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It is well known that the lack of access to credit and insurance and/or labor market rigidities are often cited as the key factors affecting savings in the third world. Banerjee and Duflo (2007) have pointed out that such factors, by themselves, fail to explain why the poor save less. We show that, in the presence of inequality, a status-driven utility function grafted on a simple dynamic model can explain inadequate saving by the poor, an established empirical fact in the developing countries. Interestingly, our result is independent of any assumption regarding imperfections in the capital market.

JEL Classification Code: D63, D91, D11, I3

Keywords: Inequality, Inter-temporal consumer choice, Utility, Poverty.

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I. Introduction

It is well known that the reason for low observed savings rates, among the poor, is not just that the poor are simply "too poor to save." In an influential paper, Banerjee and Duflo (2007), reporting on various country studies, have emphasized the fact that in general the poor do not save what they should: the bias towards current consumption is a remarkably consistent empirical fact valid for a large cross-section of the developing countries. More importantly, they observe that even extremely poor households do not use all of their income to afford basic necessities and "arguments based on lack of access to credit and insurance or labor market rigidities, by themselves, do not help very much in understanding why the poor are not more interested in accumulating wealth". Why then do the poor save less?

We propose an answer to this question by drawing on the literature that recognizes that the preference pattern of any individual in a society has to deal with the social influence on individual consumption and savings behavior. For illustration, Fafchamps ans Shilpi (2008) have demonstrated how the presence of richer persons in a community affects the perceptions of well-being of the individuals. While it is widely accepted that an individual's well-being is sensitive to her relative position in society, in a recent paper, Marjit, Santra, and Hati (2014) confirm significant status effects on consumption data from India. In this paper, we show how perceptions of well-being coupled with status-driven consumption behavior can lead to a bias towards current consumption. The dynamic extension of our basic framework yields this result without being sensitive to complex assumptions.

Our paper also relates to the work by Moav and Neeman (2010) who derive the inadequate saving result in terms of a framework with bequests. They also use the notion of social status as a basic driving factor which, via conspicuous consumption, affects current bequests and hence may perpetuate poverty trap. An essential ingredient of this type of analysis is the existence of an imperfect credit market which does not allow everyone to borrow and lend at a given rate of interest. In our framework, we abstract from all such complexities and use the evolution of social distribution of income as a driving force.

While the idea of conspicuous consumption and the so-called Veblen effect are quite well known in economics, recently Sivanathan and Pettit (2010) have confirmed the fact that individuals are quite sensitive to their relative status in the society and would like to "mend"

their "self", under constant attack from various social pressures, by taking recourse to status signaling consumption behavior. A series of experiments confirm such a pattern of human behavior. This is one of the building blocks of the utility function that we use in the subsequent analysis. In another interesting paper, Cole *et al*. (1992), later extended by Corneo and Jeanne (1998), had discussed the "aspiration effect" (i.e. the effort to attain higher status which induces agent to over-accumulate) relative to the "standard case" (i.e. without such concern for status). In a general context, therefore, two offsetting effects must be considered, one that pushes the individual to consume more and the other when saving intensity is higher. We shall also reflect on this issue in course of our analysis.

The rest of this paper proceeds as follows. In the next section we analyze properties of a simple status driven utility function and, in the third, we discuss the saving problem of the poor in a simple two-period framework. The last section concludes our paper.

II. Benchmark Model

Let us start from two possible axioms on how perceived social inequality affects the individual welfare.

Axiom 1: ***Inequality hurts.***

This implies that having below average income in a society reduces individual utility. Our assumption will be that being above average does not matter, but being below definitely hurts. This asymmetry is deliberate to highlight the implications of belonging to the downside of inequality.

Axiom 2: *Inequality increases MU of the status good.*

Having lower than average income increases the marginal utility of conspicuous consumption or consumption of the status good. This is directly drawn from experimental psychology literature where intensity of desire to consume the status good seems to be greater among those who are affected by social inequality.

We now invoke a simple log linear utility function with *N*, the consumption of nutrition good and L, the consumption of luxury or status good or non-nutrition good.

$$U = f\left(\frac{\bar{y}}{y}\right)\left[\log N + \phi\left(\frac{\bar{y}}{y}\right)\log L\right] \qquad (1)$$

where $\bar{y}$ is the average income of the reference social group and y represents individual income levels.

