Consumption and Welfare under Income Transfer Policies in India: A Structural Econometrics Approach

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Abstract

The relative impact of different income transfer policies on welfare depends on structural parameters of the economy such as the slope of the utility function and marginal propensity of consumption. Using a dynamic consumption-savings model and a nationally-representative household database for India, we estimate the utility function, marginal utility and marginal propensity of consumption for the Indian economy. We use the model to generate counterfactual consumption, utility and aggregate surplus of households under three income transfer policies—Universal Basic Income, Progressive Transfers and Redistribution. We find that targeted transfers generate more aggregate welfare compared to Universal Basic Income. Redistributive policies of transferring from richer households to poorer ones reduces lifetime social surplus since lower savings of the richer households suppresses consumption in subsequent periods. Our results provide crucial insights for cash transfer policies for a developing country.

JEL Codes: E21, E217, H23, H31

Keywords: Consumption, Savings, Wealth, Redistribution, Households

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1 Introduction

Cash transfers are a common policy tool to improve consumption and welfare. However, the link between income transfer, consumption and welfare relies on several structural parameters of the economy. If the marginal propensity of consumption is low, then income transfers would not lead to consumption gains. Further, if marginal utility decreases rapidly with consumption, then welfare gains would also remain limited. Knowledge of these structural parameters can aid such income transfer and targeting policies. Further, they can inform the relative benefits of conditional transfers as opposed to universal grants (Hoynes and Rothstein, 2018, Banerjee et al., 2019).

In this paper, we develop a dynamic utility maximization model of Indian households and estimate its parameters using the All India Debt and Investment Survey 2019 (AIDIS), a nationally representative database on savings. It also records aggregate consumption data for each household. The model delivers the standard Euler equation, relating current and future consumption through the inter-temporal transfer of savings. As AIDIS only records a cross-section of consumption and savings, we estimate the structural parameters using the optimal per period consumption-savings path. Specifically, we estimate the coefficient on a two-period concave utility function ($(c_1)^\alpha + \delta(c_2)^\alpha$), and for each household, marginal utility and the corresponding marginal propensity of consumption (MPC).

Using the Generalized Methods of Moments (GMM) (Hall, 1978, Hansen and Singleton, 1982), we discover $\delta = 0.974$ and $\alpha = 0.9887$ as optimal values for parameters. We recover an average MPC of 0.442. These parameter values are similar to the ones from other studies (Holman, 1998, Jappelli and Pistaferri, 2014). Further, consistent with evidence on concave consumption function (Carroll and Kimball, 1996), MPC declines with income or consumption levels. This occurs because the poorer households invest in low-return assets, compelling them to save less and consume more from current income. One can interpret this in the classic incomplete financial markets framework where variation in access to credit or insurance markets creates heterogeneity in consumption propensity (Mariger, 1987, Kimball, 1990, Kaplan and Violante, 2014).

We use our structural model to simulate consumption and welfare under three income transfer policies. These include (1) a transfer of 10% of average income, defined as the sum of consumption and savings, to every household (UBI), (2) a transfer to only the bottom quartile households (Targeted Transfers) but with the same aggregate costs as UBI, and (3) same transfers as policy 2, but funded by a *tax* on top quartile households (Redistribution). These counterfactual simulations are designed to exploit the trade-offs between various types of income transfer policies. UBI grants equal benefits to every household but can be expensive. In contrast, an equally costly conditional cash transfer may deliver more gains if targeted to the neediest households. Finally, redistribution from the rich to the poor can reduce public expenditure of policies but creates welfare losses for the households which are taxed.

Our counterfactual simulations show that the UBI policy of transferring 10% of average income (Rs. 1554.9) to all households creates immediate consumption gains of Rs. 739.11 for the bottom 25th percentile, Rs. 755.76 for the 26th-74th percentile and Rs. 503.81 for the top 25th percentile households. This leads to an increase of 1.53% in aggregate welfare, defined as the sum of utilities of all households. On the other hand, targeted transfers to bottom quartile households only, which cost the same as UBI, generate a consumption gain of Rs. 2918.27 for the recipient households and increase aggregate welfare by 1.63%. Thus, targeted transfers compared to the status quo are more welfare enhancing than cost-equivalent UBI as they increase the aggregate welfare without making any one worse off. Finally, redistribution appears to slightly decrease surplus by 0.11% since gains to the bottom quartile are offset by losses to the taxed households.

