Trends in Rural Savings and Private Capital Formation in India

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This paper reports on trends in rural household savings, net private capital formation in agriculture and the growth and composition of tangible net wealth in rural India from 1950-1973. It also presents fresh estimates of the marginal and average propensities to save and invest during the period with respect to measured as well as permanent and transient income. The results show that there has been an acceleration of saving and capital formation in more recent years.

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TRENDS IN RURAL SAVINGS AND PRIVATE CAPITAL FORMATION IN INDIA 1950-51 - 1973-74

by

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1. Introduction**

This paper reports on trends in (a) rural household savings, (b) net private capital formation in agriculture and (c) the growth and composition of tangible net wealth in rural India during the 24-year period 1950-51 to 1973-74. It also presents fresh estimates of marginal and average propensities to save and invest during this period with respect to measured as well as permanent and transient income. Previous time series studies have covered the earlier period 1950-51/1962-63. (Gupta, 1970, and Datta Roy Choudhury, 1968.) The saving propensities estimated in one of these studies are comparable with our estimates for this earlier period. But there has been an acceleration of saving and capital formation in more recent years, and, therefore, the saving propensities estimated by us for the recent period 1960-61/1973-74 are distinctly higher.

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The paper is organized as follows.

The next Section presents the basic data on the growth of saving and private capital formation - aggregate and per capita - in different Plan periods, and particularly in the period since the start of the Green Revolution in 1967. Variations in the average saving rate and the average rate of private capital formation are also analyzed.

Section 3 contains estimates of the marginal propensities to save (MPS) and invest (MPI) 1/.

From the computed functions we have estimated the positive intercept on the income axis which measures the income level at which positive saving begins. We call it the "critical minimum income" necessary for income to exceed consumption. The relationship of this critical income to the poverty line is very instructive.

The fourth Section compares our time series estimates of saving propensities with those of earlier time series studied. Some all-India cross-section saving rates estimated on the basis of data collected by the National Council of Applied Economic Research have also been reviewed.

The fifth Section separates savings out of permanent and transient income. The MPS out of permanent income appears to be higher than out of measured income. Transient saving seems to augment or reduce permanent saving by 8 to 9 percent on the average.

Section 6 presents some evidence on variations in saving rates across different regions and the returns to investment in modern inputs and assets.

1/ We shall hereafter use "investment" as an abbreviation for private capital formation in agriculture.

Section 7 analyzes the growth of reproducible tangible net wealth (RTW) in the rural areas on the basis of comparable estimates for 1950, 1961, 1966 and 1972 developed by the Central Statistical Organization (CSO) and the Reserve Bank of India (RBI). Gini coefficients, available for 1961-62 and 1971-72, roughly measuring the degree of inequality in the distribution of RTW, are also reported. They indicate no significant change in the degree of inequality.

Livestock Census data contain considerable information on the asset-composition of physical capital. Trends in this composition are also discussed in Section 6.

