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FARM SAVINGS AND THEIR MOBILIZATION

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Growth in capital stock or capital formation has been rightly regarded as one of the most important elements of economic development. It is this increase in capital stock along with its efficiency that directly influences the productive capacity of the economy for increasing the total output or income. However, this growth in capital is in turn directly dependent on that part of additional output which is not immediately consumed but is saved and is available for investment or increase in capital. In other words, it is the growth in savings which is crucial both for capital formation and the rate of economic growth. This important role of savings as a determinant of growth in incomes and economic development found its recognition even with most of the classical economists including among others, Adam Smith, Ricardo and John Stuart Mill. Even the Keynsian consumption function which brought a revolution in the theory of employment is intimately linked to what he called 'propensity to save.' However, the role of savings in the process of economic growth has found its most lucid expression in the modern growth models wherein savings form a key parameter and a pivotal determinant of the rate of ecomonic growth. In Harrod-Domar[1] model, for instance, the growth in income is a function of additional investment and the reciprocal of the marginal rate of saving. The formulation of the model can be expressed in the following terms.

$$\Delta Y = \Delta I . \frac{1}{\alpha}$$

The increase in savings is thus one of the most important necessary conditions for economic development. This assumes all the greater importance in the context of under-developed economies where basically the low level of capital stock not only lies at the root of their under-development but also provides a basic solution to their problem of development and growth. As Nurkse[2] observes, capital formation "lies at the very centre of the problem of development in economically backward countries." In all the under-developed economies and particularly those which have chosen the path of planned economic development, the increase in savings, thus naturally forms one of the most crucial elements of the strategy of growth. In the successive

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1. Evsey D. Domar, "Expansion and Employment" and R. F. Harrod, "Domar and Dynamic Economics," in Readings in Macro Economics, Edited by M. G. Mueller, Second Edition, Holt, Rinchart and Winston, New York, 1970, pp. 277-305.

2. Ragnar Nurkse: Problems of Capital Formation in Underdeveloped Countries, Basil Blackwell, Oxford, 1962, p. 1.

Five-Year Plans, in India, the increase in the rate of savings has been basic to the acceleration of the pace of economic development. Naqvi[3], for example explains the growth model of India's First Five-Year Plan, in the following formulation :

$$Y_t = Y_0 \left[1 + \alpha_0 \frac{1}{\alpha} \left\{ (1+\alpha\beta)^t - 1 \right\} \right]$$

From the above, may be derived :

$$Y_t - Y_0 = Y_0 \alpha_0 \frac{1}{\alpha} \left\{ (1+\alpha\beta)^t - 1 \right\}$$

$$= S_0 \left\{ (1+\alpha\beta)^t - 1 \right\} \frac{1}{\alpha}$$

$$= I_0 \left\{ (1+\alpha\beta)^t - 1 \right\} \frac{1}{\alpha} = (I_t - I_0) \frac{1}{\alpha} \text{ or } \triangle Y = \triangle I \frac{1}{\alpha}$$

where Y_0 = initial income,
Y_t = income in year t,
α_0 = initial rate of saving,
α = marginal rate of saving,
β = marginal output/capital ratio or output coefficient,
t = periods of time,
I_0 = S_0=investment and savings.

In the above, economic growth or rate of increase in income would depend on the average rate of savings (approximating to the marginal rate of savings in the long run) and the output-capital ratio. The latter is determined by the physical production function and besides, being consistent, is itself dependent on innovation and technology which, in turn, is largely a function of savings and the resultant stock of capital in relation to population or labour. The key variable available for manipulation to ensure the realisation of a larger rate of economic growth is the savings and investment which constitute the basic determinant of growth.

The importance of savings for economic development in India needs no emphasis. It has, however, certain ramifications and implications. While one of the main objectives of planned growth is to raise the incomes and consumption standards particularly of the poorer sections of the society, the needs of economic growth in terms of increased savings necessitate in the initial stages, a rigorous restraint on the increase in consumption itself. Similarly, while structural deficiencies and low capital stock particularly in the basic industries and infrastructure facilities require huge amounts of capital in-

3. K. A. Naqvi, "Models of Growth and Indian Planning," *Yojana*, Vol. V, No. 19, October 1, 1961, pp. 65-70.

vestments specially in the high capital intensity areas, this also requires a considerable discipline in regard to the increase in the production of consumption goods. It is this choice between immediate or future increase in consumption that poses a serious problem for savings and growth. The successive Five-Year Plans in India have, therefore, attempted to strike a balance between the two.