On figure 1 below,

$$f\left(\frac{y}{\bar{y}}\right)\begin{bmatrix}=1 \text{ for } y \geq \bar{y}\\ <1 \text{ for } y < \bar{y}\end{bmatrix} \qquad (2)$$

and

$$\phi\left(\frac{y}{\bar{y}}\right)\begin{bmatrix}=1 \text{ for } y \geq \bar{y}\\ >1 \text{ for } y < \bar{y}\end{bmatrix} \qquad (3)$$

Axiom 1 ensures $f' < 0$ and axiom 2 ensures $\phi' \geq 0$.

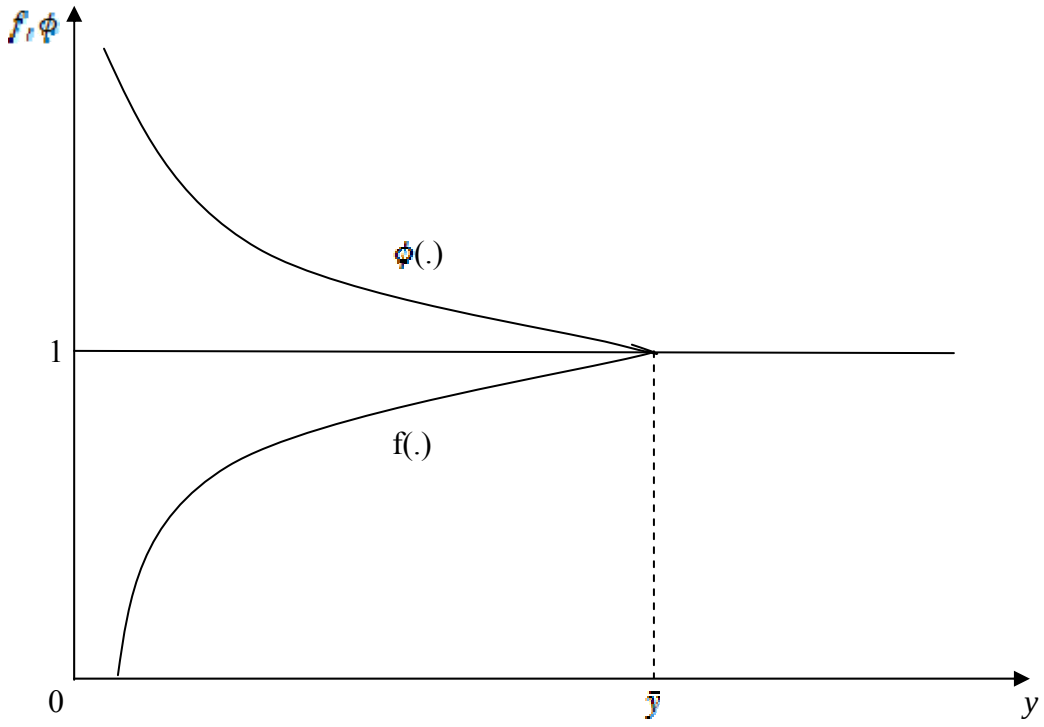

Figure -1

We shall, hereinafter, abstract from any price effect by normalizing prices to one.

If inequality truly hurts,

$$f\left(\frac{\bar{y}}{y}\right)\left[\log\tilde{N}+\phi\left(\frac{\bar{y}}{y}\right)\log\tilde{L}\right] < \left[\log N_0+\phi\left(\frac{\bar{y}}{y}\right)\log L_0\right] \qquad (4)$$

where $(\tilde{N},\tilde{L})$ are optimal consumption levels for $y < \bar{y}$ and (N_0, L_0) are the same for the benchmark case with $y = \bar{y}$.

Invoking the Envelope property it is straightforward to interpret (*U*) as

$$\frac{dU}{dy} = f'\left(-\frac{\bar{y}}{y^2}\right)\left(\log\tilde{N}+\phi\left(\frac{\bar{y}}{y}\right)\log\tilde{L}\right)+f.\phi'\left(-\frac{\bar{y}}{y^2}\right)\log\tilde{L} > 0 \qquad (5)$$

Or, $-\left(\frac{\bar{y}}{y^2}\right)f'\log\tilde{N}-\left(\frac{\bar{y}}{y^2}\right)\log\tilde{L}\left[f'\phi+f\phi'\right] > 0$

Since $f' < 0$ and $\phi' > 0$, a sufficient condition is given by

$$\left[f'\phi+f\phi'\right] < 0 \qquad (6)$$

Note that if *y* moves up the ladder, *f*(.) increases but ϕ(.) drops. Or, put differently if *y* drops from $\bar{y}$, *f* goes down to a value less than 1, but ϕ increases. The net effect must be negative if inequality has to hurt in equilibrium. We shall return to condition (5) later.