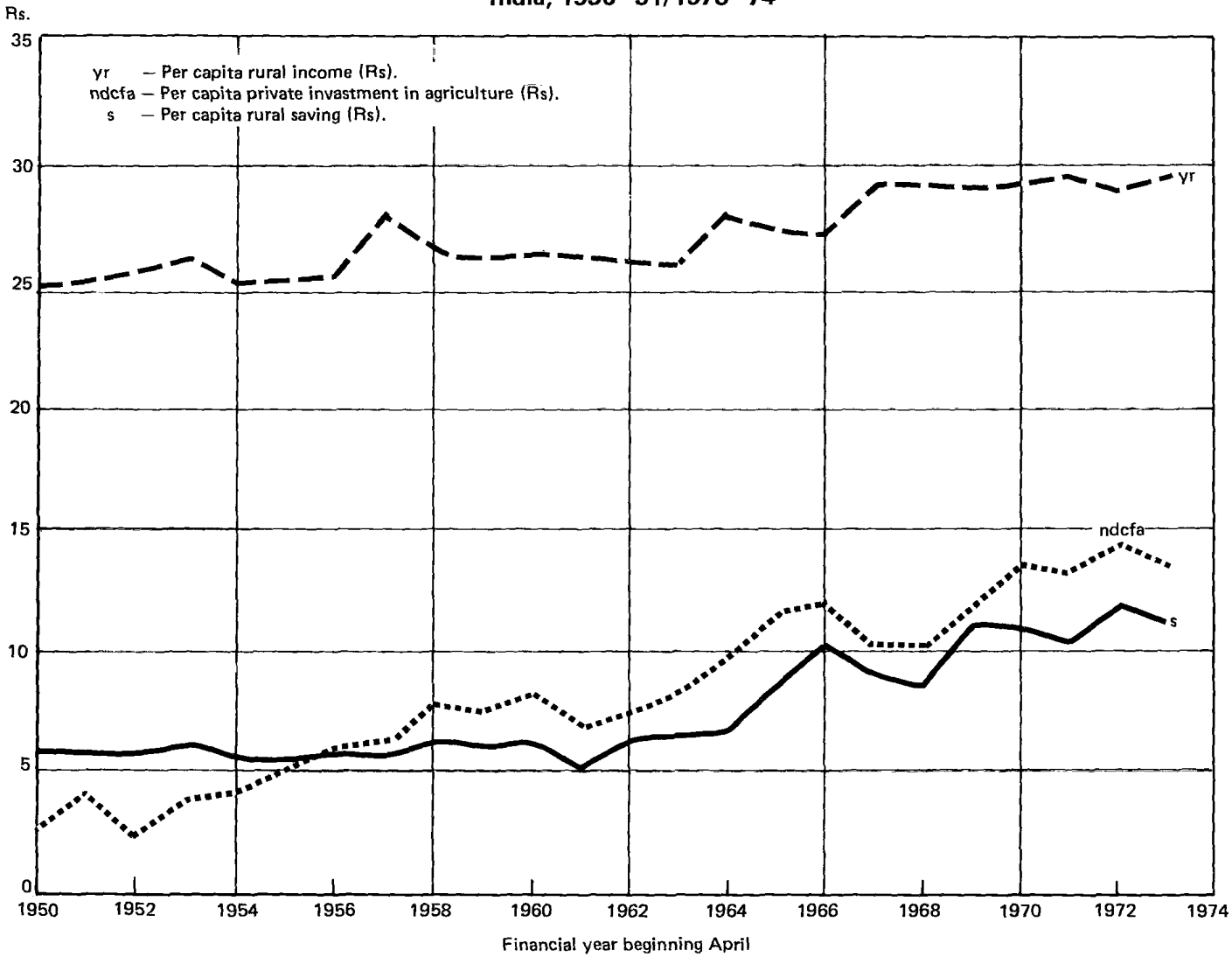
2. Growth of Saving and Capital Formation

Two basic time series - net rural household saving (S), and net domestic private capital formation in agriculture (NDCFA) - for the period 1950-51 to 1973-74 have been developed in Table 13 and plotted in Figure 1. The saving series includes RBI figures for rural household saving up to 1959-60, and CSO figures for the remaining 14 years 1/. The NDCFA series is obtained from the National Income/Accounts Statistics of the CSO 2/. Private capital formation includes construction, machinery and equipment, livestock and change in stocks.

1/ The latter have been computed so as to be comparable with the earlier RBI figures. (See Appendix A.)

2/ Some adjustments have been made. (See Appendix B.)