Growth of Savings in India

In the First Five-Year Plan, the rate of savings as a proportion of total national income was envisaged to increase from 5 per cent in 1950-51 to 6.75 per cent in 1955-56. In the Third Plan, the target was to raise this ratio from 8.5 per cent at the beginning to 11.5 per cent by the end of the Plan. However, the growth in domestic savings did not reach the contemplated level because of various factors—a major one being a relatively sluggish economic growth itself. The Fourth Plan aimed at raising it, therefore, from 8.8 per cent of national income in 1968-69 to 13.2 per cent by 1973-74. According to the Reserve Bank of India (R.B.I.)[4] the net domestic savings are estimated as follows :

	Years					
	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74
Domestic savings as percentage of Net National Product at current prices	8.4	8.5	10.1	11.4	11.0	10.0

Thus, the rate of domestic savings seems to have remained low and more or less stagnant in recent years. The Draft Fifth Five-Year Plan projects domestic savings to grow from 12.2 per cent of *GNP* in 1973-74 to 15.7 per cent in 1978-79.

Farm Savings

Agriculture generates a little less than half of the national income. Taking clue from the divergent paths of economic development in Japan and U.S.S.R., a number of economists have recently begun emphasizing that agriculture should generate surplus and finance not only its own investment and capital formation but should help the non-farm sector. It was, however, the Rural Credit Survey Report[5] which observed that the first necessity is of making rural savings *possible*. The question of making them *available* is less important and should follow rather than precede the generation of savings. These observations referred to the situation in 1951-52.

4. Reserve Bank of India : Report on Currency and Finance 1973-74, Bombay, 1974, p. 11.
5. All-India Rural Credit Survey: Report of the Committee of Direction, Vol. II—The General Report, Reserve Bank of India, Bombay, 1954, p. 487.

The average and marginal propensities of rural households to save have been estimated by the National Council of Applied Economic Research (NCAER) and other organizations. The average propensity to save has been estimated between 3.5 and 5.5 per cent of incomes by the NCAER[6] in 1962 depending upon the inclusion or exclusion of three items, *viz.*, changes in currency holdings, consumer durables and livestock. The corresponding marginal propensity to save ranged from 14.5 per cent to 16.8 per cent. The survey also found that about 60 per cent of the rural households had either negative or zero net savings. The average income of rural families in absolute terms is insufficient even for mere subsistence and under the circumstance it is to be expected that the vast majority of rural households will have very little surplus above irreducible minimum consumption requirements. The Reserve Bank of India[7] estimated savings as a percentage of agricultural income at 3.9 per cent in 1951-52 and 4.1 per cent in 1958-59.

Since lately agriculture has witnessed certain developments which have brought about a qualitative change in the technological aspects. There has also been a substantial capital formation—both public and private in Indian agriculture. The spread and depth of new technology heralding the onset of green revolution is expected to have brought about increases in incomes and thus savings. A good part of the additional farm incomes would have obviously gone to finance on-farm investment in irrigation, land development, machinery, etc. Due to the higher marginal propensity to consume at lower and middle income groups of farms, a good deal of additional income might have also gone to improve living and nutrition standards including better education and health care. For people living at and below the bare nutrition levels, where their poverty corrodes into their efficiency, the allocation of their additional incomes to augment their low levels of consumption, may itself constitute capital formation in the larger but nevertheless meaningful sense of the term. It is, however, widely believed that in certain categories and types of farms and in some particular areas, large farm surpluses have been recently generated, which have partly gone into the financing of durables of conspicuous consumption.

The farm sector is not a monolithic entity comprising of homogeneous production and saving units. The differences are so large that any straight-cut generalizations about additional incomes, savings and investment could prove to be extremely hazardous and even dangerous. While it is possible that in some areas and on some farms, a large proportion of additional incomes has been invested in output increasing capital initially, it is possible that among a number of farm household units, a saturation point is slowly reaching where additional avenues of profitable investment on-farm are drying up forcing a larger allocation of increased incomes to either non-farm investment

6. National Council of Applied Economic Research: All-India Rural Household Survey, Vol. II, New Delhi, July, 1965, pp. x and 95.