Our paper makes two contributions. First, we calculate structural parameters of a dynamic consumption-saving model for the Indian economy. Hansen and Singleton (1982) and Hansen and Singleton (1983) are early studies which demonstrated the use of GMM to estimate a dynamic consumption model through the Euler equation. Such exercises have become common for several other countries (Evans, 2005).[1] In India, the consumption and savings behaviour of Indian households has also received substantial attention, but mostly through a quasi-experimental approach (Standing, 2012, 2013). However, estimations of such structural parameters for the Indian economy are scarce. Most studies which do so use databases from decades ago (Ramanathan, 1968, Vakil, 1973, Laumas and Laumas, 1976) Our paper uses the most recently available household survey data to build a dynamic model of consumption and savings. Recency is not the only benefit of our study. Given the extensive financial deepening in India, a model which incorporates savings behaviour for inter-temporal gains can help improve the understanding of the behaviour of Indian households.

Second, we contribute to the literature on cash transfers as welfare-enhancing policies. We do so by simulating the change in consumption and welfare that would occur under various forms of income transfers such as UBI, conditional cash transfers and redistribution. While the latter two have received empirical scrutiny (Narayanan, 2011), UBI's relative merits are now increasingly debated (Ghatak and Maniquet, 2019). Keeping total costs constant,

[1] Other methods include studying an exogenous income shock to estimate MPC (Agarwal and Qian, 2014) or directly recording the responses to consumption change through a survey (Jappelli and Pistaferri, 2014).

targeted transfers may be Pareto improving over UBI given the structural parameters we estimate. The choice between universal and targeted scheme depends on administrative costs of each and inclusion or exclusion errors in the latter (Banerjee et al., 2019). While we acknowledge that estimating the overall costs is beyond the scope of this work, we throw partial light on this debate.

2 Theoretical Model of Consumption, Saving and Income

Consider a household that lives for two periods, consuming c_t in each period $t \in \{1, 2\}$. Its inter-temporal utility is given by:

$$U(c_1, c_2) = (c_1)^{\alpha} + \delta(c_2)^{\alpha}$$

In period 1, the household's budget constraint is given by:

$$c_1 + k = y_1$$

where, k is the savings of the household.

In period 2, the budget constraint is:

$$c_2 = R.w + R.k$$

where, R is the interest rate on current loans, w is the aggregate assets of the household. Savings in the previous period, k, accumulate with interest. Since households use multiple saving and investment options, we use a weighted average of interest rates across these avenues, where the weights are the share of total savings.

The household solves the following problem.

$$Max._{c_1,c_2,k} U(c_1, c_2, k) = (c_1)^{\alpha} + \delta(c_2)^{\alpha}$$

subject to budget constraints in periods 1 and 2

$$c_1 + k = y_1$$

and

$$c_2 = R.(w + k)$$

Solving this, we obtain the following first order conditions:

$$\alpha.(c_1)^{\alpha-1} = \lambda_1 \tag{1}$$

$$\alpha.\delta.(c_2)^{\alpha-1} = \lambda_2 \tag{2}$$

$$\lambda_1 = \lambda_2 R \tag{3}$$

λ_1 and λ_2 are the Lagrangean multipliers for budget constraints in periods 1 and 2, respectively. From (1), (2) and (3), we obtain the standard Euler equation

$$c_2 = (\delta.R)^{\frac{1}{1-\alpha}}.c_1 \tag{4}$$

Equation 4 can be estimated using household panel data. However, AIDIS is a cross-sectional survey of households, and thus, we do not have information on c_2. We substitute c_2 from the second budget constraint to obtain

$$(R.w + R.k) = (\delta.R)^{\frac{1}{1-\alpha}}.c_1$$

$$k = (\delta)^{\frac{1}{1-\alpha}} R^{\frac{\alpha}{1-\alpha}}.c_1 - w \tag{5}$$

Equation 5 provides a relationship between the consumption and savings of a household, derived from utility maximizing behaviour of households. This relationship follows from the Euler equation, which, as Hall (1978) described, can be estimated empirically, described in the next section. We acknowledge that the model of a two-period lived household simplifies the exposition. In particular, by assuming only two periods (or that households maximize as if they live two periods), we allow for substitution for the last period's budget constraint in the Euler equation. In section **??**, we abstract away from this simplification and model a two-period lived household where the second period's budget constraint considers expected income.

2.1 Structural Parameters

We use the estimates from equation 5 to derive structural parameters of the economy such as marginal propensity of consumption and savings. By substituting $k = y_1 - c_1$ from budget constraint in period 1 into budget constraint in period 2 and using Euler equation, we obtain:

$$c_1 = \frac{y_1}{1 + (\delta)^{\frac{1}{1-\alpha}}.R^{\frac{\alpha}{1-\alpha}}} + \frac{R.w}{R.(1 + (\delta)^{\frac{1}{1-\alpha}}.R^{\frac{\alpha}{1-\alpha}})}$$

Equation 10 provides us with the marginal propensity of consumption.

$$\frac{dc_1}{dy_1} = \frac{1}{1 + (\delta)^{\frac{1}{1-\alpha}}.R^{\frac{\alpha}{1-\alpha}}} \tag{6}$$

