Research on rural savings in India*

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Rural savings are determined by both "ability" and "incentives" to save. All except two studies reviewed emphasize "ability," though some qualitatively analyse "incentives." This relative neglect is justified when the positive substitution effect of the "incentives" is off-set by its negative income effect. Such "total" effect does not necessarily arise. "Incentives" variable can be incorporated in both cross-sectional and time-series models, as shown in the two exceptions. Past time-series estimates of rural savings are characterized by reporting, measurement, and analytical weaknesses. Some of these lead to underestimation of these savings. This, however, does not mean that all of the additional savings are mobilizable by the financial institutions. This is because rural households hold their savings in monetized as well as non-monetized forms. Moreover, some of the monetized savings are held in the form of physical assets. Thus, only those monetized savings which are invested in financial assets of the informal rural financial market (RFM) can be considered as potentially mobilizable by the financial agencies. Institutionalization of such savings would improve their efficiency by promoting better allocation among different areas, sectors, economic activities, and also to entrepreneurs. To identify appropriate policies, further literature may be developed by promoting and researching programmes with better rates of return on financial savings, besides those with opportunities to transact other businesses.

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* Revised version of the paper presented for the Colloquium on Rural Finance organized jointly by the Ohio State University, USA, USAID, and the World Bank, and held at the World Bank in September, 1981.
Introduction

Research on rural savings in India has covered four topics: The volume and determinants of savings, the composition of savings, the methods of measuring savings, and data requirements and availability. This paper concentrates on reviewing research on the first topic, especially the underlying assumptions that are often used. Estimates of rural household savings published by the Reserve Bank of India (RBI) are also reviewed since they form a data base for the macro time-series studies under review.

The review is based on about 100 studies which were readily available. Appendix 1 lists a few of them. Some of these studies use macro time-series data, while some others use micro cross-sectional data. Some studies do not use any data, but provide both macro and micro perspectives. These studies mainly deal with the savings of both rural and urban households and/or those of the entire economy. The micro cross-sectional studies are mainly based on the rural households. Most of them use only one year data, though some of them have examined two to five years of data. They measure savings as a residual after deducting consumption from income, though some of them use both this and the Asset Account method. They also use the concept of gross savings. Against this, the macro time-series studies consider the concept of net savings, besides the Asset Account method. Incidentally, the savings research on India is a good deal more than on most other low income countries.

A principal conclusion that emerges from this review is that the existing literature focuses mainly on the "ability to save" (ATS) and that little attention has been given to the "incentives to save" (ITS). In part, the lack of analysis on incentives results from the widely held assumption that rural people do not save, especially in financial form. These assumptions have resulted in an overemphasis on the improvement of "ability to save" as a remedy for increasing rural saving rates. They have also led to imbalance in the role assigned to the RFMs for extending loans and for mobilizing voluntary savings. Such emphasis directly originates from the investment-first approach to conceptualization of research on RFMs. According to this, unlike the Flow-of-Funds approach, technological slack exists in the rural sector but avenues of investments are not fully utilized due to lack of finance. It also assumes that there is no scope for "improved" financial intermediation by promoting transfer of funds from surplus units to deficit ones by financial intermediaries. These assumptions have been questioned by recent research which suggests that technologies can be adopted by the farmers without much loan, and that financial reforms can facilitate growth of income and capital.

Yet another finding is that the RBI estimates of rural households savings are characterized by reporting, measurement, and analytical weaknesses. Some of these imply an underestimation of these savings. This, however, does not mean that all of these additional savings are mobilizable by the financial institutions. If it were, it would mean that the rural economy is completely monetized and that it does not hold savings in the form of physical assets. Neither of these assumptions is valid. Only "net lendings" of the rural households, an item excluded from the RBI estimates, may be considered potentially mobilizable by the financial institutions. This would be the case provided such savings are held due to non-existence of bank offices, or the available facilities are unsafe, or the available interest rates and the opportunities to transact other businesses are not attractive. Institutionalization of such savings could improve the efficiency of the funds mobilized by promoting their better allocation among various areas, sectors, economic activities, and also to entrepreneurs. Before concluding, a few suggestions are offered about future research on the role of RFMs in mobilizing rural savings.