7. *Reserve Bank of India Bulletin*, Vol. XIV, No. 3, March, 1960, p. 320 quoted in P. G. K. Panikar: Rural Savings in India, Somaiya Publications Ltd., Bombay, 1970, p. 104.

or consumption. The irony, however, is that the distribution of land and thus of incomes being as skewed as it is at present, it is possible that while one farm may not be left with much scope for additional capital formation on own farm and is forced to spend or invest elsewhere, the other farm may be starved of necessary resources for any worthwhile increase in capital. The infra-sectoral flow of savings and investment is thus of no less importance than the inter-sector transfers of savings. The crucial question thus is, where the savings are and what the marginal saving/income ratio is. The macro estimates of average and marginal savings in the rural areas, available in NCAER's and RBI's Survey Reports, being useful, as they are, present only an aggregative picture and involve a number of methodological issues and also fall short of providing a picture of changes in marginal propensity to save as a result of increased income due to technological improvements.

A Case Study

In the above background, on the basis of a study conducted by A. Prashad[8] in Muzaffarnagar district of West Uttar Pradesh, a study has been made to find out (*a*) the average and (*b*) the marginal, propensity to save. The area has experienced extensive technological improvement in agriculture. The base of the sample is rather small being only one village. A total of 115 farmers were surveyed. This included all the cultivating farm households in the village with the exception of six who were dropped out because of several reasons. The village was first surveyed in 1963-64 and resurveyed after the lapse of a decade in 1973-74. The intensive survey was completed by staying in the village itself. Out of the multipurpose survey of the households, information relating to saving has been separately tabulated. Though the data collected by Prashad is subject to certain limitations, yet it gives useful insight into the problem. The results of our analysis are discussed below.

Concepts

Savings have been defined as the difference in an accounting period between changes in assets and changes in liabilities adjusted for capital transfers and capital gains and losses. The saving of a household may be expressed as follows :

$$S = (\triangle P_A + \triangle F_A) - (\triangle L + C_t + C_g)$$

where $\triangle P_A$ = change in physical assets (acquisitions minus liquidations),

$\triangle F_A$ = change in financial assets (increases minus decreases),

$\triangle L$ = change in liabilities (increase in borrowings minus increase in lendings),

8. A. Prashad: Change in the Economic Profile of a Village, an unpublished survey, manuscript sent to Harpal Singh.

C_t = net inflow of capital transfers (inflow minus outflow),

C_g = net capital gains(gains minus losses).

In order to eliminate, as far as possible, the impact of time on the relative savings of farms adopting improved technology as compared to those who are essentially practising traditional technology, 92 farms surveyed in 1963-64 and 115 farms surveyed in 1973-74 were categorized into traditional and modern farm types. The concept of traditional and modern farm has been adopted in terms of traditional and modern technologies as broadly interpreted in the context of relevant periods as such. A straight-line linear function was fitted to the data by the method of least squares separately for the two years and two groups of farms. The objective was to find out the relationship between net incomes and savings. Linear function of the following simple form was used :

$$S = a + bY$$

where S = savings,
Y = income,
a = constant or Y intercept,
b = coefficient indicating the slope, *i.e.*, the marginal propensity to save.

The following equations were derived :

1963-64 —	1.	Traditional farms (f = 60)	$S = -215 + 0.02Y$ $R^2 = 0.781$ (0.06)
	2.	Modern farms (f = 32)	$S = -360 + 0.09Y$ $R^2 = 0.693$ (0.04)
1973-74 —	1.	Traditional farms (f = 44)	$S = -538 + 0.10Y$ $R^2 = 0.828$ (0.02)
	2.	Modern farms (f = 71)	$S = -284 + 0.28Y$ $R^2 = 0.856$ (0.008)

(Figures in parentheses indicate standard errors.)