Analogously, we can obtain the marginal propensity of savings as

$$\frac{dk_1}{dy_1} = \frac{(\delta)^{\frac{1}{1-\alpha}}.R^{\frac{\alpha}{1-\alpha}}}{1 + (\delta)^{\frac{1}{1-\alpha}}.R^{\frac{\alpha}{1-\alpha}}} \tag{7}$$

2.2 Lifetime Value Function and Aggregate Welfare

The utility function of household i is:

$$(c_{i1})^\alpha + \delta.(c_{i2})^\alpha$$

From the Euler equation, we know $c_{i2} = (\delta.R_i)^{\frac{1}{1-\alpha}}.c_{i1}$. Thus, household i's lifetime utility is

$$(c_{i1})^\alpha + \delta.(\delta.R_i)^{\frac{1}{1-\alpha}}.(c_{i1})^\alpha$$

$$(c_{i1})^\alpha[1 + \delta^{\frac{1}{1-\alpha}}.(Ri)^{\frac{\alpha}{1-\alpha}}]$$

Since $MPC_i = \frac{1}{1+\delta^{\frac{1}{1-\alpha}}.(Ri)^{\frac{\alpha}{1-\alpha}}}$, we write lifetime utility function as:

$$(c_{i1})^\alpha.\frac{1}{MPC_i}$$

The optimal consumption function is $c_{i1} = MPC_i.(y_i + w_i)$. Thus, we write the lifetime value function as

$$(MPC_i.(y_i + w_i))^\alpha.\frac{1}{MPC_i} \tag{8}$$

Aggregating over all households, we aggregate welfare function as:

$$\Sigma_i(MPC_i.(y_i + w_i))^\alpha.\frac{1}{MPC_i} \tag{9}$$

3 Econometric Model

We use Generalized Methods of Moments to estimate equation 5. GMMs are commonly used for estimating Euler equations as demonstrated first by Hall (1978). In particular, Hall (1978) states that the Euler equation or the relationship derived from it will follow a Markov process; i.e. if $\epsilon = c_2 - (\delta.R)^{\frac{1}{1-\alpha}}.c_1$, then $E(\epsilon|Z) = 0$, where Z is an instrument belonging to the information set. We extend equation 5 derived from the Euler equation to write:

$$R.(k + w) = (\delta.R)^{\frac{1}{1-\alpha}}.c_1$$

$$\frac{R.(k + w)}{c_1} = (\delta.R)^{\frac{1}{1-\alpha}}$$

We use the empirical analogue of this equation as:

$$\log \Psi_i = \Phi. \log(\delta.R_i) + \mu_i \tag{10}$$

where, $\Psi_i = \frac{R_i.(k_i+w_i)}{c_{i1}}$ and $\Phi = \frac{1}{1-\alpha}$. Following Hall (1978), we posit that $E(\mu_i|Z_i) = 0$ or $E(\mu_i.Z_i) = 0$.

Equation 10 has two parameters: δ and $\Phi = \frac{1}{1-\alpha}$. We utilize a semi-grid search approach to estimate the parameters. It proceeds in the following manner:

1. First, we choose a set of values for $\delta \in (0, 1)$.

2. Starting from a given value of δ, we estimate the value of Φ. If $\Phi > 1$, or equivalently, $\alpha < 1$, we retain this as one of the solutions. Otherwise, we discard this combination of parameters. We define the solution set as those values of δ for which $\Phi > 1$.

3. For each (δ, Φ) in the solution set, we estimate the criterion function of the GMM model. The combination of parameters which minimizes the criterion function is chosen as the

optimal solution.

A technical point requires a discussion here. GMM provides consistent estimate of k, and under some regularity conditions, this estimate is also asymptotically efficient allowing for inference (Hansen, 1982). However, we are interested in $\alpha(=\frac{\Phi-1}{\Phi})$, a ratio of two normally distributed random variables, which itself is not necessarily normally distributed. How do we conduct inference on α then? We follow Díaz-Francés and Rubio (2013) who characterize the properties of $\frac{X}{Y}$, where X and Y are normally distributed. If the coefficient of variation of Y is less than 0.1, then the distribution of $\frac{X}{Y}$ can be approximated by a normal distribution with mean $\frac{E(X)}{E(Y)}$ and variance $(\frac{\sigma_Y}{E(Y)})^2((\frac{\sigma_X}{\sigma_Y})^2+(\frac{E(X)}{E(Y)})^2)$. We show that this condition is satisfied in our analysis.