Determinants of rural savings

The rural households' decision to consume now or in the future is influenced by both ATS and ITS. While the former is primarily related to income, current or permanent, the latter is determined by the rate of return these households
expect from foregoing present consumption. For households the returns to savings represent a price for current consumption. Such cost would vary with the type of saving opportunities available to these households. The importance of "incentives" as a determinant of savings was emphasized by Schultz, who stated that, "although there has been a long standing concern about the effects of the level of per family income upon percentage of income that is saved, there has been no comparable concern about the effect of difference in relative prices of new income streams upon savings and investment" (15, p.74).

Most studies reviewed consider the ATS hypothesis alone. Moreover, all these studies are Keynesian and aggregative in the sense that they consider only the current level of income as a measure of ATS. Very few studies use a permanent income variable. The Keynesian framework has several weaknesses when applied to rural savings behaviour. It assumes that the decisions to consume and save-invest are independent, a very weak assumption when applied to rural households. Further, the original purpose of the Keynesian framework was to provide a rationale to forecast and control business cycles that originated in urban-industrial economies. The Keynesian analysis also assumes that production and consumption possibilities change gradually.

These limitations are also applicable to those studies that examine disaggregated savings behaviour of households belonging to different income groups or farm sizes or technological categories. This is because these studies relate savings to the current level of income alone, and more importantly the differences in the average and marginal propensity to save (APS and MPS) of different groups cannot be unequivocally attributed to ITS. Differences could be due to differences in the dependency ratio, or the permanent and transitory components of income, or the accessibility of the households to financial institutions, or their expected rates of return on savings and investment. Alternatively, they could be due to differences in all these factors taken together.

Testing of ITS hypothesis involves conceptual, methodological, and data problems that are difficult to resolve. In the literature two of these problems stand out: The direction of influence of the expected rate of return on savings, and the measurement of the expected rate of return.

On the first problem there are two schools of thought: That the influence of interest rate on savings is zero, or that this influence is uncertain and cannot be predicted a priori.

The zero response school rests on an implicit assumption about the "income effect" of interest rate being both negative and of the same magnitude as the positive "substitution effect." This is a much more restrictive assumption than the one implied by the second school of thought. The argument of the uncertain (total) effect as advanced by this school rests on the grounds that the size of the negative "income effect" could be the same, smaller, or larger than that of the positive "substitution effect." Even this assumption is restrictive, because "income effect" need not be negative alone.

Following Hicks (7) it can be shown that this effect may be positive, zero, or negative. The nature of the "income effect" depends upon whether a household is better-off or worse-off after a rise in the interest rate. This, in turn, is dependent upon whether a household has a surplus initially or in the subsequent period. If it has a surplus initially the household is better-off (i.e., the present value of its income rises) when the interest rate goes up. Such a household would consequently increase its current consumption and that would make the "income effect" of the interest rate on savings negative. If, on the other hand, a household has a surplus in the later period, it is worse-off when the interest rate rises. For such a household, the "income effect" of a rise in interest rates on savings would be positive.

In reality, both these types of households exist. Depending upon their weight the aggregate income effect could be positive, negative, or zero. Since all econometric studies reviewed use only single equation savings models, they may also imply the famous identification error of showing demand instead of supply schedule. Consequently when estimation of such a model gives a negative relation between savings and interest rate it may actually reflect this relation between investment and interest rate. For the purpose of this review it is assumed that saving schedule is that which is derived from the intersection of investment and saving schedules as depicted by the time-series data presuming that the former is unstable, whereas the latter is stable (3).
even zero. When it is positive, the positive substitution effect of the interest rate is obviously reinforced. In this case savings increase with the increase in interest rate. The same result would hold if the income effect is zero, though the magnitude of the positive saving response would now be smaller. If, however, the aggregate income effect is negative, the "total" effect could be negative, positive, or zero, depending on the size of the two effects, as is recognized by the second school.4