The equations are self-revealing. In the year 1963-64, the marginal propensity to save on the traditional farms was only 2 per cent and statistically not different from zero. In the same year, however, on the modern farms, the marginal propensity to save was considerably higher at 9 per cent. A decade after in 1973-74, the marginal propensity to save has increased in both the traditional and modern farm types, *i.e.*, from 2 to 10 per cent and 9 to 28 per cent respectively. For obvious reasons, it is higher on the modern than on the traditional farms. The saving behaviour of the two categories of farms is however not strictly comparable over the period because the farms have undergone multi-sided changes. The definitions and content of tradi-

tional and modern farms have also changed over the period in cognizance of the changing technological context of the farming. At the respective mean levels of incomes the average saving-income ratio of different farm types is calculated as follows :

Year	Type of farms	Average saving-income ratio
1963-64	Traditional	—1.2 per cent
	Modern	4.6 per cent
1973-74	Traditional	6.8 per cent
	Modern	16.0 per cent

It may be seen that the rates of savings on farms vary according to the state of farm technology. Savings are thus found to be the consequence of technological development, besides being its cause. The technological innovations have not only provided motivation but also augmented the ability for increased saving. These have been further strengthened because of simultaneous improvement in the terms of trade for agriculture. The overall average rate of saving to income in 1973-74 encompassing both the types of farms, at about 13 per cent was quite flattering as it compares well with the assumed level of aggregate savings in the economy in 1973-74 at 12.2 per cent.

The absolute levels of savings per farm household in 1973-74 was Rs. 1,680 and 82 per cent of it was in phyical forms in the purchase of land, installation of irrigation wells, machines, tractors, improved implements, bullocks, land development, etc. The remaining 18 per cent was in the form of financial assets. No account has been taken of hoardings in gold, cash in hand, etc., as information collected on these items was considered to be unreliable and hence discarded. The figure of 18 per cent of savings being in the form of financial assets being an average is rather misleading in the sense that some of the big farmers had much larger share of their saving in the form of financial assets.

To sum up, the study reveals that there has been a conspicuous increase both in marginal and average rates of savings over the last decade or so both among the traditional and the modern types of farms. Technology seems to have contributed significantly both in inducing as well as in raising the capability for increased savings and investment. The current levels of savings have also been quite encouraging. Physical asset formation accounts for a little over four-fifths of the total savings and financial assets nearly one-fifth. The study also shows that the marginal rate of savings to income (10 per cent) for the traditional farms is perhaps still on the low side. On the other hand, the same at 28 per cent is quite substantial on the modern farms. The big farmers also seem to have a considerable share of their savings in financial form.

These findings though limited, are important from certain policy implications both in regard to the method of financing the agricultural sector and mobilization of savings.

Mobilization of Farm Savings

There are three broad alternatives about the use and allocation of farm savings. These can either be used on (*a*) own farm where it is generated, (*b*) on other's farms by an intra-farm transfer and (*c*) on non-farm by net inter-sectoral transfers. The rationale for relative allocations of farm savings among its competitive uses would depend on the social and economic objectives of planned development. The law of equi-marginal utility of savings in competitive forms of investments should guide, at least, in theory, the nature and volume of transfer of savings.

It is generally held that the agricultural sector is not only under-taxed but is being subsidized in the form of low irrigation rates, power tariffs, etc., in the context of a considerable increase in incomes and savings potential corroborated by our study as well. Further, it is quite conceivable that profitable opportunities of fresh investment are likely to progressively dry up (unless a new stream of technological innovations is continuously available) at precisely those farms where the bulk of savings are being generated. There is thus a fear that in the absence of adequate means of mobilization of such surplus savings, these may be increasingly used for consumer durables and less essential consumption. It might perhaps be socially more desirable to mobilize such savings even though these may, at the margin, be at the cost of increased on-farm investment.

Assuming that a transfer of mobilization of farm savings is necessary on the criterion of efficient allocation, the questions of level, form and method of saving would still be pertinent. Mobilization may be at a level where it cuts through conspicuous consumption and leaves the productive investment and financing of current inputs unaffected. Further, it may have to be discriminatory between the types of farms, say the modern and the traditional. In the latter case, the avenues of profitable investment can be reasonably assumed to be substantial under conditions where there still exists considerable scope for the adoption of modern inputs and practices. Not only irrigation, even improved technology has not yet covered the large proportion of the agricultural sector. Inadequacy of resources continues to be a major constraint with a large mass of farmers particularly the small and the marginal. The savings in their case could be an enabling resource to finance and adopt modern technology. The mobilization of savings thus could have different impact on production in the two types of situations, *i.e.* the traditional and the modern, described above.