Rural Saving, Private Investment and Income
(Per capita in 1960–61 prices)
India, 1950–51/1973–74



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The average rural saving rate series is shown in Table 1 and plotted in Figure 2 (a). It will be seen that the saving ratio has recorded a disappointingly modest upward trend. Over the whole 21 year period it averaged only 2.8 percent. In the first two Five Year Plans it averaged 2.3 percent. It rose to 2.5 percent in the Third Plan and then again to 3.8 percent in the Fourth Plan period. A significant step-up in the ratio occurred in the years beginning 1965-66 when price support and the new technology were introduced. The ratio increased from 2.5 percent in the Third Plan to 3.5 percent in the eight years beginning 1966-67. But even after this increase, the level of the saving rate remains very low indeed. The rural sector is still apparently unable to save even 5 percent of its income - the ratio which Arthus Lewis (1954) characterized as the typical indicator of a backward pre-development economy.

For an explanation of this low level we must recall the fact that at least 41.4 percent of the rural population remained below the poverty line (Rs 42.45 per capita per month) even in 1973-74 on the basis of consumption

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(a) The income series used for calculating the saving ratio is the sum of the long-period rural savings series constructed by us and the rural component of the CSO estimate of aggregate consumption. Aggregate CSO consumption is broken up into rural and urban consumption on the basis of the rural: urban consumption ratio implicit in the National Sample Survey data for each year.

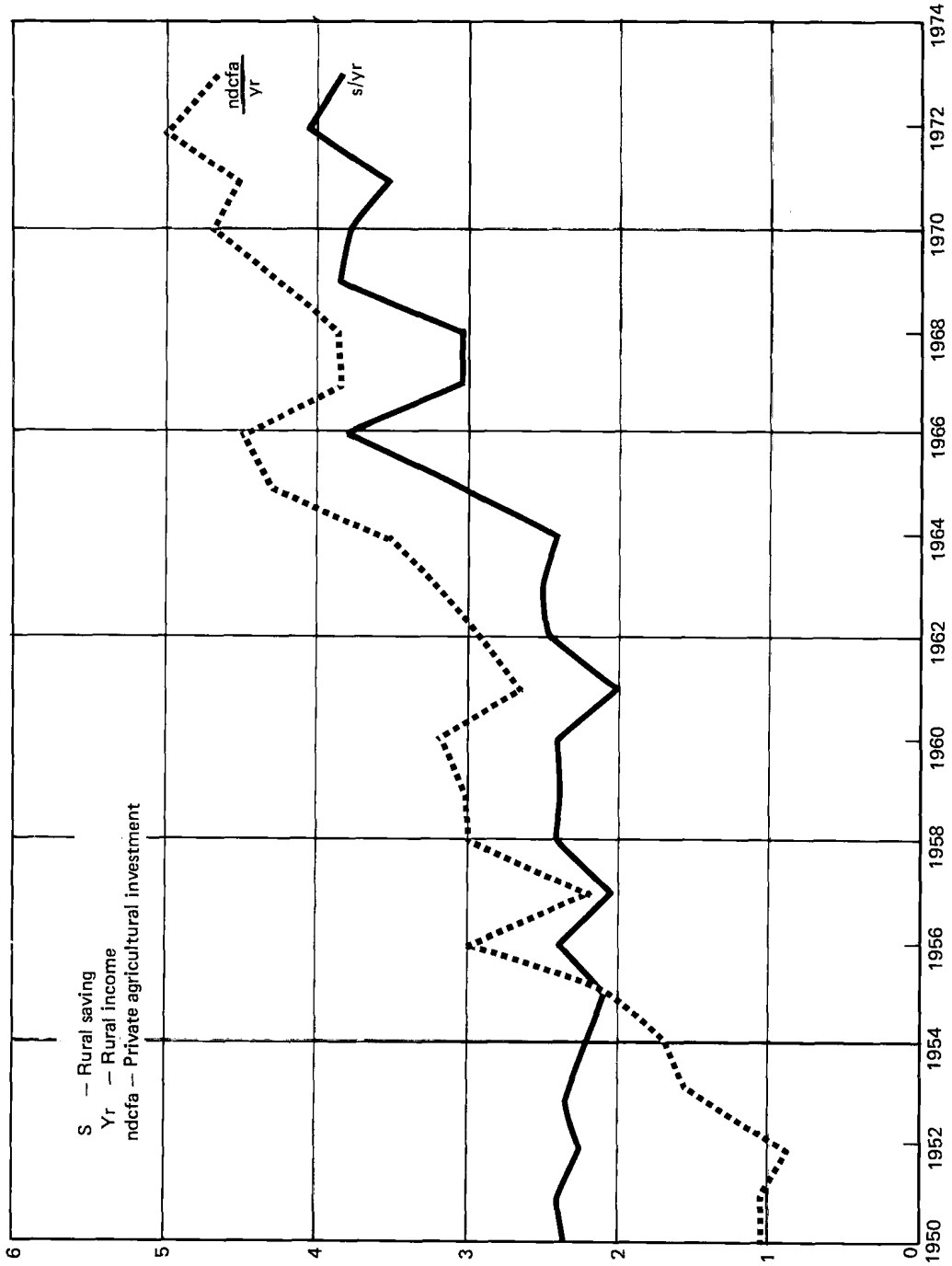
Although the NSS consumption series are considered more satisfactory, experiments with an alternative rural income concept in which this series is used yielded inconsistent and incredible results for the two periods 1950-51/1962-63 and 1960-61/1973-74. This outcome is clearly due to the fact that the CSO and RBI saving estimates are related to CSO income estimates and not to NSS data. Therefore, the choice was made to use CSO consumption data to get the rural income series. This choice has produced consistent and meaningful results for the whole period 1950-51/1973-74. These results are also in harmony with other bodies of independent cross-section data on rural saving, rural capital formation etc.