It may be reasonable to assume that the aggregate income effect could be zero, considering that other factors are the same for the two groups of households. Under this assumption we can argue that the "total" effect of interest rates on savings would be positive. An additional reason for this proposition stems from the decline in the future demand for non-financial assets as a result of the rise in interest rates. This decline would lower the prices of these assets which in turn would imply that the total value of wealth held by the savers would also be lower than before. The savers would now strive to restore the previous value of their wealth by reducing the level of consumption. Such flexible behaviour would come from the self-employed entrepreneurs like the rural households, assuming that their demand for credit is interest-inelastic though their financial savings are interest-elastic.5

Only two studies attempt to measure the expected rate of return or ITS. The study by Gupta used the real interest rate on postal savings of the previous year as an indicator of incentive. It showed a positive response of rural savings to this interest rate, besides revealing a decline in the MPS out of income when the model was re-estimated after omitting the real interest rate variable. The study by Bhalla used the index of investment opportunities as measured in terms of weighted district average of the adopters of new technology in the preceding year. According to this study, the savings of the subsistence households increased with increases in the investment opportunity index, whereas that of the non-subsistence households declined with increases in this index. Such a result for non-subsistence farmers can be attributed to increases in their borrowings instead of reduction in consumption to finance investment. The explanation provided in this study seems to rest on the unsatisfactory assumption that the capital market is perfect for credit alone rather than for both credit and savings.6 Moreover, measurement of the ITS in terms of an index rests on the unsatisfactory assumption that all households within a district have equal access to extension, credit, etc. The district is too large a unit for this assumption to be plausible. An alternative measure that could have been used in this cross-sectional study is the ratio of gross income to total assets or the ratio of net income to net work or that of net income to operating costs of the preceding year or two. Such a measure of ITS unlike ATS emphasizes the "ratio or relative" concept. Use of such a concept is well illustrated by Hyun, Adams, and Hushak (8). They also consider ATS and ITS in an interactive manner. Such a specification appears realistic as ITS could be a function of ATS particularly in the case of labour-surplus subsistence households.

Moreover, measures of ITS in the earlier referred two exceptions are proxies. This is because rural households hold both "physical" savings, such as farm assets, building, off-farm assets, gold and jewellery, etc., and "financial" savings, such as bank deposits, cash, etc. Weighted average of expected rate of return from all these savings constitute the true measure of ITS for these households. However, the use of real interest rate can still be justified because the data required to measure this variable are not available, particularly for a macro time-series study. Alternatively, it can be justified on the grounds that such a rate may very well represent the true prospective weighted average yield from savings. Undoubtedly, in either case, there is a need to recognize that the estimated response coefficient will be distorted. This could very

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4 Any of the three outcomes is, however, possible under a flow-of-funds approach, which also recognizes that such ambiguity in determining the influence of interest rate on composition of savings (financial and physical savings) does not hold.

5 The approach of the third school may be termed as prior-financial-savings approach.

6 Another interesting finding of this cross-sectional study is that the model estimation is not very sensitive to alternative measures of permanent income. The two measures used in the study are: a) weighted average of income for the past three years, and b) earnings-function approach.
well be the reason for the relatively small and statistically insignificant response coefficient for the incentive variable obtained in one of the studies. Yet another reason for such a result could be that the real interest rate used in this study is unlikely to be free of market distortions. Therefore, smaller and insignificant response coefficient should not be interpreted as showing weak savings behaviour of rural households. This would hold even when such coefficients are compared for rural versus urban or small versus large farm households, because financial market distortions are generally larger for rural households and more so for the poor.