4 Data and Summary Statistics

We use the All India Debt and Investment Survey (AIDIS) 2019 for our anlaysis, which is a nationally-representative dataset of savings and wealth accumulation behaviour of Indian households. Further, it records savings across high and low-return financial assets, such as Fixed Deposits, savings accounts, current accounts, post-office, pension funds, cooperative banks etc. We also observe the usual monthly consumption expenditure of the household. Although AIDIS does not record interest rates across financial assets, we collect this information from public sources. From this, we calculate the weighted average interest rate that each household faces, where the weights are the share of savings in a given asset. Table 1 provides summary statistics for savings (k), initial wealth (w), consumption (c_1) and interest rate (R). The average monthly expenditure is Rs. 11,271 and average monthly acquisition is Rs. 80824.61. Monthly savings are calculated by subtracting monthly disposal from the acquisition. This gives us the net monthly savings, which averages to 250.32.

4.1 Socio-Demographic factors

Tables 2, 3, 4 and 5 present summary statistics on the socio-demographic characteristics of the households. We compare these characteristics with the last round of Household Consumption Expenditure (HCE) to understand AIDIS's representativeness.

AIDIS examines 116,461 households, with 59.6% of them located in rural areas. Similarly, the NSS Household Consumption Expenditure survey investigates 101,651 households, with 58.7% from rural areas. The proportion of Hindus in rural areas is 79.83% as per AIDIS and 76.40% according to HCE. Other major religion groups are slightly under-represented in

AIDIS. Table 2 shows the proportions of individuals from various caste groups, the majority being other backward communities in both rural areas (40.01% as per AIDIS and 39.81% as per NSS HCE) and urban areas (40.61% as per AIDIS and 38.48% as per NSS HCE). The illiteracy rate is 26.24% in the AIDIS survey and 23.41% in the HCE survey. While the modal family size is four members in both surveys, AIDIS has a higher representation of smaller families.

4.2 Instruments

As instruments for equation 10, we use indicators for households' access to several pension and insurance schemes promoted by the Government of India in recent years. These schemes are *Pradhan Mantri Jeevan Jyoti Bima Yojana*, *Pradhan Mantri Suraksha Bima Yojana* and *Atal Pension Yojana*. The first two are insurance schemes while the latter is a pension plan. Financial literacy in India is low, but GoI's push for such schemes has given an impetus to financial inclusion. Our identifying assumption is that access to these schemes is driven by variation in local government's push for such schemes and independent of unobservable household-level factors in equation 10. Table 6 provides the descriptive statistics on the share of households with various insurance and pension schemes. Nearly 3-4% of households have insurance coverage while Pension scheme penetration is small. To test for the overidentifying restriction on instruments, we compute Hansen's J-statistics (Sargan, 1958, Hansen and Singleton, 1982). This statistic has a χ^2-square distribution and has the null hypothesis that the moment restrictions imposed by the instruments are satisfied. In other words, the J-statistics informs us that for the given parameter values, the moment restrictions in equation 10 hold.

5 Results

Table 7 provides the results from our structural model. As discussed, we employ a semi-grid search approach method, where we first fix the value of δ (in column 1) and estimate the corresponding value of k (column 2). Column 3 reports the value of α. As discussed, inference on k can be conducted as GMM estimators are consistent and asymptotically efficient. For α, we use the approximation properties from Díaz-Francés and Rubio (2013).[2] Column 4 reports the criterion function that GMM minimizes. We find that $\delta = 0.974$ and $\alpha = 0.9884$ minimize the criterion function. Reassuringly, the p-value of the J statistic is 0.3274, i.e., we fail to reject the null hypothesis that the over-identifying restrictions are valid.

[2] The property that the coefficient of variation of the denominator of α be less than 0.1 is satisfied.

We use the optimal parameter values to estimate MPC in equation 6. Table 8 provides summary statistics on the MPC across households. The average value is 0.442 with a median of 0.397. Further, the 25th and 75th percentiles are 0.301 and 0.562, respectively. MPC declines as income increases (figure 1). This is a well-recorded relationship in the literature on dynamic consumption-savings model (Carroll and Kimball, 1996). Theoretically, MPC and income are negatively related because of credit or insurance market failures; as poorer households face credit market failures or are unable to access high-return assets, interest rates for them is lower. With lower incentives to save, poorer households consume a larger proportion of their current incomes. It is reassuring that we recover this relationship in our model.

5.1 Counterfactual Consumption and Welfare

The choice between different income transfer policies depends on the trade-off between aggregate welfare generation and their respective costs. These policies can have differential impact on welfare due to the heterogeneity in the propensity of consumption and saving across households. If richer households save substantially more, then a redistributive tax may supress their lifetime consumption in all subsequent periods, possibly offsetting gains to the recipient households. On the other hand, UBI provides transfers to even the rich households, which may generate high savings for the subsequent periods. Universal Basic Income transfers are unconditional and cover the entire population, but can be costly. Progressive transfers, on the other hand, targeted the poorer households at lower costs. Redistributive transfers provide an even less costlier choice where transfers to the poor households are funded by taxes to the richer households.