III. Dynamics

We shall now highlight the case of inadequate saving by the poor. In fact in our framework we do not need any assumption regarding the behavior of the capital market. We use a simple two-period model which can have a "present and future" interpretation. We have a small open economy where product prices are frozen from the rest of the world. Agents can borrow and lend at an exogenously specified rate of return. Alternatively, there is a bond which pays *r*. Agents can also accumulate capital. The simple two-period model brings out certain essential dynamic features regarding rate of accumulation, status effect and saving. The two time periods are denoted by subscripts 1 and 2.

The problem facing the agent is to

$$\max_{(N_1, L_1, N_2, L_2, K)} f\left(\frac{\bar{y}_1}{y_1}\right)\left[\log N_1 + \phi\left(\frac{\bar{y}_1}{y_1}\right)\log L_1\right] + \beta f\left(\frac{\bar{y}_2}{\bar{y}_2}\right)\left[\log N_2 + \phi_2 \log L_2\right]$$

subject to $(y_1 - N_1 - L_1 - K)\,(1+r) + y_2(K) - N_2 - L_2 = 0$ (7)

where, $\bar{y}_2 = y_2(K) + s(1+r)$ and s=$(y_1 - N_1 - L_1 - K)$. K stands for investment. y_1 is considered as given to start with and $0 < \beta < 1$ is the discount factor.

Optimization and simple manipulations yield

$$\frac{f_1}{N_1} + \beta A(1+r) = \beta \frac{f_2}{N_2}(1+r) \tag{8}$$

where $A = [\beta f_2' \left(\frac{\bar{y}_2}{\tilde{y}_2}\right)(1+r)\Omega_2 + \beta f_2 \phi_2' \left(\frac{\bar{y}_2}{\tilde{y}_2}\right)(1+r)\log \tilde{L}_2]$

Ω_2= optimal value of the second period utility. $\{\bar{N}_1, \bar{L}_1, \bar{N}_2, \bar{L}_2, \bar{K}\}$ are to be treated as optimal values.

From (6) it follows that A<0.

Now,

$$\bar{N}_2 = \frac{\bar{N}_1(1+r)\beta f_2}{f_1 + \beta A \bar{N}_1(1+r)} \tag{9}$$

Similarly,

$$\bar{L}_2 = \frac{\bar{L}_1(1+r)\beta f_2 \phi_2}{f_1 \phi_1 + \beta A \bar{L}_1(1+r)} \tag{10}$$

Also note that, $y_2'(\bar{K}) = (1+r)$ (11)

Equation (11) is a significant condition because even if increasing $\bar{K}$ improves future utility apart from income, so long as *r* is given exogenously, the rate of accumulation does not change.

Note the difference between this structure and the status driven growth models. Social status is likely to increase *K*, but given that the alternative return is (1+*r*) as derived from the bond, marginal product must adjust to (1+*r*). Thus the level of *K* remains the same with or without concerns for status as long as r does not change.

Let us now compare the amount of savings with or without concerns for social status.

$$\tilde{N}_1 + \tilde{L}_1 + \frac{\tilde{N}_1(1+r)\beta f_2}{f_1+\beta A\tilde{N}_1(1+r)} + \frac{\tilde{L}_1(1+r)\beta f_2\phi_2}{f_1\phi_1+\beta A\tilde{L}_1(1+r)} = y_1 - \tilde{K} + \frac{y_2(\tilde{K})}{(1+r)} \equiv R(\tilde{K}) \qquad (12)$$

With $f = \phi = 1$ and *A*=0 we get the standard outcome.

$$N_1^0 + L_1^0 = \frac{R(K^0)}{(1+\beta)} \qquad (13)$$

Note that, $K^0 = \tilde{K}$. Therefore,

$$\tilde{N}_1 + \tilde{L}_1 + \frac{1}{(1+\beta)}\left[\frac{\tilde{N}_1\beta f_2(1+r)}{f_1+\beta A\tilde{N}_1(1+r)} - \beta\tilde{N}_1\right] + \frac{1}{(1+\beta)}\left[\frac{\tilde{L}_1\beta f_2\phi_2(1+r)}{f_1\phi_1+\beta A\tilde{L}_1(1+r)} - \beta\tilde{L}_1\right] = N_1^0 + L_1^0 \qquad (14)$$

