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SAVING BEHAVIOUR: NEW AND OLD SERIES AND IMPLICATIONS*

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1. Introduction

IN this paper we seek to examine the implications of New National Accounts Series released in February, 1988 for saving behaviour. The paper first examines the concordance between the old and new series (section 2), surveys the literature on determinants of saving based on old series and cross-section data (section 3), tests the stability of estimated structural relationships for new and old series (section 4) and finally draws implications of the results (section 5).

2. Behaviour of New and Old Estimates of Saving: Some Comparisons

Output, saving and investment series *National Accounts Statistics* (*NAS*), February, 1988, referred to as the new series, differ from the old series *NAS*, January 1987. The differences seem to have arisen from the use of latest information as well as certain methodological changes in estimation. These changes have been described in some detail in *NAS*, Febuary, 1988 and the CSO paper 'Methodology of Estimation of Domestic Saving', November, 1988. However, detailed description of the new series on lines similar to *NAS*: *Sources and Method*, April, 1980 is still awaited. On the basis of available information, Uma Datta Roy Choudhury (UDRC, 1988) and Gothoskar

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(1988) have attempted analysis of the sources of differences between these two series.

In brief, a major methodological difference is in estimating consumption of fixed capital. Instead of using depreciation provided in the book of accounts, now new estimates are based on the life of each type of asset relying on the information brought out in recent surveys.[1] For public administration, while no depreciation is provided in the old series, it is now being imputed on the basis of maintenance expenditure. The corporate sector saving and investment estimates are now based on updated information of paid-up capital. Regarding financial saving of the household sector, no major methodological changes seem to have been made in the new estimates of saving. However, there is a close collaboration between the CSO and RBI in deriving estimates of saving and investment. Specifically, RBI has responsibility for saving/investment estimates of the corporate sector and some components of financial saving. The changes in NAS, particularly saving and investment, are supposed to be largely based on the Raj Committee Report (1982).

Year-to-year comparisons between new and old series show mixed trends (CSO, 1988 and UDRC, 1988). As is well known, such comparisons do not reveal fully temporal similarities in behavioural patterns. Questions have been raised whether the two sets of estimates follow similar patterns over time (Gothoskar, 1988 and UDRC, 1988). We turn to an examination of this issue.

A method of examining the degree of concordance between the new and old estimates is to use regression analysis. This has been done for saving by institutional sectors, saving rates and composition of saving. The extent of concordance with respect to growth rates of each of the above is also covered in this analysis. All the series considered are at current prices. The common period considered is 1980/81—1985/86, except for components of household financial saving which is 1980/81—1984/85, since all necessary data are not available for 1985-86 with regard to the old series. If there is similarity in pattern over the common period then it would enable behavioural analysis by splicing the two series.

The conclusions that emerge from this analysis are—

(1a) Output, whichever way it is measured, is higher in the new series compared to the old but the coefficient of variability is about the same. However, average increments from year to year between these two series differ significantly as revealed by testing the hypothesis whether the marginal coefficients are significantly different from unity. The intercept terms are not significantly different from zero. Further, the growth rates between the two series, on the average, do not significantly differ from each other (Table 5.1).

(1b) A comparison of average gross and net saving reveals a mixed picture. Except for gross corporate saving which shows significant discordance in movements in levels as well as growth rates, total gross saving and its other constituents do not (Table 5.1).

(1c) Net saving, however, shows divergence only in terms of intercept being different from zero for public and corporate saving. However, growth rates do not differ significantly (Table 5.1).

(1d) Capital consumption estimates, as can be expected, show divergence except for corporate sector (Table 5.1).

(2) Gross and net saving rates have a similar pattern except in the case of public saving and the growth of corporate saving rate (Table 5.2).

(3a) Composition of gross saving by sectors does not show any differential behavioural patterns except the growth rate of share of corporate saving (Table 5.3).

(3b) Composition of net saving shows a mixed picture (Table 5.3). This is not unexpected due to differential patterns observed with respect to capital consumption.

(4) Composition of household financial saving shows similar behaviour except in the case of shares and debentures, and provident and pension funds (Table 5.4). A conjecture with regard to shares and debentures is the revision in estimation of paid-up capital and consequent effects on the household estimates which is a residual category. Notwithstanding the above, growth rates do not significantly differ.

In a nutsell, total saving (gross and net) and their rates

show similar behaviour between the two series over the common period considered. The same is true for the composition of gross saving. However, the composition of net saving reveals a mixed picture. Barring public sector saving rate—gross or net—other sectoral rates exhibit similarity of movement over time. As regards saving levels, the behaviour appears different for corporate saving—gross and net—and somewhat for net public saving.

TABLE 5.1 **Comparison of New and Old Series: Levels**

Variable	*Average (Rs. Crore)*		*Level* $N=a+bO$			*Growth Rate In* $(N/O)=A+Bt$
	New (N)	*Old (O)*	*a*	*b*	*R-SQ*	*B*
	(1)	(2)	(3)	(4)	(5)	(6)
Output						
GDPFC	175066.0	161482.5	148.68	* 1.08	0.99	0.0002
	(0.2371)	(0.2373)	(1703.0)	(0.0103)		(0.0015)
NDPFC	156490.8	148804.8	953.00	* 1.05	0.99	- 0.0004
	(0.2318)	(0.2332)	(1531.9)	(0.0101)		(0.0015)
GDPMP	195227.8	182045.0	—288.25	* 1.07	0.99	0.0003
	(0.2388)	(0.2384)	(1717.9)	(0.0092)		(0.0013)
NDPMP	176652.7	169367.3	516.24	* 1.04	0.99	—0.0001
	(0.2343)	(0.2349)	(1463.8)	(0.0085)		(0.0013)
Gross Saving						
GPS	6869.3	6706.7	—170.45	1.05	0.96	0.0126
	(0.1798)	(0.1722)	(698.43)	(0.103)		(0.0053)
GCS	3319.3	3363.4	* - 1596.40	*1.46	0.99	*0.0488
	(0.3142)	(0.2106)	(307.99)	(0.09)		(0.0080)
GHS	29911.7	31230.9	—134.00	0.96	0.94	—0.0061
	(0.2869)	(0.2775)	(3758.9)	(0.117)		(0.0161)
HFS	13606.0	13581.8	555.56	0.96	0.98	—0.0090
	(0.3125)	(0.3231)	(881.63)	(0.062)		(0.0107)
GHSP	16305.7	17648.8	—2071.70	1.04	0.87	—0.0059
	(0.3057)	(0.2528)	(3663.7)	(0 202)		(0.0302)
GDS	40100.3	41300.8	—2092.40	1.02	0.95	0.0010
	(0.2567)	(0.2379)	(4901.7)	(0.116)		(0.0132)
Net Saving						
NPS	- 879.7	2968.1	*—4950.00	1.37	0.89	—
	(2.1465)	(0.4383)	(760.93)	(0.238)		
NCS	696.5	1221.1	* —932.81	1.33		0.0954
	(0.4706)	(0.1958)	(195.72)	(0.158)	0.95	(0.0456)