TABLE 1

RATIO OF RURAL SAVING AND INVESTMENT TO INCOME: INDIA
PER CAPITA (1960-61 PRICES)

Year	Net Saving/ Rural Income	Average of Plan Periods		Net Investment/ Rural Income	Average of Plan Periods	
			(Percent)			
1950-51	2.35	2.35		1.07	1.07	
1951-52	2.40)			1.69)		
1952-53	2.24)			0.91)		
1953-54	2.36)	2.27		1.56)	1.58	
1954-55	2.22)			1.67)		
1955-56	2.11)			2.06)		
1956-57	2.42)			3.30)		
1957-58	2.03)			2.18)		
1958-59	2.39)	2.32		2.95)	2.89	
1959-60	2.37)			2.89)		
1960-61	2.39)			3.14)		
1961-62	2.02)			2.63)		
1962-63	2.44)			2.87)		
1963-64	2.51)	2.51		3.18)	3.29	
1964-65	2.39)			3.49)		
1965-66	3.18)			4.28)		
1966-67	3.78)	)		4.44)	)	
1967-68	3.07)	3.22)		3.77)	3.99)	
1968-69	2.90)	)		3.75)	)	
		)			)	
1969-70	3.82)	)	3.50	4.18)	)	4.35
1970-71	3.74)	)		4.64)	)	
1971-72	3.49)	3.79)		4.47)	4.57)	
1972-73	4.10)	)		4.95)	)	
1973-74	3.80)	)		4.59)	)	
Average (1950-51/ 1973-74)	2.80			2.98		

Ratios of Rural Saving and Private Investment to Rural Income, India, 1950–51/1973–74 (1960–61 prices)



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expenditure data collected by the NSS. 1/ This population cannot afford any positive saving. The capacity to save should also be negligible for millions of people just above the poverty line. For as we shall see in the following Section, saving bcomes significant only at levels of income much above the poverty line. Thus only a fraction of the rural population are able to save. And the saving ratio is significantly high for only a small minority of the population. It is not surprising, therefore, that the average saving rate of the rural economy as a whole should remain small even after some acceleration of income growth in the last decade.

A comparison of trends in rural saving and rural investment ratios cannot be properly made because the time series of rural investment is not available. We have data only on private net capital formation in agriculture (NDCFA) which excludes capital formation in rural non-agricultural sectors. The ratio of NDCFA to rural income (YR) will therefore be an underestimate of the true rural investment/rural income ratio. But we find that over the whole period of 24 years even this lower-limit ratio (NDCFA/YR) has averaged 2.98 percent which is slightly higher than the average rural saving ratio (2.80 percent).