Two sources of saving, *S* and *K*, are financed by $[y_1 - (\tilde{N}_1 + \tilde{L}_1)]$. Therefore, a direct comparison between $(\tilde{N}_1 + \tilde{L}_1)$ and $(N_1^0 + L_1^0)$ will be relevant. Equation (14) suggests the

following. A set of sufficient conditions, that guarantee aggregate saving to be lower in the case with the concern for social status, are

$$\left.\begin{aligned} f_2 &< \frac{f_1}{(1+r)} + \beta A\tilde{N}_1 \\ f_2\phi_2 &< \frac{f_1\phi_1}{(1+r)} + \beta A\tilde{L}_1 \end{aligned}\right\} \qquad (15)$$

Consider the case that the income distribution is invariant over time i.e. $f_1 = f_2$ and $\phi_1 = \phi_2$. They can still be less than 1 as $\bar{y} > y$. [If $f_1 = f_2 = \phi_1 = \phi_2 = 1$, then we are dealing with the standard case.] Under this situation, (15) can never hold as A<0. Therefore, saving will be greater than in the normal case. A strong implication of this observation is that if social inequality is not changing over time, agents wish to save more relative to the usual case without any status concern to improve their situation. Even if extra dose of *K* is not forthcoming as $K^0 = \tilde{K}$, saving in terms of the other asset should be greater. This is also the basic intuition behind status driven growth literature, the so-called positive effect of concern for status. Better status gives better utility.

Finally, consider the case that ceteris paribus, $\bar{y}_2$ is really high relative to $\bar{y}_1$ i.e. the rest of the society, possibly those with income level much greater than the concerned agent, are going to grow substantially so that f_2 is really low relative to f_1 and $f_2\phi_2$ relative to $f_1\phi_1$. Then (15) will hold and $(\tilde{N}_1 + \tilde{L}_1) > (N_1^0 + L_1^0)$. Therefore, aggregate saving will be lower. The intuition is that if the agents perceive that their social status will be eroded substantially in the future, they will pre-pone their consumption. Such a status-driven rise in current consumption will inevitably reduce the savings of the poor.

IV. Concluding Remarks

While economic theory has attempted to identify the channels through which potential saving by the poor is affected, factors identified by existing models – such as, lack of access to credit and insurance and/or labor market rigidities – do not adequately explain why the poor save less than they should. To provide an explanation for why the poor are constrained in their ability to save, we appeal to the concept of status-driven consumption. There is sufficient evidence to support the contention that consumption decisions are better understood by looking beyond the role of commodities in satisfying direct needs. In particular, there exists a vast body of literature that documents the use of commodities to display social status. Consumption is valued not only for serviceable qualities but also because they confer status on their users a social community.

We have analyzed the relevance of such status-driven consumption behavior in explaining the inadequacy of saving by the poor. Our simple dynamic model identifies a trade-off between saving augmenting and saving reducing effects of social status. Our theoretical result on status-constrained saving by the poor is derived independent of any added assumption on credit market or any other behavioral assumption such as bequests. Moreover, our results are consistent with the empirical observation that poor people do have surplus money to save but they choose not to – as Banerjee and Duflo (2007) have documented – even people living on less than $1 per day spend money on many non-essential items such as alcohol, tobacco, and televisions.

References

Banerjee, A. and Duflo, E. (2007) "The Economic Lives of the Poor", *Journal of Economic Perspectives*, Vol 21(9), pp 141-168.

Cole,H. L., Mailath, G.J. and Postlewaite, A. (1992) "Social Norms, Savings Behavior, and Growth", *Journal of Political Economy*, 100(6), pp 1092.

Corneo, G. and Jeanne, O. (1998) "Social Organization, Status, and Savings Behavior", *Journal of Public Economics*, 70(1), pp 37-51.

Fafchamps, M. and Shilpi, F. (2008) "Subjective Welfare, Isolation, and Relative Consumption", *Journal of Development Economics*, 86(1), pp 43-60.

Marjit, S., S. Santra and K. Hati (2014) "Does Inequality Affect the Consumption Patterns of the Poor –The Role Status seeking behavior", Invited Lectures Free University of Berlin and the Asian Development Bank.

Moav, O. and Neeman, Z. (2010) "Status and Poverty", *Journal of the European Economic Association*, 8(2-3), pp 413-420.

Sivanathan, N. and Pettit, N. C. (2010) "Protecting the Self through Consumption: Status Goods as Affirmational Commodities", *Journal of Experimental Social Psychology*, 46(3), pp 564-570.