	(1)	(2)	(3)	(4)	(5)	(6)
NHS	21708.3	24434.2	—10.73	0.89	0.90	—0.0096
	(0.3021)	(0.2866)	(3733.9)	(0.148)		(0.0233)
HFS	13606.0	13581.8	555.56	0.96	0.98	—0.0090
	(0.3125)	(0.3231)	(881.63)	(0.062)		(0.0107)
NHSP	8102.3	10852.1	−2641.20	0.99	0.67	−0.0198
	(0.4248)	(0.2626)	(3861.1)	(0.346)		(0.0799)
	21525.2	28623.2	−619.74	0.77	0.84	—0.0066
NDS	(0.2435)	(0.2171)	(4894.4)	(0.168)		(0.0235)
Capital Consumption						
CC	18575.2	12677.7	191.78	• 1.45	0.99	−0.0035
	(0.2827)	(0.2852)	(494.25)	(0.038)		(0.0035)
CCPS	7749.0	3738.7	• 1365.10	• 1.71	0.99	•− 0.0442
	(0.3051)	(0.3691)	(280.84)	(0.071)		(0.0108)
CCCS	2622.8	2142.3	—261.38	1.35	0.95	0.0150
	(0.2921)	(0.2591)	(334.79)	(0.152)		(0.0122)
CCHS	8203.3	6796.7	−288.18	• 1.25	0.99	(0.0069)
	(0.2587)	(0.2496)	(227.30)	(0.033)		(0 0 39)

Notes:

(a) Figures in parentheses in columns (1) and (2) are coefficient of variation (Standard Deviation/Mean).

(b) Figures in parentheses in columns (3), (4) and (6) are standard errors. The period is 1980/81—1985/86.

(c) • in column (4) indicates coefficient is significantly different from unity at 5% level of significance.

(d) • in columns (3) and (6) indicates coefficients are significantly different from zero at 5% level of significance.

(e) List of variables:

CC : Capital Consumption
CCCS : Capital Consumption Private Corporate Saving
CCHS : Capital Consumption Household Physical Saving
CCPS : Capital Consumption Public Saving
GCS : Gross Private Corporate Saving
GDPFC : Gross Domestic Product At Factor Cost
GDPMP : Gross Domestic Product At Market Prices
GDS : Gross Domestic Saving
GHS : Gross Household Saving
GHSP : Gross Household Physical Saving
GPS : Gross Public Saving
HFS : Household Net Financial Saving
NCS : Net Private Corporate Saving
NDPFC : Net Domestic Product At Factor Cost
NDPMP : Net Domestic Product At Market Prices
NDS : Net Domestic Saving
NHS : Net Household Physical Saving
NPS : Net Public Saving

TABLE 5.2 Comparison of New and Old Series: Rates

Variable	*Average Percent*		*Level* $N=a+bO$			*Growth Rate In* $(N/O)=A+Bt$
	New (N)	*Old (O)*	*a*	*b*	*R—SQ*	*B*
	(1	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Gross Saving Rates						
GPS/GDPMP	3.6	3.8	* 0.40	* 0.84	0.99	0.0123
	(0.1950)	(0.2188.	(0.139)	(0.036)		(0.0056)
GCS/GDPMP	1.7	1.9	1.34	0.18	0.02	* 0.0485
	(0.0865)	(0.0640)	(1.126)	(0.604)		(0.0075)
GHS/GDPMP	15.2	17.0	1.12	0.83	0.40	—0.0064
	(0.0778)	(0.0533)	(8.620)	(0.505)		(0.0158)
HFS/GDPMP	6.9	7.3	1.10	0.79	0.87	—0.0093
	(0.0987)	(0.1095)	(1.122)	(0.152)		(0.0098)
GHSP/GDPMP	8.4	9.7	—8.26	1.71	0.81	—0.0062
	(0.1686)	(0.0763)	(4.050)	(0.416)		(0.0302)
GDS/GDPMP	20.5	22.7	—8.29	1.27	0.12	0.0006
	(0.0513)	(0.0128)	(38.64)	(1.702)		(0.0128)
Net Saving Rates						
NPS/NDPMP	—0.4	1.9	* —2.06	* 0.89	0.99	——
	(2.7605)	(0.5614)	(0.065)	(0.030)		
NCS/NDPMP	0.4	0.7	0.09	0.40	0.32	0.0955
	(0.2984)	(0.2223)	(0.220)	(0.290)		(0.0457)
NHS/NDPMP	12.2	14.3	1.07	0.78	0.34	—0.0094
	(0.1085)	(0.0697)	(7.720)	(0.539)		(0.0232)
HFS/NDPMP	7.6	7.9	1.14	0.82	0.87	—0.0089
	(0.1025)	(0.1127)	(1.240)	(0.157)		(0.0101)
NHSP/NDPMP	4.6	6.4	—7.01	1.81	0.78	—0.0196
	(0.3457)	(0.1215)	(3.08)	(0.477)		(0.0800)
NDS/NDPMP	12.3	17.0	—9.22	1.27	0.26	—0.0064
	(0.0985)	(0.0288)	(17.98)	(1.06)		(0.0234)

Notes:

(a) Figures in parentheses in columns (1) and (2) are coefficient of variation (Standard Deviation/Mean).

(b) Figures in parentheses in columns (3), (4) and (6) are standard errors. The period is 1980/81—1985/86.

(c) * in column (4) indicates coefficient is significantly different from unity at 5% level of significance.

(d) * in columns (3) and (6) indicates coefficients are significantly different from zero at 5% level of significance.