The fact that the investment ratio is slightly higher than the saving ratio is significant, for it implies that the urban sector has been making a net contribution to capital formation in agriculture. In spite of this contribution, however, the investment ratio exceeds the saving ratio only by a small margin.

1/ Ministry of Planning reply to a question in Parliament, 29 June 1977.

The contribution of the urban sector also explains the fact that, although the rural household saving growth rate (3.5 percent) has remained below the all-India household saving growth rate (5.6 percent), the agricultural investment growth rate (7.0 percent) has exceeded the all-India investment growth rate (4.6 percent). As a result the share of net capital formation in agriculture in net domestic capital formation has gone up from 11.5 percent to 19.7 percent between 1950-51 and 1973-74. The proportion still remains low, but there is no basis for the common impression that the share of rural areas in aggregate annual investment has been falling. (Table 2.)

TABLE 2

GROWTH RATES OF SAVING & INVESTMENT /a
1950-51/1973-74

Sl. No.	Items (At 1960-61 prices)	Growth Rate (Percent) Rural	All-India
1.	Per Capita Household Saving	3.55	5.60
2.	Per Capita Capital Formation /b	7.03	4.61

/a Saving in current prices is deflated by the implicit national income deflator, and NDCFA in current prices is deflated by the investment cost index. (See Appendix B.)

/b Agriculture only.

In spite of considerable investment in modern agricultural assets the capital-output ratio in agriculture remained almost unchanged. It was 1.27 in 1950 and 1.28 in 1971. (Datta Roy Choundhury 1977.)

3. Marginal Propensities to Save and Invest

The marginal propensity to save has been derived with the basic linear regression:

$$(1) \quad S_t = a + b\, YR_t + u_t$$

Here S is rural saving and YR rural income. This equation has been estimated with S and YR measured as aggregates in current as well as in constant prices, and as real quantities per capita. (Table 3.)

The results show that the marginal propernsity to save 1/ (MPS) has been 11 percent (Table 3, Equation 3.4), which is substantially higher than the average (2.80 percent). Therefore, the elasticity 2/ of saving with respect to income is quite high (about 3.93).

The marginal and average net investment rates 3/ turn out to be 18.2 and 2.98 percent and the elasticity 2/ of NDCFA with respect to rural income is also high (5.88). (Table 4, Equation 4.4).

These are promising results for they imply that real rural saving per capita can grow nearly four times and agricultural capital formation per capita can grow nearly six times the growth rate of real rural income per capita. If government policy is effective in sustaining a satisfactory rate of growth of rural income, rural saving and farm investment can be relied upon to grow much more than income. But of course the spontaneous growth of rural saving and investment can be accelerated still further if banking facilities are expanded in the rural area, and more attractive physical and financial assets are offered.

Although the estimated income elasticities of rural saving and farm investment are encouraging, the fact remains that the average saving and investment rates (about 3 percent) are disconcertingly low. Until the incidence of

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1/ Estimated with real quantities per capita.

2/ At the means of variables.

3/ Estimated with real quantities per capita.

TABLE 3

RURAL SAVINGS REGRESSIONS: INDIA

1950-51/1973-74

Serial Number	Dependent Variable	Constant	Regression Coefficients				$\bar{R}^2$	Elasticity
			YR	YR/N	YR/NNPD	YR/NNPD/N		
3.1	S	-174.658 (7.438)	0.043 (29.412)				0.974	1.392
3.2	S/N	-5.984 (8.622)		0.047 (25.922)			0.967	1.562
3.3	S/NNPD	-308.082 (-6.821)			0.059 (13.543)		0.888	2.049
3.4	S/NNPD/N	-22.134 (-5.442)				0.110 (7.309)	0.695	3.925

S : Rural Saving in Current Prices
YR : Rural Income in Current Prices
N : Rural Population
NNPD : Net National Product Deflator
t-values are shown in the parentheses.

