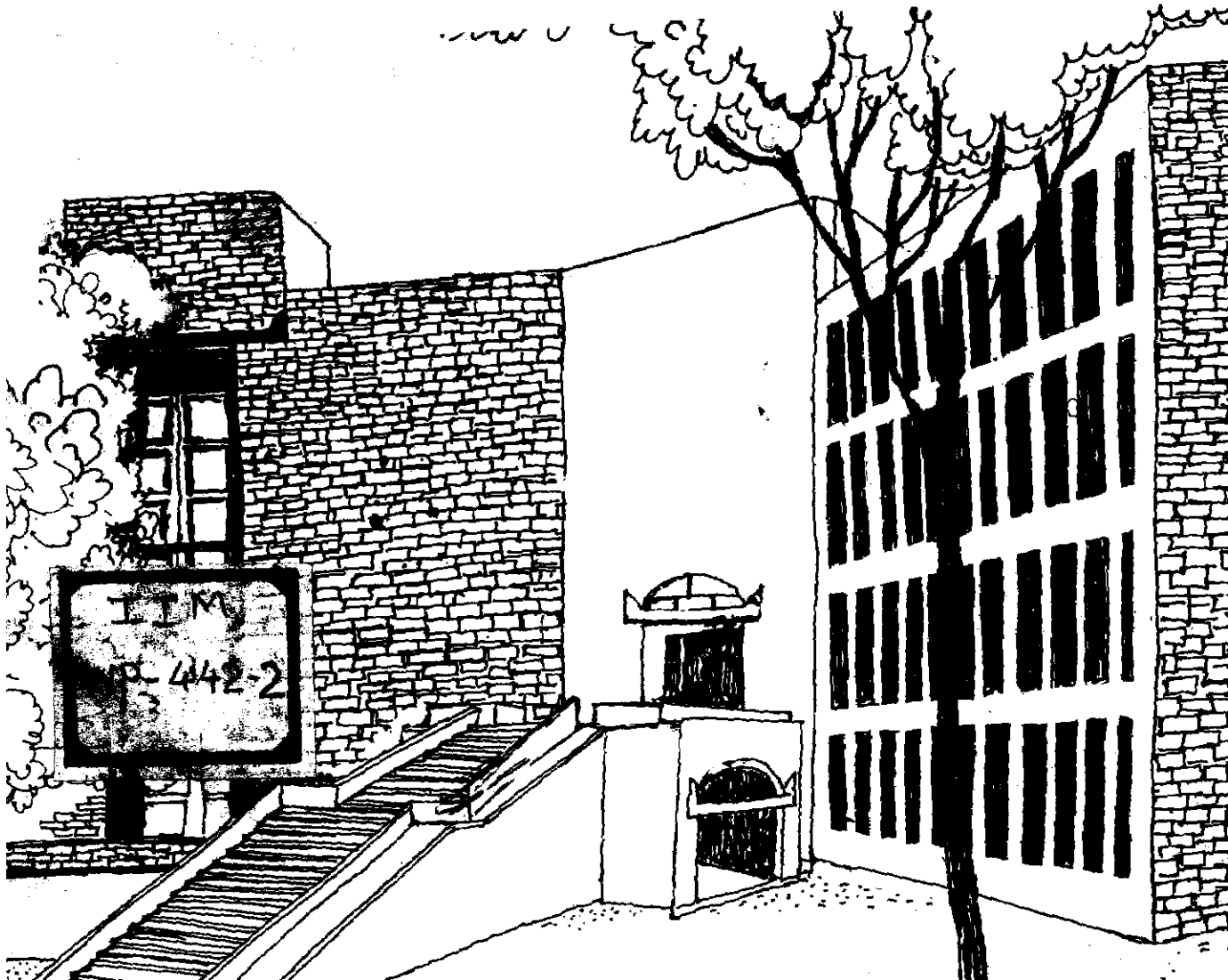




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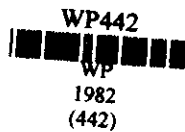
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RESEARCH ON RURAL SAVINGS IN INDIA

By

B.M. Desai



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INDIAN INSTITUTE OF MANAGEMENT
AHMEDABAD-380015
INDIA

RESEARCH ON RURAL SAVINGS IN INDIA*

- S.M. Desai** -

Abstract

Rural savings are determined by both 'ability' and 'incentives' to save. All except two studies reviewed emphasize 'ability', though some qualitatively analyze 'incentives'. This relative neglect is justified when 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 can be considered as potentially mobilizable by the financial institutions. To identify appropriate policies by these institutions, 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.

