).\ \pi_1,\ p_1\ ),\ (\bar{\pi}, p_2\ )\}$$

Then for the lower productivity workers

$U_t^u = \alpha_t^u(\theta^u).V_{u.t}^B + [1 - \alpha_t^u(\theta^u)].V_{u.t}^A$

$\Rightarrow U_t^u = \alpha_t^u(\theta^u).V_{u.t}^B$ and similarly

$U^u_{t+1} = \alpha^u_{t+1}(\theta^u).V^B_{u.t+1}$

According to the assumptions of this model here $\alpha^u_t(\theta^u) = 1$ and $\alpha^u_{t+1}(\theta^u) = 1$

For the higher productivity workers it can be written as

$U^h_t = \alpha^h_t(\theta^h).V^B_{h.t} + [1 - \alpha^h_t(\theta^h)].V^A_{h.t}$

$\Rightarrow U^h_t = \alpha^h_t(\theta^h).V^B_{h.t}$ and similarly

$U^h_{t+1} = \alpha^h_{t+1}(\theta^h).V^B_{h.t+1}$

As according to the assumptions of this model $\alpha^h_t(\theta^h) = 1$ and $\alpha^h_{t+1}(\theta^h) = 1$

Thus it appears that the value functions for both the groups converge to state B. With the homogeneity of value function it becomes easier for the monetary authority to implement the targets. Thus 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.

6. Empirical findings

For the empirical verification of the theoretical model this study has collected primary data on income, consumption, short term expected inflation and fiscal policy intervention from 250 households comprising formal as well as informal sector workers from three urban, semi urban and rural locations of West Bengal, using the method of stratified random sampling technique, for two different time periods in 2021 and 2022. Collected data on consumption of per capita intakes of pulses, animal protein, milk, edible oils as well of consumption of energy (fuel) are used to construct an index of per-capita consumption, using suitable price weights. Within the current study the high productivity (high income) workers are termed as workers from formal sector and low productivity (low income) worker are termed as workers from informal sector. Within the regression analysis per-capita consumption is regressed on Sector Dummy, Period Dummy, Expected Inflation and an interaction term. This interaction term between Sector Dummy and Expected Inflation is used within the regression equation to examine the impact of expected inflation on the per capita consumption for the households belonging to informal sector compared to households belonging to formal sector.

The findings of the regression of per capita consumption on sector dummy, period dummy, expected inflation and an interaction term between sector dummy and expected inflation, using the pooled data collected from the 250 sample households over the two above-mentioned time periods are presented below.

$$C = 205.17 + 469.51\ SD - 70.89\ PD + 42.99\ EI - 43.06\ ISE$$

(0.80) (1.69) # (-0.39) (2.24) * (-2.24) *

('t' ratios are reported in parentheses. '**', '*' and '#' implies corresponding null hypothesis is rejected at 1%, 5% and 10% level of significance.)

In the above regression equation C is per-capita consumption, SD is sector dummy which takes the value of 1 if the household belongs to formal sector and 0 otherwise, PD is dummy for time period which has assigned the value of 1 for 2021 and 1 for 2022, EI is expected inflation, and ISE is the interaction term between sector dummy and expected inflation.

The result indicates that per capita household consumption is positively associated with sector (productivity and income) of the household. 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 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.

This study also intends to examine whether there exist differences in expectation formation about short run inflation across the two (formal and informal) sectors. For this purpose, expected inflation (EP) is regressed on sector dummy (SD). The findings are as follows.

$$EI = 18.64 - 6.28\ SD$$

(2.84)* (2.04)*

$$n= 240, \quad R^2 = 0.\ 64,\ DW = 1.68$$

('t' ratios are reported in parentheses. '**', '*' and '#' implies corresponding null hypothesis is rejected at 1%, 5% and 10% level of significance.)

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, as

indicated by the statistically significant negative coefficient of sector dummy, SD. This proves that the lower income households put greater salience or higher weight on higher expected inflation.