TABLE 5.3 Comparison of Old and New Series: Composition

Variable	*Average Percent*		*Level* $N=a+bO$			*Growth Rate In* $(N/O)=A+Bt$
	New (N)	*Old (O)*	*a*	*b*	*R-SQ*	*B*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
Composition: Gross Saving						
GPS/GDS	17.6	16.7	1.66	0.95	0.97	0.0117
	(0.2035)	(0.2211)	(1.46)	(0.085)		(0.0090)
GCS/GDS	8.2	8.2	9.96	−0.22	0.03	* 0.0479
	(0.0728)	(0.0535)	(5.51)	(0.671)		(0.0089)
GHS/GDS	74.2	75.1	11.99	0.83	0.88	−0.0070
	(0.0447)	(0.0501)	(11.49)	(0.153)		(0,0032)
HFS/GDS	33.6	32.3	−1.76	1.09	0.83	−0.0100
	(0.1265)	(0.1091)	(8.20)	(0.252)		(0.0127)
GHSP/GDS	40.6	42.8	−29.88	1.65	0.91	−0.0068
	(0.1306)	(0.0718)	(11.14)	(0.26)		(0.0187)
HFS/GHS	45.4	43.0	−20.89	1.54	0.88	−0.0029
	(0.1343)	(0.0860)	(12.51)	(0.29)		(0.0154)
Composition: Net Saving						
NPS/NDS	−3.0	11.3	*−17.29	* 1.27	0.99	−−
	(2.6612)	(0.5546)	(0.76)	(0.06)		
NCS/NDS	3.2	4.4	1.48	0.39	0.16	0.1020
	(0.2599)	(0.1929)	(1.99)	(0.45)		(0.0465)
NHS/NDS	99.8	84.4	2.20	1.16	0.99	−0.0030
	(0.0768)	(0.0780)	(5.65)	(0.067)		(0.0019)
HFS/NDS	62.8	46,5	−16.33	1.70	0.80	−0.0025
	(0.1809)	(0.1280)	(20.24)	(0.432)		(0.0220)
NHSP/NDS	37.0	37.8	*−50.41	* 2.31	0.87	−0.0132
	(0.2799)	(0.1103)	(17.34)	(0.456)		(0.0593)
HFS/NHS	62.9	55.1	−51.28	2.07	0.88	0.0005
	(0.1638)	(0.0847)	(21.09)	(0.382)		(0.0222)

Notes:

(a) Figures in parentheses in columns (1) and (2) are coefficient of variation (Standard Deviation/Mean).

(b) Figures in parentheses in columns (3), (4) and (6) are standard errors. The period is 1980/81—1985/86.

(c) * in column (4) indicates coefficient is significantly different from unity at 5% level of significance.

(d) * in columns (3) and (6) indicates coefficients are significantly different from zero at 5% level of significanee.

TABLE 5.4 **Comparison of Old and New Series: Levels Household Financial Saving**

Variable	*Average (Rs. Crore)*		*Level* $N=a+bO$			*Growth Rate* $In\ (N/O)=A+Bt$
	New (N)	*Old (O)*	*a*	*b*	*R-SQ*	*B*
	(1)	(2)	(3)	(4)	(5)	(6)
Household Financial Saving						
HFS	12502.2	12551.6	1126.4	0.91	0.98	−0.0202
	(0.2935)	(0.3198)	(896.05)	(0.069)		(0.0129)
CU	2062.6	2080.8	−23.69	1.00	0.99	0.0011
	(0.3981)	(0.3934)	(38.16)	(0.017)		(0.0054)
ND	4082.6	4173.2	133.41	0.95	0.89	−0.0182
	(0.3075)	(0.3002)	(821.61)	(0.19)		(0.0342)
SD	743.6	811.8	389.55	* 0.44	0.66	−0.2237
	(0.3480)	(0.5917)	(167.62)	(0.183)		(0.0873)
NCG	1618.2	1598.6	52.48	0.98	0.99	−0.0363
	(0.5396)	(0.5562)	(73.84)	(0.041)		(0.0225)
IH	1150.2	1134.6	- 52.86	1.06	0.99	0.0054
	(0.2100)	(0.2002)	(56.52)	(0.049)		(0.0050)
PPF	2845.0	2752.6	−113.96	* 1.08	0.99	0.0040
	(0.2103)	(0.2020)	(70.90)	(0.025)		(0.0028)

Notes:

(a) Figures in parentheses in columns (1) and (2) are coefficient of variation (Standard Deviation/Means).

(b) Figures in parentheses in columns (3), (4) and (6) are standard errors. The period is 1980/81—1984/85.

(c) * in column (4) indicate coefficient is significantly different from unity at 5% level of significance.

(d) List of variables:

CU : Currency
HFS : Household Net Financial Saving
IH : Insurance Funds
PPF : Provident and Pension Funds
NCG : Net Claims on Government
ND : Net Deposits
SD : Shares and Debentures

3. Hypotheses and Evidence

In this section we outline the various hypotheses tested in the literature on saving behaviour in India based on our

recent survey (1987). The principal hypotheses relate to income, differential propensities to consume/save between agricultural and non-agricultural sectors and the role of intersectoral terms of trade, interest rate, inflation, taxation and banking infrastructure. The evidence presented draws on time series studies based on old estimates and cross-section studies. Predominantly, these studies consider gross saving.

Income

The normal income hypothesis has received considerable attention. The hypothesis envelopes permanent income hypothesis due to Friedman and life-income hypotheses of Modigliani-Brumberg-Ando. In contrast to the Keynesian current income hypothesis which postulates consumption/saving as a function of current income, the class of normal income hypotheses draw a distinction between measured income and normal income. They emphasise that transitory components of measured income do not affect consumption but influence saving. This consideration brings in lags in the response of consumption to changes in income, the lags being due to the transitory character of income changes. The role of such lags has been highlighted in the Indian context by Raj (1962) and Rao (1980, 1983).

Various tests have been devised for testing the normal income hypothesis. The common approach is to use average income or lagged consumption/saving or rate of growth of income in addition to current income, to explain consumption/saving behaviour. However, in the literature more refined and sophisticated tests have been used.

The evidence in favour of normal income hypothesis in the Indian context has been examined by various scholars. Evidence from cross-section studies is relatively sharp compared to time series.

Two approaches have been adopted in the measurement of permanent income in cross-section studies. One relates to averaging income over a time horizon, broadly over a three-year period, with possibly differential weights. The other is to use indices such as education, land value, capital assets, family labour and level of technology, particularly in agriculture, to arrive at an estimate of permanent income. In this context

often regression approach has been used. Prominent among the cross-section studies are Ramanathan (1968 and 1969), Bhalla (1978, 1979 and 1980) and National Council of Applied Economic Research (NCAER) studies (1985 and 1986). All the studies are based on NCAER household surveys. It may be noted that Ramanathan's study is based on Delhi urban survey while the others are based on longitudinal panel data.