The mobilization of savings can take several forms. Higher land tax, imposition of income-tax, procurement of farm produce at lower than market

prices, higher pricing of public services and farm inputs such as fertilizers, water, electricity are some of the methods recommended for mobilization of rural savings. The strengthening and widening of financial institutions such as the commercial banks, the co-operatives, provide another useful means to mobilize the increased availability of savings in financial form. The proposed scheme of setting up 50 rural banks is also likely to help mobilization and use of rural savings. Thus, there are various forms in which the rural savings may be mobilized and it would be difficult to do justice to the relative merits of different modes of mobilization within the constraints of the size of this paper. Nevertheless, it may be emphasized that the form and method of mobilization of savings has to be such as to be both equitable and non-inflationary and at the same time is not counter-productive. In this context, it is suggested that a discriminatory price policy for farm inputs offers a promising form of mobilization of farm savings. This may admittedly involve administrative difficulties. Such modern farm inputs as fertilizers, pesticides, improved implements and machinery could be made available to the smaller and marginal farmers at relatively lower prices. On the other hand, farmers who have the capacity to pay and are realising larger incomes as a result of the adoption of these very inputs may be made to pay higher prices for such inputs. Similarly in the case of irrigation rates and electricity tariffs, instead of raising these uniformly, a discriminatory pricing policy *i.e.*, charging progressively higher rates linked to the size of holdings or the size of consumption of these inputs by the individual farms could be profitably adopted. This scheme of discriminatory input pricing for mopping up farm surpluses would lead to a more rational use of the scarce inputs both on social as well as economic considerations. It is unlikely to have an adverse impact on the big farmers who have already tested and acquired experience in the application of these inputs and are convinced of their higher productivity per unit of inputs. Being big, they would have other economies and cushions to bear the marginal burden of increased prices of these inputs. On the other hand, the scheme would provide necessary incentive to the potential adopters of improved farm practices, particularly the small and the marginal farmers. The scheme would thus be non-inflationary if this leads to the adoption of new forms of inputs and practices on the small and other farms which have not hitherto adopted such practices. At the same time, the realisation of higher prices for these very inputs from the big and surplus farmers could help in cutting down their spending on inessential and conspicuous consumption.

To sum up, the average and marginal propensity to save is increasing over time and also because of the internalisation of modern technology in agriculture. A very high percentage of the savings is affected in the form of productive investment on land. A scheme of mopping up of farm savings should be guided by the law of equi-marginal returns. If it is rational to transfer farm savings elsewhere, such a mobilization would still need to be non-inflationary, besides helping to increase farm production. As the eco-

nomy is still not out of the woods as far as agricultural production is concerned, the form of mobilization has to be such as not to affect productive investment in agriculture adversely. A discriminatory input pricing scheme could meet the twin objectives of diverting savings away from conspicuous consumption and retaining the incentive to produce more by adopting scientific farming.

MEASUREMENT OF RURAL SURPLUSES AT THE MICRO LEVEL IN THE SUGAR FACTORY AREAS OF THE MAHARASHTRA STATE

Jagannathrao R. Pawar and Vijay B. Patil*

In order to attain balanced growth of the economy it is necessary that the surpluses accrued within different sectors of the economy are streamlined into the economic system and distributed equally within and outside the sectors. This needs proper identification and measurement of surpluses in different sectors at the micro level. In the rural areas there are several pockets practising commercial and large-scale farming where surpluses are large enough and can be mobilized for the growth of the economy. An attempt is made in this study to estimate the quantum of surpluses at the micro level in one of the agriculturally prosperous pockets of the Maharashtra State.

METHODOLOGY

In the present study it has been hypothesized that in the sugar factory areas of the Maharashtra State, the cultivators growing sugarcane crop have got surpluses and through the adoption of suitable measures these can be mobilized for productive purposes. In view of this, the study was undertaken in the area coming under the jurisdiction of the *Shetkari Sahakari Sakkar Karkhana* (Farmers' Co-operative Sugar Factory) Ltd., Sangli. The data for the study were obtained from member cultivators of the sugar factory through a sample survey. To limit the size of the sample, four villages, *viz.*, Ankalkhop, Manjarde, Padmale and Yelavi were selected at random from the operational area of the sugar factory. From each village a list of member cultivators was obtained and the member cultivators were grouped into three size-groups, *viz.*, small, medium and large on the basis of the size of holding. Based on this distribution, six member cultivators were selected randomly from individual size-groups for each of the villages. Thus a sample of 72 member cultivators was selected for the study. The data on various aspects of the pattern

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