To conclude, rural savings response estimates based on the ATS hypothesis alone suffer from specification errors. Though the incorporation of the ITS hypothesis involves methodology and data related difficulties, these errors are too serious to be ignored. The efforts initiated by the two exceptional studies should therefore be welcomed and strengthened. One of these studies used the cross-sectional data, while the other used the time-series data estimated by the RBI. Models developed by Hyun, Adams, and Hushak (8) are particularly relevant for the cross-sectional empirical studies, since the data used by them are for only two years.

**Rural household savings estimates of the RBI**

The savings of the rural households are measured by utilizing Asset Account method of determining savings. Appendix 2 describes in detail how the estimates are derived by the RBI. In what follows, the estimates are examined with a view to identify their analytical methodological features. Implications of these features on the extent of under/overestimation of rural savings and the institutionalization of these savings are also discussed.

The RBI estimates consist of non-random errors, since many of the items like depreciation, changes in inventories, etc., are derived by making arbitrary, and at times subjective, adjustments. Econometric models used by most macro time-series studies under review do not allow for non-random errors and variations in the data (14).

Secondly, when these models regress rural savings on agricultural income the good fit obtained by them is artificial, besides showing circularity on which the estimates of both savings and income are based (14).

Thirdly, the RBI series overemphasize the concept of net saving even though the estimates of depreciation are considered imprecise. These estimates are derived by making liberal allowances for replacement, repairs, and maintenance of various farm assets. For rural housing and farm assets it is extremely difficult to distinguish expenditure on repairs from maintenance, and replacements from new investments. For this reason, estimates of gross instead of net saving are preferred to judge the savings capacity of rural households whose farm technology is not highly capital-intensive (13). Use of "net" instead of "gross" savings concept would therefore underestimate rural household savings. Some of these excluded savings are not mobilizable if they are created in non-monetized form. Those that are in monetized form could, however, be mobilized by the financial institutions provided they have deposit facilities that match well with the size and nature of such savings. These savings are often in small amount and are perhaps seasonal too. Institutionalization of such savings could improve the efficiency of the use of these funds by promoting their better allocation among regions, sectors, economic activities and also to entrepreneurs.

Fourthly, the RBI series exclude rural savings in the form of non-monetized investments. Such investments take the form of land improvements, digging of wells and water channels, reclamation of lands, laying of new orchards and plantations, construction and repair of farm buildings and cattle sheds, etc. These investments have genuine costs even if they are undertaken with family labour. This is because the direct cost of such labour would be its consumption without which it cannot contribute to the capital formation process. Savings in the form of non-monetized investments is by definition non-mobilizable by the financial institutions. Even if the banking institutions were to finance consumption expenditure needed to

7. These investments are significant for smaller farmers. Even in 1970-71, according to the large-scale sample survey of the National Council of Applied Economic Research (NCAER), non-monetized investments for farmers owning less than five acres constituted 3 per cent of their income, and 37 per cent of their savings. For the entire sample the corresponding figures were 2 and 11 per cents.

Vol. 8, No. 2, April-June, 1983
support family labour utilized for the creation of farm assets, it would be very difficult to separately estimate such expenditure from the total consumption expenditure.

Fifthly, the RBI series also exclude savings in the form of gold and jewellery on the grounds that it is a consumer durable. Such a form of savings is often undertaken to hedge against emergencies and inflation. It is also held when the access to the formal RFM is non-existent and/or imperfect on account of such policies as insistence on providing self-owned tangible collateral. Under these circumstances, rural households borrow from informal credit agencies by providing such an asset as collateral. Providing loans against such collateral has become popular among some formal financial agencies.

