
DOMESTIC SAVINGS IN INDIA

Trends and Issues

Edited by
Uma Datta Roy Choudhury
Amaresh Bagchi



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Trends in Domestic Savings in India have, in the recent past, become a much debated issue. The rate of savings which reached its peak in the second half of the seventies has now been stagnating at a lower level for some time. It is in this context that a Seminar was organised by the National Institute of Public Finance and Policy in November 1988 at the instance of the Planning Commission to take a hard look at the trends in savings behaviour and try to identify the factors responsible for the decline and stagnation. The present volume is a collection of papers presented at this Seminar along with the inaugural address of Professor Sukhamoy Chakravarty which brings out pointedly the issues arising out of the trends in savings, their implications and areas of further research and the Rapporteurs' summary of the issues discussed.

The volume is broadly divided into four sections covering methodological issues, overall trends in the savings behaviour, trends in savings at the sectoral level and potentials for household savings in India. Authors of the papers are each specialised in their own fields and cover different aspects of savings behaviour and measurement in very great detail.

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PREFACE

THE National Institute of Public Finance and Policy had organised a National Seminar on "Savings Estimates in India—Recent Trends and Underlying Factors" in November 1988 at the instance of the Planning Commission. Eminent scholars working in the area from all over India were invited to contribute papers and attend. Prof. S. Chakravarty, Chairman, Research Advisory Committee of the Planning Commission inaugurated the Seminar.

While stagnation in the domestic savings ratio in recent years has been a matter for concern, a careful assessment of the trends and studies to identify the factors at work had not been undertaken. This was the motivation for the Seminar. The present volume is the outcome of that Seminar. Papers included in this volume go into several important aspects of the trends in domestic savings ratio and the factors underlying them. It is hoped that these would be of some help in policy making and also be of interest to the academic community.

The NIPFP is grateful to the Planning Commission for entrusting to it the task of organising the Seminar. Financial support was also provided by the Reserve Bank of India.

The Institute or its Governing Body does not take any responsibility for the views in the papers. That responsibility belongs primarily to the authors of the papers and the editors.

AMARESH BAGCHI
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CONTENTS

<i>Preface</i>	v
INTRODUCTION	1
UMA DATTA ROY CHOUDHURY AND AMARESH BAGCHI	
Savings Estimates in India— Recent Trends and Underlying Factors	
1. Inaugural Address	23
SUKHAMOY CHAKRAVARTY	
2. Methodology of Estimation of Domestic Saving	31
NATIONAL ACCOUNTS DIVISION, CENTRAL STATISTICAL ORGANISATION	
3. Savings in India : Some Broad Reflections	47
ARUN GHOSH	
4. Saving Estimates In India	56
A. VAIDYANATHAN	
5. Saving Behaviour: New and Old Series and Implications	61
K. KRISHNAMURTY AND P.D. SHARMA	
6. Overall Aspects of Savings: Measurement of Savings in Real Terms	95
S.L. SHETTY STATISTICAL ANNEXURES TO RAJ COMMITTEE REPORT ON SAVINGS: UPDATED S.L. SHETTY	

7. **Saving Performance and Prospects: A Historical Perspective** 163
ARVIND VIRMANI
8. **Public Sector in National Measures of Savings and Capital Formation** 193
UMA DATTA ROY CHOUDHURY AND
AMARESH BAGCHI
9. **Saving of the Private Corporate Business Sector—Some Methodological Issues** 219
T. RAMA RAO
10. **Savings Behaviour of Households: Trends and Pattern** 226
UMA DATTA ROY CHOUDHURY
11. **Rural Household Saving and Investment Behaviour, 1970-71 and 1981-82** 244
I.Z. BHATTY AND PREM VASHISHTHA
12. **Savings Potential and Mobilisation Strategy: Method, Estimates and Policy Issues** 270
VINAY D. LALL
13. **Rapporteurs' Report** 286
B.C. PUROHIT, RITA PANDEY, TAPAS SEN
AND V.B. TULASIDHAR

LIST OF TABLES

Saving Behaviour: New and Old Series and Implications

K. KRISHNAMURTY & P.D. SHARMA

- | | |
|---|----|
| 5.1 Comparison of New and Old Series: Levels | 64 |
| 5.2 Comparison of New and Old Series: Rates | 66 |
| 5.3 Comparison of New and Old Series:
Composition | 67 |
| 5.4 Comparison of Old and New Series: Levels
Household Financial Saving | 68 |
| 5.5 Estimated Relation with NAS Old Series
Ordinary Least Squares Estimation | 81 |
| 5.6 Estimated Relation with NAS Old Series
Ordinary Least Squares with NAS
Old Series | 82 |
| 5.7 Estimation with Added New NAS Series for
1980-81 to 1984-85
Ordinary Least Squares Estimation | 82 |
| 5.8 Chow's Test | 83 |