To understand these trade-offs, we use our structural parameters to conduct counterfactual simulations on consumption and welfare of the following income transfer policies:

- Universal Basic Income: Each household receives 10% of average annual income
- Targeted Transfer: Households in bottom 25th percentile of income distribution receive transfers which create equal aggregate expenditure as UBI. This amount is Rs. 6952.779
- Redistribution: Households in the bottom quartile receive the same amount as policy 2, while the top 25th percentile households face an off-setting negative tranfer to fund the transfers. This policy is revenue-neutral for the government but creates welfare losses for some households.

Figures 2 and 3 provide binscatter plots for changes in period 1 consumption and overall utility by initial consumption levels of households. Table 9 provides the results. Under UBI, the average consumption change for the bottom 25th, 26th-74th and top 25th percentile are Rs. 739.11, Rs. 755.76 and Rs. 503.81, respectively. The proportionate gains in aggregate welfare is 1.53%. For policy 2, only the bottom quartile receives transfers and enjoys higher consumption of Rs. 2918.27. However, the proportionate change in aggregate welfare is 1.63%. Thus, compared to the status quo, targeted transfers generate a higher overall surplus than UBI. Importantly, targeted transfers do not make anyone worse off. Policy 3, or redistribution, suppresses consumption of Rs. 2252.8 among the top quartile households. Overall surplus dampens by 0.11% compared to the status quo, indicating the decline in consumption in subsequent periods for the rich households.

Figures 2 and 3 provide binscatter plots for changes in period 1 consumption and overall utility by initial consumption levels of households. Table 9 provides the counterfactual aggregate welfare change for three income groups—upto 25th percentile, 26th-74th percentile, and top 25th percentile. Progressive transfers generate the highest surplus, while redistribution lead to a decline in aggregate welfare.

6 Conclusion

To improve economic prosperity and the welfare of people, governments engage in income transfer policies. However, merely transferring income is not the end goal but only a means to improve consumption and subsequent surplus. Understanding the links between income, consumption, and welfare requires knowledge of structural parameters of the economy.

We develop a consumption-savings model for a nationally representative household-level dataset for India. We estimate the structural parameters of the model to conduct counterfactual simulations of different income transfer policies. These include utility function, discount rates and marginal propensity to consume and save. The simulations favour a targetted transfer policy over a revenue-neutral Universal Basic Income scheme. In particular, the aggregate welfare gains, defined as change in the lifetime utility of all households, are higher in the former, even though the beneficiaries are a subset of the entire population. A redistributive policy of taxing the richer households may be counterproductive, as lower consumption and savings for the taxed households may offset gains to the recipients, suppressing the overall surplus. These policies differ in the administrative costs of implementation. Incorporating those costs is beyond the scope of the paper and is left for future work.

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7 Figures

Figure 1: Marginal Propensity of Consumption and Usual Consumer Monthly Expenditure