Sixthly, Paniker has shown that in deriving the estimate of rural savings through the Asset Account method, net borrowings of the rural households are deducted without allowing a credit for net lendings (i.e., informal loans including accounts receivable minus their recoveries) of these households. Exclusion of this item from the savings estimate may have been caused by the non-availability of data on lendings and recoveries. Another reason for this treatment could be that the net borrowings of the rural sector might have been considered an inter-sectoral transfer. However, such treatment cannot be justified on either of these grounds. This is because a very high proportion of rural borrowings was intra-sectoral, it being 93 per cent in 1951-52, and 81 per cent in 1961-62, assuming that all informal loans are from within the sector. If the loans provided by the professional moneylenders and traders are not considered intra-sectoral, then these percentages are 42 for 1951-52, and 60 for 1961-62. Finally, exclusion of "gold and jewellery" from the estimates of rural household savings underestimates them by 17 per cent each for 1951-52 and 1961-62. The corresponding percentages for excluding both "gold and jewellery" and "net lendings" work out to be 88 and 129. These percentages are 49 for 1951-52, and 99 for 1961-62, if the loans provided by the professional moneylenders and traders are not considered intra-sectoral.

Assumptions and approaches to future research

From the preceding discussion several assumptions in the existing literature on rural savings may be identified. Some of the more critical ones are:

1) The rural households' capacity to save is low and/or stagnant. The assumption of stagnant capacity is implied by the constant ratio of savings to income used in the RBI estimates of rural savings.

2) Some of the financial savings like net lendings of the rural households may be difficult to mobilize by the financial agencies. This may be because these agencies have offices with inadequate safety facilities in rural areas, or they do not have attractive interest rates and opportunities to transact other businesses.

3) Rural households are homogeneous in their cashflow profile. This homogeneity assumption needs to be tested not only for different types of households but also for a given household's profile of cashflow during the year and over the years. Rural households receive a large part of their incomes only once or twice a year, whereas their expenditure is more or less continuous. Such a cashflow profile results in periods of deficits and surpluses. The RFM policy emphasis on extending credit is derived from, among other factors, the deficit period alone. Yet another implication is that the estimate of interest elasticity of savings for an aggregate period of one year may not be sufficient to determine the households' response to saving incentives.

4) The rural households tend to save only when their incomes increase.

Such financial assets have been held by agricultural moneylenders, traders, commission agents, landlords, professional moneylenders, relatives and friends, etc. Instead of depositing their cash surpluses in a bank, these agencies have lent them to the rural households. This may be because of non-existence of banking facilities, or the available facilities were not perceived as safe by these households, or the returns on banking deposits are unattractive, or the opportunities to transact other businesses with the banking institutions are not appropriate.

The data are taken from RBI 1969.

10 Data for this are taken from Ishikawa (9).
11 Since 1966 the RBI has discontinued estimating these savings.
5) These households do not respond to saving incentives like higher rates or return on their savings. For this assumption to hold the negative "aggregate income" effect it would have to fully offset the positive "substitution" effect of a rise in saving incentives, or both these effects would have to be close to zero or too small to be significant.

6) Related to the preceding two assumptions is yet another assumption that the rationality of rural households' decision to consume now or later is unimportant to the study.

7) Finally, the demand for credit by the rural households is interest-elastic, whereas the financial savings are interest-inelastic.

A test of the above assumptions would require incorporating both the ATS and ITS hypotheses. This would be possible for both macro and micro data on savings, as is partly shown by the two studies reviewed earlier. Besides using this conventional approach to savings research, future research might also be conducted by carefully selecting samples in the areas witnessing technological change or special "financial" savings mobilization programme. Undertaking such studies would imply testing the two hypotheses under conditions where returns to savings are changing. Studies can also be organized to evaluate the impact of upward revision in the interest rate and such other policies that would have a more direct bearing on saving incentives. Such micro studies may distinguish three different types of households. One, those who are chronically deficient in their income to cover consumption necessary for reproduction of labour. Two, those who have seasonal surpluses alternated by deficits. And three, those who have incomes sufficient to cover consumption but not their investment expenditures. Pilot savings mobilization programmes and studies based on them may be given priority over other types of savings and credit studies, for they would facilitate introduction or rejection of policy revisions for the RFM in general.