All equations are linear.

poverty diminishes and income rises to a critical level, internal rural investment effort will have to be supplemented by resource flows from the urban non-farm sector.

The saving equation estimated by us enables us to compute the "critical minimum" level of per capita income at which positive saving is possible. The level is given by the horizontal intercept of the equation on the income-axis (calculated by equating the estimated regression to zero). Thus equation 3.4 yields Rs. 201.22 per annum as the critical per capita rural income (in 1960-61 prices).

This figure may be compared to the Dandekar-Rath poverty line for rural households: Rs 180 per annum in 1960-61 prices. Though it would have been more appropriate to compare the poverty line with the intercept of a cross-section regression, we can still draw the general inference that, on the average, households in rural India can have positive saving only after they have crossed the poverty line. The estimated intercept suggests that real income per capita should rise at least 10 percent above the poverty line before a typical household can afford to save.

We can even conceive of using the critical minimum income, estimated from a saving regression, as a legitimate alternative way of defining the poverty line itself, the logic being that a household may be properly supposed to have risen above poverty only if and when its income exceeds consumption.

There is another interesting question on which the estimated rural saving equation throws some light. We can ask: how much will rural income have to rise in order that higher rural saving ratios of the order of, say 5, 8 and 10 percent may be achieved? This question can be answered if we

TABLE 14

AGRICULTURAL INVESTMENT REGRESSIONS: INDIA
1950-51/1973-74

Serial Number	Dependent Variable	Constant	Regression Coefficient				$\bar{R}^2$	Elasticity
			YR	YR/N	YR/NNPD	YR/NNPD/N		
4.1	NDCFA	-217.693 (7.741)	0.048 (25.104)				0.966	1.525
4.2	NDCFA/N	-7.758 (6.876)		0.053 (17.059)			0.930	1.752
4.3	NDCFA/IDW	-556.200 (10.841)			0.088 (17.453)		0.932	2.717
4.4	NDCFA/IDW/N	-40.480 (5.848)				0.182 (7.060)	0.689	5.876

NDCFA : Net Domestic Capital Formation in Agriculture
YR : Rural Income in Current Prices
t-values are shown in the parentheses

N : Rural Population
NNPD : Net National Product Deflator
IDW : Rural Investment Deflator (Weighted)

All equations are linear.

rewrite the estimated saving function in the form

$$(2) \quad S/Y = 0.11 - \frac{22.13}{Y}$$

This saving ratio function is pictured in Figure 3. In the Fourth Plan period (1969-70/1973-74) the saving rate had risen to 3.8 percent while per capita rural income averaged Rs 291.95 (in 1960-61 prices). The equation suggests that a 5 percent saving rate would require income to rise to about Rs 369; an 8 percent saving rate would require an income of Rs 738 and a 10 percent rate Rs 2,213. In other words, the Fourth Plan level of rural income would have to increase 2.5 times and 7.5 times for the rural saving rate to become 8 and 10 percent respectively. And even a 5 percent saving rate would require a 26 percent increase in rural income. Since the rate of growth of rural income per capita has averaged only 0.8 percent per annum over a long period, it is clear that a substantial escalation of the rural income growth rate will be necessary before the rural saving rate attains a reasonable level and the rural growth process becomes self-sustained. Meanwhile, a net inflow of resources from urban to the rural sector will continue to be necessary.

4. Propensities in the Fifties and Sixties

As stated in the beginning of Section 2, the foregoing results have been derived with a 24-year time series of rural saving constructed by pooling the Reserve Bank figures for the first 10 years and the CSO figures for the latter 14 years. The pooled series has enabled us to get long-period magnitudes of saving propensities. But there are some conceptual differences between the RBI and CSO series. And there is reason to believe that the saving propensity should have been higher in the second period which