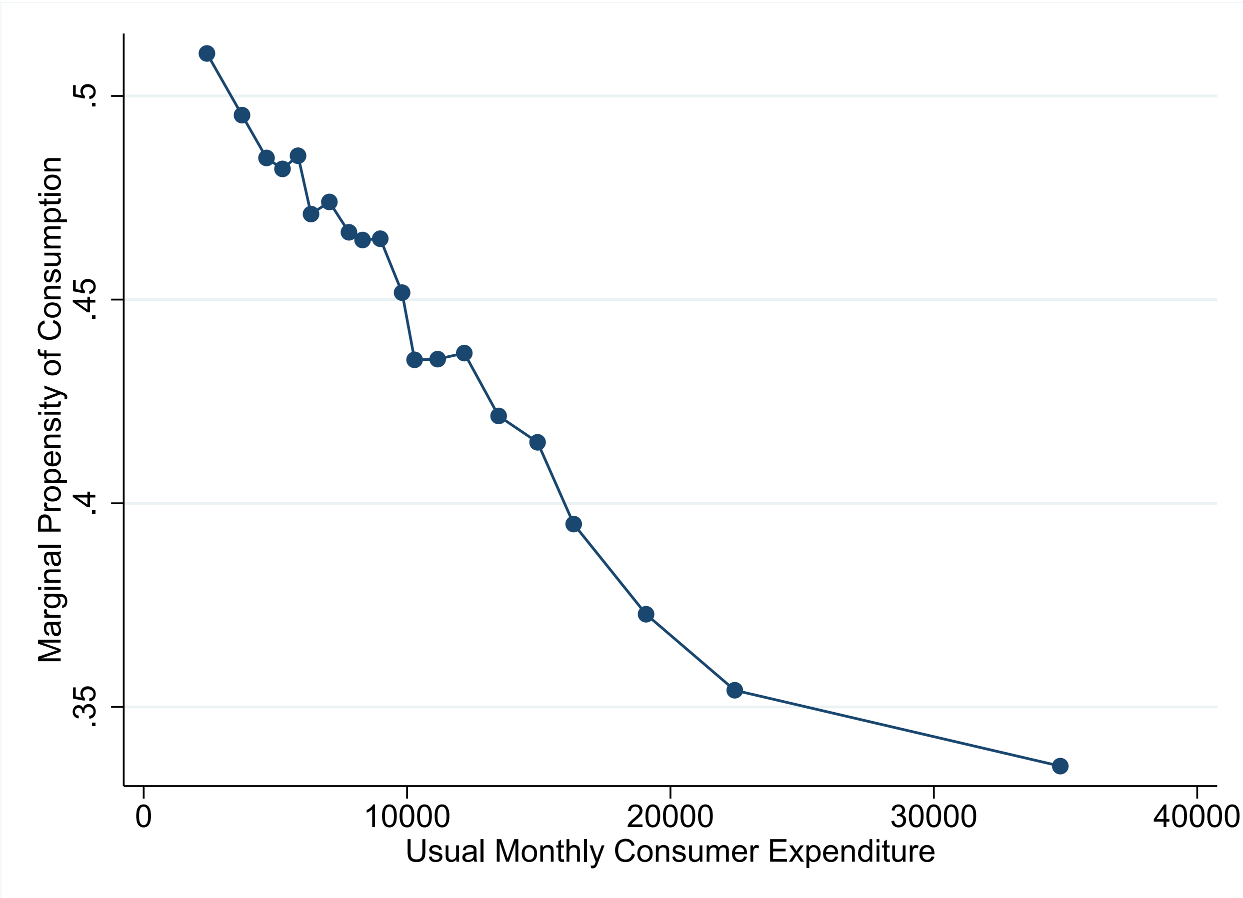


Figure 2: Counterfactual change in period 1 consumption under different income transfers