Conclusions

In this paper selected literature on rural household savings is reviewed. Both the determinants and the RBI estimates of these savings are covered. The "ability to save" hypothesis is extensively studied in India as well as in other low income countries. These studies are useful, but their neglect of the "incentives to save" hypothesis implies an assumption that the incentives and opportunities to save have not much role to play in increasing savings rates. Such an assumption is unwarranted because the income effect of this variable could be negative or positive or zero. Even if it is negative, it need not necessarily fully offset the positive substitution effect. Rural households hold their savings in monetized as well as non-monetized forms. Moreover, some of the monetized savings are in the form of physical assets. The weighted average rates of return expected from all these savings should therefore be considered an appropriate indicator of the "incentives" variable. Since data to measure this variable are difficult to obtain, it can be measured by a proxy variable of the ratio of net income to net worth or that of net income to operating costs of the preceding year or two. Alternatively, it could be measured by the prevailing interest rates in the rural sector. The RBI estimates of rural household savings are characterized by reporting, measurement, and analytical weaknesses. Some of these lead to underestimation of these savings. This does not however mean that all of the additional savings is mobilizable by the financial institutions. Only "net lendings," an item excluded from the RBI estimates, may be considered potentially mobilizable by the financial institutions, presuming that such savings are held due to non-existence of bank offices, or the available facilities are unsafe, or the available interest rates and the opportunities to transact other businesses are not attractive. The financial institutions would obviously require to promote appropriate policies to relax each of these constraints. Such policies may be identified by promoting and researching programmes with better rates of return on financial savings, which provide opportunities to transact other businesses, and which match better with the seasonal and small size nature of the cash surpluses of the rural households.

References


Appendix 1 List of studies under review


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Chakravarty, S.K., " A recent change in savings-investment direction of the small cultivators in West Bengal (Case studies of Hooghly district)," Indian Journal of Agricultural Economics, 27, Oct-Dec., 1972.


Datta Roy Chowdhury, Uma, " Income, consumption and saving in urban and rural India," The Review of Income and Wealth, March 1968.


Khalkhate, Deena R., Analytic basis of the working of monetary policy in less developed countries, International Monetary Fund Staff Paper, November 1972.


Appendix 2
A description on the derivation of RBI estimates of rural household savings

The RBI estimates are derived by using rural savings to agricultural income ratio as reported in the All India Rural Credit Survey (AIRCS) and its follow-up. These ratios are 3.3 per cent each for 1951-52 and 1961-62, and 3.7 per cent for 1956-57. An average of these three ratios is uniformly applied to the agricultural income of each of these years from 1950-51 to 1962*63 to obtain the absolute amount of rural savings for these years. The amount so derived is then deducted from the independent estimate of savings of all households to separate urban from rural savings.

Savings estimated in the AIRCS and its follow-up are developed by utilizing an Asset Account method of measurement of savings. According to this method, savings of an economic unit is defined as the difference in an accounting period between changes in assets and in liabilities adjusted for capital transfer and capital gains and losses. Assuming that no adjustment is required for capital gains and losses,

\[
S = \left( \Delta PA + \Delta FA + \Delta LA \right) - \Delta L - NC
\]

Where

- \( S \) = Savings (net)
- \( \Delta PA \) = purchase of physical assets including non-monetized investment, consumer durables, and buildings minus sale of such assets.
- \( \Delta FA \) = acquisition of financial assets like shares, securities, insurance policies, etc., minus liquidation of these assets.
- \( \Delta LA \) = acquisition of liquid assets like currency, crop inventories, bank deposits, informal loans, accounts receivables, etc., minus liquidation of these assets including recovery of informal loans.
- \( \Delta L \) = change in liabilities, i.e., borrowings including accounts payables minus repayment of past debts and accounts payables.
- \( \Delta NC \) = inflow of capital transfers minus outflow of such transfers
- \( \Delta D \) = depreciation

As can be seen from the above, the data required to estimate savings are enormous and are subject to wide margins of errors. Moreover, exclusion and inappropriate treatment of one or the other item, as is shown in the paper, would also distort the savings estimate.