These studies do provide evidence in favour of the weak version of permanent income hypothesis. The weak version refers to the situation where the marginal propensity to save out of transitory income is less than one but positive. Bhalla (1978) brings out an interesting aspect relating to the role of investment opportunities in influencing saving behaviour of agricultural households. Increased investment opportunities provided stimulus to saving for subsistence households with low access to capital markets while for non-subsistence households who have access to capital markets a perverse effect was noted. Another important feature observed by Bhalla (1980) is the non-linear saving-income relationship for the rural households. Saving rate varies directly with permanent income reaching an asymptote, implying that neither standard Keynesian nor permanent income models adequately describe saving behaviour. The time series results have been generally less robust in validating the normal income hypotheses than cross-section studies. However, the recent studies by Krishnamurty and Saibaba (1981, 1982 and 1984) and Krishnaswamy, Krishnamurty and Sharma (1987) which use rate of growth of income to explain saving rate have found it to be an important variable in explaining saving rate particularly for the household sector.

In a nutshell, the empirical evidence tends to support the normal income hypothesis and consequently lags in the response of saving/consumption to income.

Agricultural and Non-Agricultural Differential Propensities and Intersectoral Terms of Trade

In the Indian context it has been hypothesised by Raj (1962) and Chakravarty (1973) that the propensity to save in agriculture is lower than that in the non-agricultural sector. Given this, shifts in sectoral terms of trade influence income and consequently saving behaviour in these two sectors. If the

propensity to save in the agricultural sector is lower than that in the non-agricultural sector, and given the outputs or their relative rates of growth, then shifts in favour of (against) agriculture would suggest a decline (rise) in the saving rate. Similarly, given relative prices, faster (slower) rate of growth of agricultural output in relation to the aggregate output of the economy would imply a decline (rise) in the saving rate. It may however be noted that shift in intersectoral terms of trade are intimately linked with policies, given outputs. Therefore, the effect of shifts in terms of trade on saving should be viewed together with changes in outputs.

It is often conjectured that the impact of green revolution, particularly in the post-seventies, on income distribution within agriculture and the price policies pursued during these years had led to an increase in the saving rate of the agricultural sector. The reason underlying this conjecture could be as follows. Large land-holding classes had greater accessibility to inputs such as water and fertilisers and therefore, increases in output and marketed surplus were enjoyed by this class as a result of HYV technology, commonly referred to as green revolution. In addition, there might have been some rigidity in downward flexibility of agricultural prices, normally associated with increases in output, because of higher procurement prices which turned out in reality to be support prices (Chakravarty, 1979). Therefore, income distribution may have shifted in favour of upper income groups within agriculture who have a higher propensity to save and therefore, the propensity differential between the two sectors could have narrowed in the post-seventies. These aspects have been examined in the literature.

Friend (1966) for the first time brought out from NCAER survey data (1962 and 1965) substantive evidence in favour of the hypothesis of lower propensity to save in agriculture. This has been strengthened by the later survey studies of NCAER (1972 and 1980). An examination of the estimates of marginal propensities to save of the rural and urban households points to a narrowing of the differentials in propensity to save between the two. Both the propensities have increased over time but rural households have shown a larger increase. Further, the recent NCAER study (1985) highlights that urban/rural diffe-

rences in saving propensities are larger in less developed districts as compared to more developed ones. Bhalla (1978) in analysing NCAER (1972) rural survey data brings out an interesting conclusion, that even within the agricultural sector the propensity to save out of agricultural income is lower than that associated with non-agricultural income.

In time series studies, an early attempt to distinguish between the two propensities is by Krishnamurty (1964 and 1965). He introduces the ratio of real income originating in non-agriculture to real income originating in agriculture in the consumption function which is analogous to the use of wage share in the consumption/saving function for the developed countries. A similar approach has been followed subsequently, for instance, by Krishnamurty and Choudhry (1968), Pani (1977 and 1984), Majumdar *et al.* (1980) and Bhattacharya (1985). The results are not uniform but the later studies suggest higher propensity to save in the agricultural sector. A limitation of this approach is that it ignores the effect of intersectoral terms of trade. Krishnamurty and Saibaba (1981 and 1982) use share of income originating in agriculture in current terms which implicitly takes account of the effect of changes in intersectoral terms of trade. Subsequently, Krishnamurty (1984), Pandit (1984) and Krishnaswamy, Krishnamurty and Sharma (1987) have used a similar approach. These studies also confirm propensity differentials.

The above 'share' approach has been adopted in the absence of independent consumption/saving estimates for the two sectors. However, some researchers (Diwan, 1967; Choudhury, 1968; Gupta, 1979a; Chopra, 1972; Krishna and Ray Choudhuri, 1982) have explicitly or implicitly made use of rural/urban consumption/saving data derived from aggregate series which are based on benchmark proportions. Notwithstanding the nature of data used, these studies also confirm the existence of propensity differentials discussed above.

The studies of Krishnamurty and Saibaba, and Krishnaswamy *et al.* have not only brought out the propensity differentials but also obtained results that confirm narrowing of the differentials in post-green-revolution years, that is, the post-seventies. Given the propensity differentials, the results sharply focus on the effects of shifts in intersectoral terms of trade.[2]

In brief the evidence presented support:

(i) lower propensity to save in agricultural sector compared to non-agricultural sector;

(ii) narrowing of the propensity differential between the two sectors in the post-seventies as a result of a sharper rise in the saving propensity of the agricultural sector following the green revolution and

(iii) adverse impact of a rise in intersectoral terms of trade in favour of agriculture on the aggregate saving rate, given other factors.

Interest Rate

The role of rate of interest in influencing saving behaviour has received considerable attention in the literature on developing countries (Mikesall and Zinser, 1973; Snyder, 1973 and Fry, 1984) and particularly in India. The evidence about the strong supportive role of interest rate in India has not been very clear-cut. In the Indian context the nominal rates of interest in the organised markets have been regulated by public authority and their variation has not been larger over the years. However, what is of relevance in the analysis of saving rates is not nominal rate of interest, but real rate of interest, that is, interest rate adjusted for actual or expected rate of inflation. Rates of interest adjusted for rates of inflation have, however, shown considerable variability in India over the last three decades, ranging from large negative values to small positive magnitudes.[3] There has been a great deal of scepticism regarding the effectiveness of the role of interest rate as a policy instrument in promoting aggregate saving rate. However, the scepticism is much less with regard to its role in influencing the composition of saving. Chakravarty *et. al* (1985) have noted that administered interest rate system lacks necessary flexibility in promoting saving and in particular, financial saving.

The focus on interest rate as a determinant of saving in empirical studies on India is relatively of recent origin. In the absence of necessary data on interest rates in the unorganised financial sector, researchers have taken recourse to using interest rates in the organised markets. The recent studies have

tended to use real rate of interest, i.e., nominal rate adjusted for rate of inflation.