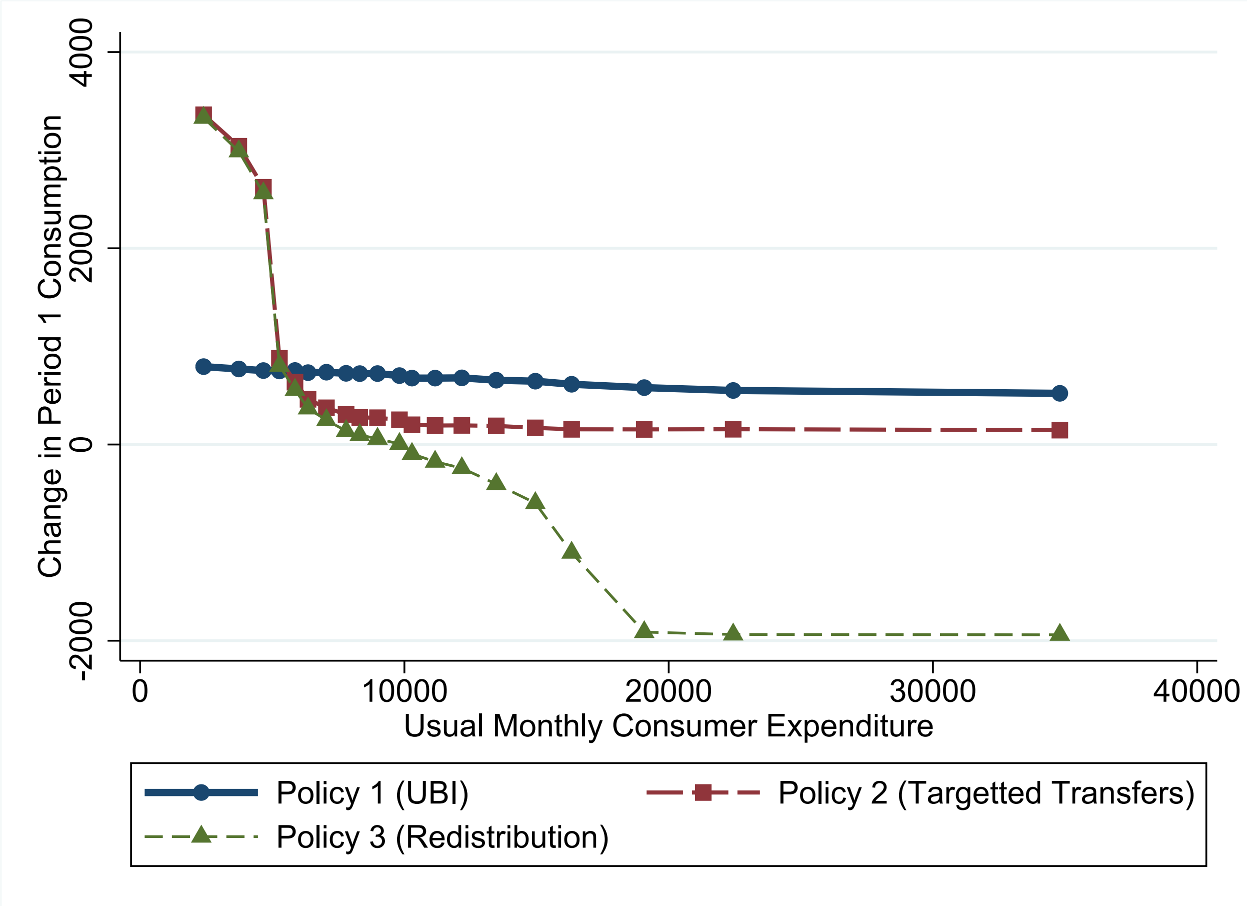
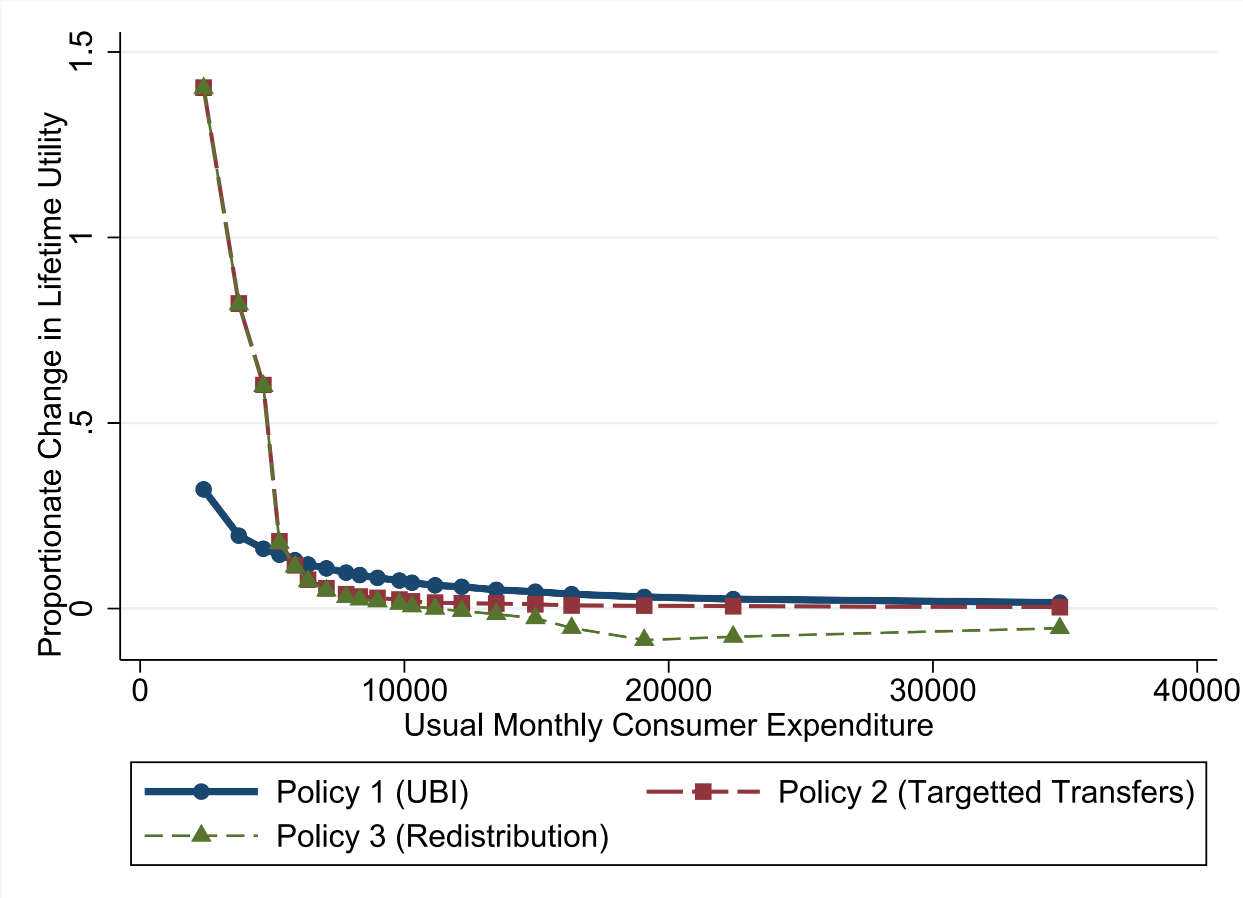


Figure 3: Counterfactual change in lifetime utility under different income transfers