The current study has also found significantly positive impact of fiscal interventions like a free health insurance scheme provided by the Government of West Bengal - *Sastha Sathi*, introduced during the period under consideration. The intention of this study is to examine the impact of the fiscal policy intervention on expected inflation of the households belonging to informal sector. To that respect, 128 households from our sample belonging to informal sector is categorised into two categories - those who are already getting the benefit of this free health insurance scheme and those who have not yet included in this health insurance scheme. During the period under study it is observed that 72 of these informal sector households have free health insurance coverage. To understand the impact a dummy variable (HI) is introduced which takes the value of 1 for those informal sector households who are covered under *Sastha Sathi* scheme and 0 otherwise. To determine the effect of this policy intervention on expected inflation a regression of expected inflation of households belonging to informal sector (EI_u) on HI is conducted. The outcomes are presented below.

$$EI_u = 25.85 - 9.29\ HI$$
$$(3.04)^* \quad (2.15)^*$$

$$n= 128, \quad R^2 = 0.\ 56,\ DW = 1.88$$

('t' ratios are reported in parentheses. '**', '*' and '#' implies corresponding null hypothesis is rejected at 1%, 5% and 10% level of significance.)

The statistically significant negative coefficient of HI indicates that having access to free health insurance scheme significantly lowers the expected inflation of the households belonging to informal sector. 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.

7. Conclusion

This work wanted to know the ability of the monetary policy to manage expected inflation as a measure to mitigate economic inequality. To that extent the current study has tried to consider the impact of monetary policy through earnings heterogeneity channel. The existing

literature from the same field is potent enough to give an elaborate interpretation about the process that helps to form expectations about the future rates of inflation. But as an alternative to the existing this study has tried to give a behavioural interpretation to the formation of expectation about the future rates. Within this explanation it is found that salience plays the most important role in the formation of the said expectation. Though the deduction of the salience function was beyond the scope of the current study, it is found that the individual mental schema based salience is endogenous and formed through past experiences with the help of culture. The context at the point of decision interacts with the past experiences and cultural traits of the individuals to develop salience towards a particular attribute. The salience about a particular attribute assigns overweight to that particular attribute within the choice function and that particular attribute is chosen from the set of alternatives. Individuals follow the same course while choosing the future rates of inflation. But this behavioural process is not homogeneous for all the groups of individuals within a society. The richer and the poorer follow different arguments as well as mental models to develop their respective salience. Within this study it is observed that the salience of the richer accepts the lower rate of expected inflation while the same for the poorer accepts the higher rates. Naturally, following expenditure cascading effect it is observed that the poorer start to increase the marginal propensity to consume with the smell of higher expected inflation. This divergence in expectation formation helps to sustain economic inequality within the society and 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. To that respect fiscal measures can supplement the monetary arrangement and converge the context of reference for the divergent social groups. Here the 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. This consensus about the prospect can only initiate a process about the convergence of salience of all the social groups. The findings of the current study can become more robust with the extension of this two period study to multi period dynamic studies and inclusion of other transmission routes apart from the earnings heterogeneity channel within the developed model. Consideration of the non-institutional sources of credit within the current study will make the outcome of the study more realistic. Development of mental schema based testable salience function within the present study can create a more interesting discourse within the current perspective.

[The authors sincerely acknowledge the wholehearted voulantary support of the students of Charu Chandra College, Narasinha Dutt College and Panskura Banamali College to collect the primary data. Without their dedication this study might not become possible.]

Reference:

Ampudia, M., Georgarakos, D., Slacalek, J., Tristani, O., Vermeulen, P., & Violante, G. L. (2018, July). *Working Paper Series: Monetary policy and household inequality.* Retrieved March 01, 2022, from European Central Bank: Eurosystem: https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2170.en.pdf?66e5c54c7916d28ff18a4cda05162706

Angeletos, G.-M., & La'O, J. (2009). Incomplete Information, Higher-Order Beliefs and Price Inertia. *Journal of Monetary Economics , 56* (Supplement), S19 - S37.

Bordalo, P., Gennaioli, N., & Shleifer, A. (2013). Salience and Consumer Choice. *Journal of Political Economy , 121* (5), 803 - 843.

Bruin, W. B., Vanderklaauw, W., Downs, J. S., Fischhoff, B., Topa, G., & Armantier, O. (2010). Expectations of Inflation: The Role of Demographic Variables, Expectation Formation, and Financial Literacy. *The Journal of Consumer Affairs , 44* (2), 381-402.

CALVO, G. A. (1983). STAGGERED PRICES IN A UTILITY-MAXlIMIZING FRAMEWORK. *Journal of Monetary Economics* , 383 - 398.

Casiraghi, M., Gaiotti, E., Rodano, L., & Secchi, A. (2018). A ''reverse Robin Hood"? The distributional implications of non-standard monetary policy for Italian households. *Journal of International Money and Finance* , 215-235.

Coibion, O., Gorodnichenko, Y., Kueng, L., & Silvia, J. (2012). *Innocent Bystanders? Monetary Policy and Inequality in the U.S.* NBER. NBER.