* This is a 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.

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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. 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 the 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 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 good deal more than on most other low income countries.

A principal conclusion that emerges from this review is that the existing literature focusses mainly on the 'ability to save' and that little attention has been given to the 'incentives to save'.^{1/} In part, the lack of analysis on incentives results from widely held assumption that rural people do not save, especially in financial form. These assumptions have resulted in an over-emphasis 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.^{2/} 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.

1/ For further discussion of the importance of incentive in agricultural development, see Schultz; Mellor; and in the context of Rural Financial Markets (RFMs), see Gurley and Shaw, 1956 and 1960; Patrick; Wai; Shaw; Mckinnon; Adams and Singh; Adams 1973 and 1978.

2/ Illustrations of such views can be found in the report of the All India Rural Credit Survey (AIRCS) Committee and in a study by Harpal Singh and O.P. Gugnani.

Yet another finding is that the RBI estimates of rural household 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. Before concluding, a few suggestions are offered about future research on the role of RFMs in mobilizing rural savings.

Determinants of Rural Savings

Rural households' decision to consume now or in the future is influenced by both 'ability to save' (ATS) and 'incentives to save' (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' (Schultz, 1964, 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 current income as a measure of 'ATS'. Very few studies used a permanent income variable. 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. 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 current 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 in the permanent and transitory components of income or in the accessibility of the households to financial institutions, or in 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:

- a) the direction of influence of the expected ^{rate} of return on savings, and
- b) 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^{3/} is zero, or that this influence is uncertain and cannot be predicted a priori.

^{3/} Since all the econometric studies reviewed use only single equation saving 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 schedule which is derived from the intersection of investment and saving schedules as depicted by the time-series data presuming that the former schedule is unstable, whereas the latter is a stable schedule (Friend).

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 (1946) 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 the weight of these two types of households the aggregate income effect could be positive, negative or 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

^{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.

like the rural households, assuming that their demand for credit is financial interest-inelastic though their/savings are interest-elastic.^{5/}

Only two studies attempt to measure expected rate of return or 'ITS'. One used the real interest rate on postal savings of the previous year as an indicator of incentive (Gupta, 1970). This study 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 second study used the index of investment opportunities as measured in terms of weighted district average of the adopters of new technology in the preceding year (Bhalla, 1978). According to this study, savings of the subsistence households increased with the increases in the investment opportunity index, whereas that of the non-subsistence households declined with the increase in this index.^{6/}

But, the measurement of this index rests on an unsatisfactory assumption of all households within a district having equal access to extension,

^{5/} The approach of the third school may be termed as financial prior/savings approach.

^{6/} 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 an unsatisfactory assumption that the capital market is perfect for credit alone rather than both credit and savings. 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.

credit, etc. The district is too large a unit for this assumption to be plausible. An alternative proxy 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 worth or that of net income to operating costs of the preceding year or two.^{7/}

Measures of incentives to save used in both studies are rather 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 yields from all these savings constitute the true measure of incentives to save for these households. However, use of real interest rate can still be justified because 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 well be the reason for 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

^{7/} For the use of such measures see Hyun et. al., 1979. This study also considers 'ability to save' and 'incentives to save' hypotheses in an interactive manner. To validate such a model empirically, the study uses cross-sectional data for only two years.

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 ignore. 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.

Rural Household Savings Estimates of the RBI : Their Weaknesses and Implications to Mobilize Savings by the Financial Institutions

Both the measurement and analytical aspects of the RBI estimates of rural savings are incomplete and deficient. Some of these weaknesses lead to underestimation of these savings. The extent of underestimation that accounts for all these weaknesses cannot however be quantified. Moreover, some of these savings that are excluded are not mobilizable by the financial institutions, while some others are perhaps mobilizable. The former includes savings in the form of 'gold and jewellery' and 'non-monetized investments.' The latter consists of

'net lendings'^{8/} of the rural households. These conclusions are discussed in what follows:

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 (Rudra).