Williamson (1968) and Gupta (1970a, 1970b) have used nominal rate of interest. While Williamson finds no significant effect, Gupta finds a positive significant effect for total and urban saving. Mujumdar *et al.* (1980) in their disaggregative analysis do however find some effect of nominal interest rate on components of financial saving. Bhattacharya (1985) and Pandit (1985) use real rate of interest in their disaggregative analysis. Pandit finds favourable impact of rate of interest on some components of financial saving (currency and bank deposits) while Bhattacharya's results are inconclusive. However, he finds interest elasticity of financial saving (bank deposits and its composition) become important when interest rates are adjusted for tax benefits. A similar tendency is also found by Madhur (1984). Krishnaswamy, Krishnamurty and Sharma (1987) do however find a statistically significant positive effect of real rate of interest on saving rate of the households as well as for the economy as a whole. The interest rate effect cannot be ignored as it has some favourable effect on aggregate saving and its composition.

Inflation

Another variable which has received considerable attention in explaining saving behaviour in India is the rate of inflation. India witnessed high rates of inflation particularly during the first half of the seventies. However, an unequivocal answer to the question as to whether inflation promotes saving or otherwise, is not available. It has been argued that inflation via income redistribution and real balance effects could have a positive effect on saving. Obversely, it has been contended that inflation could also have a negative effect on saving particularly in a country like India with low consumption levels where consumers are likely to resist cuts into real consumption. Which of two opposing consequences of inflation would dominate in turn depends on a host of interrelated factors such as extent of inflation, composition of consumption (durables and non-durables) and saving (physical and financial assets), expectations, interest rates, etc. Ultimately, the impact of inflation on saving rates is an empirical question and the evidence

so far has not been unambiguous. It is also generally believed in India that income distribution has drifted in favour of upper income groups (Rao, 1980 and 1983) and consequently saving rates have witnessed uptrends. The drift in income distribution could be associated with many other factors apart from inflation. In this context it may be noted that rigorous testing of this aspect has not been possible due to absence of continuous data on income distribution over time.

Evidence on the impact of inflation on saving has been mixed. The early studies by Diwan (1968), Gupta (1970a) and Joshi (1970) find negative or no effect of inflation on saving but the results are not statistically robust. Among the later studies Pandit also obtains a similar result. However, Krishnamurty and Saibaba (1981, 1982), Krishnamurty (1985), Bhattacharya (1985) and Krishnaswamy, Krishnamurty and Sharma (1987) find a positive impact. Except for Krishnamurty and Saibaba, the results of others are somewhat weak statistically.

Mujumdar *et al.* (1980) allude to differential impact of high and low rates of inflation on saving. In this context it may be noted that Krishnamurty and Saibaba infer a non-linear relationship between saving rate and rate of inflation. Moderate rates of inflation are found to have favourable impact on saving rates while high rates of inflation are not necessarily saving-promoting since the impact is dampened.

External Terms of Trade

In recent literature, particularly Fry (1984) and the various studies commissioned by the Asian Development Bank, external terms of trade—Harberger, Laursen and Metzler effect—has received considerable attention in the explanation of saving, particularly in the context of Asian countries (see ADB studies). It is hypothesised that if the improvements in the terms of trade (price of exports to price of imports) are regarded to be temporary, the coefficient of this variable is expected to be positive. This is because improvement in terms of trade may improve current account and saving rate may increase to even out stream of consumption over time. However, if improvements in terms of trade are viewed as permanent, its impact on the saving rate is ambiguous (Sevensson and Razin, 1983).

Though this variable has figured prominently in inter-

country analysis, it has not received much attention in the Indian context. However, the study of Krishnaswamy, Krishnamurty and Sharma (1987) does not find any impact of external terms of trade on saving in India. This is not surprising since foreign trade forms a relatively small proportion of GNP.

Taxation

The impact of transference of income from the private sector to the public sector through taxation (net of subsidies) has been highlighted in the literature (Please, 1967 and 1970) and Krishnamurty (1968). The discussion has centred around the role of taxation in promoting or retarding aggregate saving rates and in particular the household saving rate. The impact of fiscal policies in the mobilisation of aggregate saving depends on the propensities of the public and the private sectors. If the propensity to save of the public sector is higher than that of the private sector, then transference of resources from the private to public sector could be expected to raise the saving rates though it may have a retarding effect on private saving. Conversely, higher propensity to save in the private sector compared to the public sector would imply negative effects of tax efforts on aggregate saving. Tax receipts minus subsidies as a ratio to income has been used to evaluate the impact of tax efforts. The sign of the coefficient of this variable could be positive or negative depending upon the differential propensities to save of the two sectors. In particular, its impact on private saving would be negative if increase in taxation cuts into saving rather than consumption. In view of the low levels of consumption in developing countries, it is probable that increased tax mobilisation may cut more into saving rather than consumption of the private sector and in particular that of households. It may, however, be noted that if the saving propensities are same between the public and private sectors this variable (taxes minus subsidies to income) should have no effect on the aggregate saving rate. In this context, it is important to note that public expenditures include expenditures of investment type such as education and health and, therefore, any inference on the role of taxation has to be interpreted with caution.

The ratio of taxes less subsidies to domestic product in India increased over time. Also, in recent years balance of

current revenues over current expenditures of government and net saving of the public sector have turned out to be negative.

There have been some studies on the role of taxation in influencing household, corporate and aggregate saving (Thimmaiah, 1978; Madhur, 1984; Sarma, 1984; Krishnaswamy, Krishnamurty and Sharma, 1987). The results generally are not robust. However, they point to adverse effects of taxation on household saving and weak positive effect on aggregate saving. Much credence cannot be placed on the current findings and more empirical work is called for.

Banking Infrastructure

There has been financial development in India and in particular, strengthening of banking infrastructure over the years. This is particularly noticeable in the post-bank-nationalisation period, i.e., 1969 onwards. This period witnessed rapid branch expansion of commercial banks involving increased geographical and functional coverage (Muzumdar *et al.*, 1980 and 1984, and Krishnaswamy *et al.*, 1987). This facet of financial development is believed to have led to larger mobilisation of saving and increase in the saving rate particularly of the household sector in the seventies. To capture the impact of this phenomenon, average population per bank branch (Pop/Bank) is often introduced as an explanatory variable to explain saving.

Other interrelated aspects of financial development (such as uptrends in finance ratio, financial interrelation ratio, new issue ratio and intermediation ratio[4]) may also have contributed to increased financial saving (Chakravarty *et al.*, 1985).