Frank, R. H., Levine, A. S., & Dijk, O. (2014). Expenditure Cascades. *Review of Behavioral Economics* , 55–73.

Gaspar, V., Smets, F., & Vestin, D. (2010). Inflation Expectations, Adaptive Learning and Optimal Monetary Policy. *Handbook of Monetary Economics , 3*, 1055 - 1095.

Government of India. (2023, January 26). *Price Monitiring Division*. Retrieved January 26, 2023, from Department of Consumer Affairs: https://consumeraffairs.nic.in/price-monitoring-cell/price-monitoring-cell

Hall, R. E. (1978). Stochastic Implications of the Life Cycle-Permanent Income Hypothesis: Theory and Evidence. *Journal of Political Economy , 86* (6), 971 - 987.

Hoff, K., & E. Stiglitz, J. (2016). Striving for balance in economics: Towards a theory of the social determination of behavior. *Journal of Economic Behavior & Organization , 126* (Part B), 25 -57.

Kahneman, D., & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica , 47* (2), 263 - 292.

Kaplan, G., & Schulhofer-Wohl, S. (2017). Inflation at the household level. *Journal of Monetary Economics , 91*, 19-38.

Kaplan, G., Moll, B., & Violante, G. L. (2018). Monetary Policy According to HANK. *AMERICAN ECONOMIC REVIEW , 108* (3), 697 - 743.

Mersch, Y. (2014). Keynote speech by the Member of Executive Board of ECB. *ECB Corporate Credit Conference.* Zirich: European Central Bank.

Mester, L. J. (2022). The Role of Inflation Expectations in Monetary Policymaking: A Practitioner's Perspective. *European Central Bank Forum on Central Banking: Challenges of Monetary Policy in a Rapidly Changing World* (pp. 1 - 10). Sintra: Federal Reserve Bank of Cleveland.

Ministry of Labour and Employment, Government of India. (2021). Prices and Price Indices. *Indian Labour Journal , 62* (05).

Ministry of Labour and Employment, Government of India. (2022). Prices and Price Indices. *Indian Labour Journal , 63* (09).

Orozco, G. A. (2011, September 24). *Risk Preferences Under Extreme Poverty: A Field Experiment.* Retrieved December 13, 2022, from SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1720983

Payne, B. K., Brown-Iannuzzi, J. L., & Hannay, J. W. (2017). Economic inequality increases risk taking. *PNAS , 114* (18), 4643-4648.

Reserve Bank of India. (2021, May). *Weekly Statistical Supplement*. Retrieved January 09, 2023, from Reserve Bank of India: https://rbi.org.in/Scripts/WSSViewDetail.aspx?TYPE=Section&PARAM1=4

Reserve Bank of India. (2022, October). *Weekly Statistical Supplement*. Retrieved January 09, 2023, from Reserve Bank of India: https://rbi.org.in/Scripts/WSSViewDetail.aspx?TYPE=Section&PARAM1=4

Romer, C. D., & Romer, D. H. (2009). Monetary Policy and the Well-Being of the Poor. In J. Rabin, & G. L. Stevens, *Handbook of Monetary Policy* (p. 26). New York: Routledge.

Rother, P. C. (2004, March). *Fiscal Policy and Inflation Volatility.* Retrieved March 21, 2022, from European Central Bank, EUROSYSTEM: https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp317.pdf

Roy, R. (2021). *Series and Products in the Development of Mathematics* (2nd ed., Vol. I). Cambridge: Cambridge University Press.

S.E.Taylor, & Thompson, S. (1982). Stalking the elusive "vividness" effect. *Psychological Review , 89* (2), 155 - 181.

Singh, D. P., Mishra, A., & Shaw, P. (2022, January 11). *Taking Cognisance of Households' Inflation Expectations in India.* Retrieved March 04, 2022, from Reserve Bank of India: https://www.rbi.org.in/Scripts/PublicationsView.aspx?id=20991

Turdaliev, N. (2019). Monetary Policy, Heterogeneous Population and Inflation. *Research in Economics* .

Tversky, A., & Kahneman, D. (1991). Loss Aversion in Riskless Choice: A Reference-Dependent Model. *The Quarterly Journal of Economics , 106* (4), 1039 - 1061.

Vellekoop, N., & Wiederholt, M. (2019). *Inflation expectations and choices of households.* Retrieved from SSRN.

Zornig, P. (2014). *Nonlinear Programming: An introduction.* Berlin: De Gruyter.