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 (Rudra).

Thirdly, the RBI series over-emphasize the concept of net savings 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

^{8/} Such financial asset has been held by agricultural moneylenders, traders and commission agents, landlords, professional moneylenders, relatives and friends, etc. Instead of depositing their cash surpluses with any bank, these agencies have lent them to the rural households. This may be because of non-existence of the banking facilities, or the available facilities may not be considered safe by the rural households, or the returns on banking deposits are unattractive, or the opportunities to transact other businesses with the banking institutions are not appropriate.

savings are preferred to judge the savings capacity of rural households whose farm technology is not highly capital-intensive (Raj 1962). 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.

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.^{9/} 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 can not 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 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.

^{9/} 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 three percent of their income, and 37 percent of their savings. For the entire sample the corresponding figures were two and eleven percents. (Bhalla 1976).

Fifthly, the RBI series also excludes 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. Under these circumstances, rural households borrow from informal credit agencies by providing such an asset as collateral. Providing loans against such collateral is also popular among some formal financial agencies.

Sixthly, in deriving the estimate of the 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 receivables minus their recoveries) of these households (Paniker). Exclusion of this item from the savings estimate may have been caused by the non-availability of data on lendings and recoveries (RBI, 1960, p.317). 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 percent in 1951-52, and 81 percent in 1961-62, assuming that all informal loans are from within the sector.^{10/}

^{10/} The data are taken from RBI 1969. If the loans provided by the professional money lenders 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 percent each for 1951-52 and 1961-62.^{11/} The corresponding percentages for excluding both 'gold and jewellery' and 'net lendings'^{12/} work out to 88 and 129.^{13/}

Assumptions and Approach to Future Research

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

- 1) 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.^{14/}
- 2) Some of the financial savings like net lendings of the rural household 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.

^{11/} Data for this are taken from Ishikawa 1967.

^{12/} Other limitations are not considered to compute such percentages because of non-availability of relevant data.

^{13/} If the loans provided by the professional money lenders and traders are not considered intra-sectoral, then these percentages are 49 for 1951-52, and 99 for 1961-62.

^{14/} Since 1966 the RBI has discontinued estimating these savings.

- 3) Rural households are homogeneous in their cash-flow profile. This homogeneity assumption needs to be tested not only for different types of households but also for a given household's profile of cash-flow 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 cash-flow profile results in periods of deficits and surpluses. 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 households' response to saving incentives.
- 4) Rural households tend to save only when their incomes increase.
- 5) These households do not respond to saving incentives, like higher rates of return on their savings. For this assumption to hold either the negative 'aggregate income' effect 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' decisions to consume now or later is unimportant to study.

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

Test of the above assumptions would require incorporating both the 'ATS' and 'ITS' hypotheses. This would be possible for both the 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 pilot savings mobilization programmes and studies based on them may be given a 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 of these savings 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 (LICs).^{15/}

^{15/} For a review of literature on this subject on LICs, see Mikesell et.al., and Snyder. Even these reviews are incomplete in showing the critical importance of the 'incentives to save' hypothesis.

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. Weighted average rates of return expected from all these savings should therefore be considered an appropriate indicator of the 'incentives' variables. 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 networth 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.

RBI estimates of rural household savings are characterized by reporting, measurement and analytical weaknesses. Some of these lead to under-estimation 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, besides those programmes 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.

APPENDIX - 1

A DESCRIPTION ON THE DERIVATION OF RBI ESTIMATES OF
RURAL HOUSEHOLD SAVINGS

The RBI estimates are derived by using a 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 percent each for 1951-52 and 1961-62, and 3.7 percent 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.

$$S = \left[\Delta PA + \Delta FA + \Delta LA - \Delta L - NC \right] - D$$

Where S = Savings (net)

ΔPA = Purchase of physical assets including non-monetized investment, consumer durables, and buildings minus sale of such assets.

ΔFA = acquisition of financial assets like shares, securities, insurance policies, etc. minus liquidation of these assets.

ΔLA = 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.

ΔL = change in liabilities, ie., borrowings including accounts payables minus repayment of past debts and accounts payables.

NC = inflow of capital transfers minus outflow of such transfers

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.

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