The importance of qualitative and quantitative change relating to banking infrastructure, increased financial intermediation and financial deepening and their role in promoting saving has been discussed extensively in the descriptive literature on India (for instance see, Goldsmith, 1983; Chakravarty *et al.*, 1987). However, there have not been many econometric studies which attempt to quantify the impact of such changes on saving. The quantitative studies basically deal with bank branch expansion. Recent studies (Krishnaswamy *et al.*, and Krishnamurty *et al.*, 1987) have found a significant impact of spread of banking on saving. The result is in sharper relief with regard to household saving possibly because of the exist-

ing potential for deposit mobilisation from households. However, this potential may taper off with further bank branch expansion.

Other Determinants

One of the important factors mentioned as having contributed to the spectacular rise in saving rates during the post-seventies, is the phenomenal increase in inward remittances from Indian nationals abroad, particularly those working in the Middle East (Mujumdar *et al.*, 1980). The extent of its contribution is yet to be fully assessed. Another factor mentioned (Raj, 1979 and Mujumdar *et al.*, 1980) is the large accumulation of food stocks with the public agencies since the late seventies. Given demand conditions, increase in public stocks is basically a transfer of inventory investment from farm households to the public sector, and therefore it is not clear how this may have contributed to increase in domestic saving. However, it may have resulted in a shift in the composition of household saving in favour of financial assets as households have received financial payments for the grains.

Variables like liquidity and wealth have been tried to explain consumption/saving particularly in time series studies (see for instance, Choudhry, 1963; Choudhury, 1968; Marwah, 1964 and 1972; Bhattacharya, 1975, and Sinha, 1986). They show a positive influence on consumption but the results are not very robust.

Having discussed variables that have been considered in the literature, it is necessary to point out that a neglected issue is the role of price of capital goods in relation to consumer goods in influencing saving behaviour and in particular, that of households. The Raj Committee (1982) has pointed out that real investment and saving rates rose slowly compared to the corresponding nominal rates due to faster rise of price of capital goods compared to that of consumer goods.

Highlights

The above reveals the following behavioural tendencies of saving in India:

(i) normal income hypothesis has relevance and saving rates have a positive association with income growth;

(ii) propensity to save in the agricultural sector is lower than that in the non-agricultural sector, though this difference appears to have narrowed;

(iii) shifts in intersectoral terms of trade in favour of agriculture have adverse impact on saving rates;

(iv) interest rate adjusted for inflation/tax benefits influences saving behaviour total as well as its components;

(v) moderate rates of inflation have favourable effects on saving, but high rates of inflation appear to dampen saving;

(vi) financial development, in particular bank branch expansion, appears to be saving-promoting.

Uma Datta Roy Choudhury (1988) raised an important issue, whether or not the behavioural tendencies observed in the economy, and in particular saving, persist in the new series. We turn to this question in the next section and concentrate on the gross domestic saving rate.

4. Behavioural Pattern of Saving Rate: A Test

Broadly following the specification contained in our joint work with Krishnaswamy (1987), we test for compatability of behaviour of gross saving rate between the old and new NAS series.

The specification is as under:

$$\frac{GDS}{GDP} = f\left(d, \frac{GDPAGFC}{GDPFC}, \frac{GDPAGFC}{GDPFC}*d, \frac{POP}{BANK}, (R\ 12—P^*), GGDP, GDEF\right)$$

where,

GDS : gross domestic saving (current prices)

GDP : gross domestic product at market prices (current prices)

GDPFC : gross domestic product at factor costs (current prices)

GDPAGFC : gross domestic product at factor costs (current prices) originating in agriculture and allied activities.

d	: dummy = 1 for 1969/70 onwards and zero otherwise
POP	: population (millions)
BANK	: total bank branches
R 12	: rate of interest on 12-month bank deposits
P*	: expected rate of inflation measured by rate of change in wholesale price index lagged one year
GGDP	: rate of change in real GDP
GDEF	: rate of change in implicit GDP deflator.

It may be noted that slope and intercept dummy are used to capture effects of green revolution in sectoral propensity differentials.

Behavioural stability is tested using Chow's Test (1960) for predictive failure. This test examines whether or not new information is compatible with an early period. The design of our investigation into structural stability of the above saving rate equation is as follows. First, we estimate the specified relation ship for the period 1954/55—1981/82 using the old NSA series (Table 5.5). Then using the two information sets upto 1984-85, namely, old and new NSA Series, Chow's test for predictive failure is carried out (Table 5.8). Lastly, we present the results for the estimated relations using old series upto 1984-85 and the new added to the old from 1980/81 (Tables 5.6 and 5.7). Estimation is done by OLS.

The inferences that emerge are as follows: (a) the basic behavioural characteristics of saving highlighted above are borne out whether it is the old series, or the old series combined with the new series (Tables 5.5 to 5.8). However, there are small differences in point estimates of the coefficients.

The basic inferences in specific are:

(ia) intersectoral saving propensity differentials exist with propensity in the non-agriculture sector being higher compared to agricultural sector and that these propensity differences narrowed in the post-green-revolution period; shifts in intersectoral terms of trade in favour of agriculture has a dampening effect on domestic saving rate;

(ib) bank branch expansion, real rate of interest, growth rate of real income and moderate rate of inflation have positive effects on domestic saving rate (Tables 5.5 to 5.7);

(ii) Chow's test (Table 5.8) does not reject the null hypothesis of 'no structural change' between old and old as well as old and new NAS series when post-eighty series are added to the earlier series.

The above analysis has been carried out only for the aggregate domestic saving rate. This does not necessarily preclude different behavioural pattern for sectoral saving rates and composition of household saving. Further work along these lines is called for. This will help in using old and new series together to discern patterns of behaviour until new series are made available for the earlier years.

TABLE 5.5 **Estimated Relation with NAS Old Series**
Ordinary Least Squares Estimation

Dependent variable is GDS/GDP
28 observations used for estimation from 1954/55 to 1981/82

Regressor	Coefficient	Standard Error	T-Ratio
INT	.5003	.1033	4.8442
DUMMY	−.1539	.1143	−1.3464
GDPAGFC/GDPFC	−.5474	.2134	−2.5656
DUMMY(GDPAGFC/GDPFC)	.2767	.2290	1.2084
POP/BANK	−1.2539	.3121	−4.0178
R 12−P*	.0008453	.0003466	2.4389
GDEF	.0008444	.0004594	1.8382
GGDP	.012582	.0007177	1.7530

R-Squared	.9500	F-statistic F (7, 20)	54.3245
R-Bar-Squared	.9325	S.E. of Regression	.0107
Residual Sum of Squares	.0022906	Mean of Dependent Variables	.1661
S.D. of Dependent Variable	.0412	Maximum of Log-Likelihood	92.0255
DW-Statistic	2.1122		