8 Tables

Table 1: Summary Statistics on Savings, Consumption and Wealth

Variable	Mean	Median	Std. D	25th Percentile	75th Percentile
Initial Assets	80824.61	8350	4949188	505	49000
Monthly Savings	250.3239	0	8179.096	-83.64881	218.6667
Usual Monthly expenditure	11271.52	9450	8232.071	6100	14467
Weighted Average Interest	1.03	1.032	0.016	1.024	1.037

Note: Observations- 111,776

Source: AIDIS 2019

Table 2: Religion

Religion	AIDIS		HCE	
	Rural	Urban	Rural	Urban
Hinduism	79.83	76.30	76.40	74.97
Islam	9.72	14.41	11.81	14.51
Christianity	6.36	5.72	7.19	6.60
Sikhism	1.95	1.53	2.21	1.69
Jainism	0.07	0.62	0.10	0.63
Buddhism	1.10	0.75	1.24	0.85
Zoroastrianism	0.01	0.01	0.00	0.00
other	0.96	0.66	1.05	0.75

Note: The values signify the proportion of the total in that sector in percentage

Table 3: Social Group

Social group	AIDIS		HCE	
	Rural	Urban	Rural	Urban
SC	19.02	7.58	16.71	8.54
ST	17.66	13.75	17.09	13.09
OBC	40.01	40.61	39.81	38.48
Other	23.31	38.06	26.39	39.88

Note: The values signify the proportion of the total in that sector in percentage

Table 4: Highest level of Education

Education	AIDIS	HCE
Not Literate	26.24	23.41
Literate	7.98	10.69
Primary	13.47	12.19
Middle	15.72	15.86
Secondary	13.77	14.34
Higher Secondary	8.81	9.21
Diploma	1.23	1.36
Graduate	9.85	9.51
Post Graduate	2.93	3.44

Note: The values signify the proportion of the total in percentage

Table 5: Size of the Family/ Household

Household Size	AIDIS	HCE
1	7.06	5.86
2	13.48	10.01
3	16.21	14.71
4	23.85	22.97
5	17.12	19.05
6	10.38	12.42
>7	11.91	14.98

Note: The values signify the proportion of the total in percentage

Table 6: Share of Households with Financial Inclusion Schemes

	Mean
Jeevan Bima Yojana	0.034
	(0.182)
Suraksha Bima Yojana	0.0414
	(0.199)
Atal Pension Yojana	0.0046
	(0.0682)
Observations	114,582

Table 7: Estimated Structural Parameters of the Utility Function

δ	$k = \frac{1}{1-\alpha}$	α	Criterion Function	J-statistic (p-value)
0.969	1.235	0.18	0.000437	47.84 (0.00)
	(9.779)	(64.72)		
0.970	82.666	0.9879	0.00133	146.37 (0.00)
	(7.12)	(0.0146)		
0.971	119.374	0.9916	0.000335	36.67 (0.00)
	(7.387)	(0.00759)		
0.972	116.10	0.9913	0.00017	19.57 (0.00)
	(6.514)	(0.00624)		
0.973	100.511	0.9900	0.0000602	6.59 (0.0862)
	(5.25)	(0.0054)		
0.974	86.744	0.9884	0.000031	3.449 (0.3274)
	(4.407)	(0.0051)		
0.975	75.0507	0.9866	0.0000813	8.9067 (0.0306)
	(3.838)	(0.0052)		
0.976	64.965	0.9846	0.000158	17.35 (0.0006)
	(3.428)	(0.0054)		
0.977	56.49019	0.9822	0.000232	25.50 (0.00)
	(3.1155)	(0.0059)		
0.978	49.516	0.9798	0.000295	32.33 (0.00)
	(2.861)	(0.0065)		
0.979	43.816	0.9771	0.0003453	37.805 (0.0000)
	(2.646)	(0.0071)		

Estimates from the GMM model. Controls include household size, dummies for religion, social group, districts, education and sector of the household. Standard errors are robust to heteroscedasticity at the district level. Figures in parenthesis in the second column include standard errors for the estimates of k. Figures in parenthesis in the third column are provided by an approximate distribution (Díaz-Francés and Rubio, 2013).

Table 8: Marginal Propensity of Consumption

Mean	SD	Median	25th Percentile	75th Percentile	Minimum	Maximum
0.442	0.226	0.397	0.301	0.562	0.0132	0.9076

Table 9: Counterfactual consumption and welfare under income transfers

	Policy 1 (UBI)	Policy 2 (Targeted Transfer)	Policy 3 (Redistribution)	Observations
Average Welfare Change by Income Class				
Upto 25th percentile	Rs. 739.11	Rs. 2918.27	Rs. 2918.27	27430
26th-74th percentile	Rs. 755.76	0	0	54686
Top 25th percentile	Rs. 503.81	0	(-) Rs. 2252.8	27349
Aggregate Welfare Change	1.53%	1.63%	-0.11%	109462