TABLE 5.6 Estimated Relation with NAS Old Series

Ordinary Least Squares with NAS Old Series

Dependent variable is GDS/GDP
31 observations used for estimation from 1954/55 to 1984/85

Regressors	Coefficient	Standard Error	T-Ratio
INT	.4792	.1097	4.3665
DUMMY	—.1751	.1194	—1.4669
GDPAGFC/GDPFC	—.4898	.2272	—2.1560
DUMMY*(GDPAGFC/GDPFC)	.3234	.2394	1.3509
POP BANK	—1.3073	.3294	—3.9691
R 12—P•	.0007250	.0003630	1.9974
GDEF	.0006612	.0004871	1.3572
GGDP	.0008759	.0007429	1.1790
R-Squared	.9452	F-statistic F (7, 23)	56 6257
R-Bar-Squared	.9325	S.E. of Regression	.0115
Residual Sum of Squares	.0030452	Mean of Dependent Variables	.1718
S.D. of Dependent Variable	.0430	Maximum of Log-Likelihood	99.0494
DW-Statistic	1.6238		

TABLE 5.7 Estimation with Added New NAS Series for 1980/81 to 1984/85

Ordinary Least Squares Estimation

Dependent variable is GDS/GDP
31 observations used for estimation from 1954/55 to 1984/85

Regressor	Coefficient	Standard Error	T-Ratio
INT	.4841	.0969	4.9937
DUMMY	—.1221	.1093	—1.1167
GDPAGFC/GDPFC	—.5587	.2025	—2.7589
DUMMY (GDPAGFC/GDPFC)	.2281	.2183	1.0451
POP/BANK	—1.0160	.3137	—3.2384
R 12—P•	.0005224	.0003429	1.5233
GDEF	.0010200	.0004296	2.3746
GGDP	.0012438	.0006607	1.8827
R-Squared	.9553	F-Statistic F (7, 23)	70.1449
R-Bar-Squared	.9416	S.E, of Regression	.0104
Residual Sum of Squares	.0024844	Mean of Dependent Variables	1718
S D. of Dependent Variable	.0430	Maximum of Log-Likelihood	102.2043
DW-Statistic	1.9784		

TABLE 5.8 **Chow's Test**

	Computed Statistic	*Distribution*	*Critical Value**	*Added Information used 1981/82, 1984/85*
I	2.19	F(3,30)	3.10	Old NAS Series
II	1.76	F(3,20)	3.10	New NAS Series

* : 5 per cent level of significance.

5. Implications

Domestic saving rate has stagnated in recent years.[5] The gross rate is about 22 per cent and the net is about 12 to 13 per cent (new series).[6] The stagnant gross domestic saving rate is due to stagnation in public and corporate sector rates. Household saving constitutes the dominant component (nearly 75 per cent) and has shown some increase. Financial saving constitutes about 45 per cent of total household saving Stagnancy of net domestic saving rate is largely due to negative net public sector saving.

The Eighth Five Year Plan aims at 6 per cent rate of growth requiring an increase in gross domestic saving rate to 27 per cent from the present 22 per cent and a decrease in ICOR to 4.35 from 4.6. The question is how to achieve this increase in saving rate, given the behavioural patterns of saving and the institutional structure,[7] leaving aside increase in efficiency of capital use which is outside the limited scope of this paper.

Among other determinants highlighted earlier, saving rate and its composition, particularly household, is sensitive to rate of interest adjusted for inflation and/or for tax benefits on certain instruments of financial saving, and financial development. The organised financial sector, as is well known, is highly regulated through credit allocation and controlled interest rates, etc. Financial development has assumed several forms, besides an increase in the proportion of monetary resources to national output. New institutions, rapid spread of commercial banks, diversification of financial assets, higher interest rates, procedural or organisational improvements, etc., have enhanced for the households the opportunities for and the attractiveness of saving in general, and financial saving in particular. However, interest rate increases have not always been commensurate with rates of inflation. Further, the organised financial system,

that is banking sector, insurance, small saving and provident funds have become captive for financing public deficits at rela tively low rates of interest. Also, there are concessional rates of interest for certain priority sector borrowers. Thus, the Indian economy seems to exhibit signs of both financial development along with financial repression.

The Chakravarty Committee has clearly recognised that there should be some financial liberalisation. With respect to interest rate policy, it is advocated that interest rate structure in the organised financial market should have reasonable correspondence with market determined rates[8] and the real rates should be positive to attract saving in the form of financial assets desired to meet plan objectives of financing investment. The Committee, however, recommended a lower nominal interest for government borrowing which should nonetheless be positive in real terms. In effect, interest rate policy should be restructured to permit at least 'controlled' price competition.[9] The spectrum and range of interest rates decided will have to take cognisance of several possible trade-offs between monetary expansion, government debt service burden[10], productive investment and output growth, poverty alleviation and inflation, among others.

The household sector has been financing through its financial saving, shortfalls in the government and corporate sectors. There is need for a sustained positive real rate of interest which is sufficiently attractive to further encourage household financial saving. In the absence of such a policy, these savings could get diverted to unorganised sector[11] and also into physical investment of a luxury type. Another related aspect which has promoted financial saving is direct tax concessions on specified financial instruments. This promotes saving of a small segment of the population who are income and wealth tax payers and leaves out a large segment of the small savers who are outside the income tax net. There is need to promote the saving of this segment through appropriate measures. In this context rural banking assumes particular importance. These institutions should not only be purveyors of credit but also be effective deposit mobilisers.

Liberalisation of the financial system with respect to lending to private sector is already on the way. Ceiling rate has been

replaced by minimum lending rate of 16 per cent and the banks are free to charge higher rates depending on the credit rating of the borrowers. Also, credit authorisation scheme has been abolished, among other measures. A similar move is required on resource mobilisation side. A constraint in raising interest rates on deposits and other financial instruments is the low interest charged on government borrowing and highly concessional rates of interest for priority sectors. These lending rates should not be far below the lending rates to the other sectors of the economy. Though some concessional lending is inevitable to the rural and urban poor to meet their investment/income augmenting needs, the spectrum of lending and borrowing rates should be appropriately aligned so as to promote saving.

Increasing the saving rate to the level required in the Eighth Plan critically depends on the performance of government and public sector enterprises. There is a mutual interdependence between deficits, money supply and prices (Krishnamurty, 1984). This, in turn, will have a bearing on fixation of the spectrum of interest rates in order to yield sustained favourable positive real rate of interest.

Government has been incurring in recent years deficits even to meet its current expenditures apart from investment outlays. Borrowings of the government and in particular from the Reserve Bank of India (RBI), a dominant component of high-powered money, is fueling high monetary expansion. The so-called borrowing from the public is largely from the captive banking system through the instrument of statutory liquidity ratio (SLR) and at relatively low rates of interest. Insurance, pension and provident funds are also part of this captive market.[12] Government hopes to reduce its dissaving (balance of current revenues) to zero by the end of the Eighth Plan by restraining growth of current expenditure and also raising tax-GDP ratio.[13] In this context, it is necessary to ensure that additional taxation does not act as a disincentive to household saving but yet contains luxury consumption.

Even if dissaving of the government is eliminated, the massive public sector investment outlays have to be met. Reliance on the 'captive market' will continue. To attract households to share public debt it is necessary to have attrac-

tive real rate of interest.[14] Net RBI credit to the government has to be restrained and RBI should have a more effective autonomous role in formulating monetary credit and interest rate policies.

Government has been financing a part of the requirement of public sector enterprises but the recent moves to make them reliant on the market through deposit mobilisation at higher interest rates than government borrowing is a step in the right direction and should continue.

Private corporate sector has to make its contribution to the needed increase in overall saving. Its saving rate, however, has suffered a long period of stagnancy.[15] Obviously, there is need to shore-up its performance.

Higher output growth will increase domestic saving rate and so does moderate rate of inflation. However, to create a conducive environment for increased saving it is necessary to continue the tempo of financial development and at the same time to free the organised financial markets from overbearing controls to permit at least 'controlled price competition', Above all, the public sector (government and public sector enterprises) should set its house in order.

NOTES

1. UDRC (1988) has discussed in detail limitations of the approach adopted. A pertinent point in this context is whether life distribution of capital assets has been used along with life of capital equipment in estimating depreciation which is crucial in the application of Perpetual Inventory Method.
2. Unlike the studies mentioned, Rangarajan (1982) obtained a positive impact of intersectoral terms of trade between agriculture and non-agriculture household saving.
3. See Krishnaswamy *et al.* (1987).
4. Finance ratio is the ratio of total financial claims issued in a year to national income while the financial interrelations ratio refers to total volume of financial assets to total stock of physical assets at any point in time. New issue ratio is the share of primary issues, that is, financial claims issued by those in the non-financial sector, to net physical capital formation in the economy. Financial intermediation ratio is measured by the volume of financial instruments issued by financial institutions (secondary issues) to volume of primary issues.
5. In this context, it is necessary to note that inward remittances from Indian nationals abroad have contributed to the 'high saving phase' in the late seventies. They have slowed down in recent years. However, remittances from expatriate Indians working abroad are a part of the estimates of domestic saving in India while they should strictly be accounted under national savings (Ghosh, 1988). If the above inflows are appropriately accounted, how far the rise in the late seventies and the recent stagnancy in the domestic saving rate will be sustained is an important question. But, it appears that at present there is no way to precisely estimate these inflows and saving arising out of them.
6. Gross household sector saving rate to GDP has shown some increase during 1983/84—1986/87 (15 to 17 per cent) having declined during 1980/81—1982/83 (16 to 13.5 per cent), while net rate wobbled 10—14 per cent range). Its share in gross domestic saving is about 75 per cent, while in net saving it is over 100 per cent in recent years (1983/84—1986/87). Corporate sector saving rate has stagnated for nearly four decades. In the eighties, gross and net rates remained, by and large, below 2 per cent and half a per cent point respectively. Its shares in gross and net domestic savings is 15 and 5 per cent respectively. Public sector gross saving rate in recent years almost stagnated around 3 per cent (1983/84—1986/87) while net saving rate is negative and is about 2 per cent. Its share in gross and net savings in recent years is about 15 and —10 per cent respectively.
7. Some interrelated issues having a bearing on raising the saving rates have been discussed in Krishnaswamy, Krishnamurty and Sharma (1987). Ghosh (1988) has also discussed some issues.

8. Such a financial system, given other enabling factors, would help in achieving efficient financial intermediation and allocation of resources. As for instance, inventory investment in India is sensitive to interest rate and it is well known that inventory-output ratio is high (Krishnamurty and Sastry, 1970). Considerable theoretical and empirical literature on the role of financial development and repression in economic growth has emerged since the sixties (see for instance, Goldsmith, 1969 and 1983; Gurley and Shaw, 1960; Shaw, 1973; and Mckinnon, 1976). A lot of theoretical and empirical literature has emerged in recent years.
9. The Vaghul Working Group also recommended a shift from administered interest rates to market determined rates within the parameters of overall macro-economic policy.
10. Interest payment on government debt is 15 per cent of total government current receipts in 1986-87, However, if the present trends (1979-80—1986-87) in market borrowings and interest payment on such borrowings (15.3 and 25.7 per cent per annum respectively) continue, the annual interest payments on market borrowings will exceed net market borrowings by 1992-93 and thus, land the economy in 'internal debt trap' (Seshan, 1987).
11. See Rangarajan (198?).
12. Dandekar (1986) has strongly argued for freeing insurance, pension and provident fund from being captive, to yield better rate of return, as these are life savings meant for old age.
13. If emerging 'internal debt trap' is to be avoided, it is imperative that unproductive public expenditures are contained. In this context, it is necessary to have cost-benefit assessment of subsidies and security expenditures—internal and external. In raising tax-GDP ratio, there is need to tax the affluent in the rural sector who have greatly benefited from HYV technology and from massive public sector infrastructure investments in agriculture. Similarly, the 'informal sector' which has been growing rapidly should be *effectively* brought under the tax net. Determined efforts should be made to bring the fast growing 'parallel economy' under the drag-net (see for a detailed discussion on various aspects of parallel economy, *Aspects of the Black Economy in India*, National Institute of Public Finance and Policy, 1985).
14. Direct investment by households *per se* in government gilt-edged securities is negligible. The market is narrow and captive, as stated earlier. The major investors are commercial banks, insurance companies, provident funds and other trust funds (Chakravarty *et al.*, 1985).
15. This appears to be a riddle as the private corporate sector has grown. Whether the stagnancy observed is due to the particular method of estimating total corporate sector saving by using blow-up factor (paid-up capital proportions) applied to RBI survey data

and the nature of the sample needs to be investigated (for a detailed discussion of the issues and problems involved in estimating global corporate saving, see Rama Rao, 1988). However, if the stagnancy is a reasonable reflection of true phenomena it may be due to absence of compelling need to rely on internal resources for investment and growth. Liberal availability of funds at relatively easy terms from term-lending and other public financial institutions could be a reason, among others. Further, it is also necessary to have detailed studies and a deeper understanding of the role of tax concessions for saving and investment to explain corporate saving behaviour (Ghosh, 1988).

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