Overall Aspects of Savings: Measurement of Savings in Real Terms

S.L. SHETTY

- | | |
|---|-----|
| 6.1 Domestic Saving (Gross & Net) Ratios at
Current and Constant Prices | 101 |
| 6.2 Domestic Saving (Gross and Net) at Current
and Constant (1980-81) Prices | 103 |

STATISTICAL ANNEXURES TO RAJ COMMITTEE
 REPORT ON SAVINGS: UPDATED
 S.L. SHETTY

Annexure

1. Rates of Gross Saving and Capital Formation (at current prices)	106
2. Rates of Net Saving and Capital Formation (at current prices)	108
3. Rates of Gross Capital Formation (at constant prices)	110
4. Rates of Net Capital Formation (at constant prices)	112
5. Rates of Saving and Capital Formation (Three-yearly Moving Averages)	114
6. Composition of Gross Domestic Capital Formation	116
7. Gross Domestic Capital Formation By Sectors (at current prices)	120
8. Gross Fixed Capital Formation and Change in Stocks by Sectors (at current prices)	122
9. Investment and National Income Deflators	128
10. Gross (Net) Domestic Fixed Capital Formation as percentage of GDP (NDP) at market prices (all at constant prices)	130
11. Gross Domestic Fixed Capital Formation—By Sectors & Assets (at current prices)	133
12. Gross Capital Formation in Kutcha and Pucca Construction (at current prices)	135
13. Composition of Gross Fixed Capital Formation: Public and Private Sectors (at current prices)	136

14. Composition of Gross Fixed Capital Formation: Public and Private Sectors (at current prices) (percentage distribution)	139
15. Gross Domestic Capital Formation by Industry of Use (at current prices)(Rs crores)	140
16. Gross Domestic Capital Formation by Industry of Use (at current prices) (percentage distribution)	142
17. Gross Domestic Capital Formation by Industry of Use (at constant prices) (Rs crores)	144
18. Gross Domestic Capital Formation by Industry of Use (at constant prices) (percentage distribution)	146
19. Gross Domestic Fixed Capital Formation (at constant prices)	148
20. Gross Capital Formation by Assets—Household Sector (at current prices)	151
21. Gross Domestic Saving—By Sectors	154
22. Estimates of Saving of Administrative Departments	157
23. Estimates of Saving of Non-Departmental Enterprises	158
24. Saving and Capital Formation in Public and Private Sectors (at current prices)	159
25. Saving and Capital Formation in Private Sector (at current prices)	161

Saving Performance and Prospects: A Historical Perspective

ARVIND VIRMANI

7.1 Domestic Saving Ratios: Net (Gross) Saving to NDP (GDP)	165
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7.2	Private Saving Ratio	167
7.3	Net Private Saving Rate	170
7.4	Public Saving Rate	172
7.5	Public Saving Rate out of Public Disposable Income (per cent)	173
7.6	Government Consumption Expenses (Ratio to Income and Source)	177
7.7	Government Consumption: Employees' Wage Bill and Wage Rate	178
7.8	Ratio of Taxes and Subsidies to Net National Product (percent)	180
7.9	Trends in Tax and Subsidy Ratios (to NNP)	181
A1	Private Saving Ratio: Alternative Trends	187
A2.1	Corporate Savings, Value-Added and Profits	189
A2.2	Corporate Saving Trends	190
A3.1	Private Saving Rate and Income (percent)	191
A3.2	Gross and Net Saving Ratios to GDP & NNP (New Series)	192
A3.3	Private and Public Saving Rate (New Series)	192
	Fig. 1. Gross and Net Domestic Saving Ratios	164
	Fig. 2. Gross and Net Private Saving Ratios	166
	Fig. 3. Gross and Net Public Saving Ratios	168

Public Sector in National Measures of Savings and Capital Formation

UMA DATTA ROY CHOUDHURY AND AMARESH BAGCHI

8.1 Composition of Net Domestic Capital

<i>List of Tables</i>	<i>xiii</i>
Formation in Public Sector by Industry of Use, 1980-81 & 1984-85 (at current prices) (Old and New Series)	195
8.2 Public Sector Net Saving by Type of Institution (Old and New Series)	197
8.3 Public Sector Net Savings	211
8.4 Adjusted Estimates of Domestic Product, Capital Formation and Saving of Government Administrative Departments for Selected Years (current prices)	216
8.5 Adjusted Production Account of Producers of Government Services, 1980-81, 1984-85 and 1985-86 (at current prices)	226
Savings Behaviour of Households: Trends and Pattern	
UMA DATTA ROY CHOUDHURY	
10.1 Share of Household Sector in Total Saving (Selected Years)	228
10.2 Rate of Household Savings in Selected Years Since 1950-51 (at current prices)	228
10.3 Household Savings as a Function of Personal Disposable Income (at current prices)	232
10.4 Savings Functions Using Data from Old Series only (at current prices)	235
10.5 Marginal and Average Propensities to Save for Household Sector (at current prices)	236
10.6 Two Forms of Lagged Savings Function (at current prices)	238
10.7 Alternative Measures of MPS (at current prices)	239
10.8 Household Saving as Function of Personal Disposable Income (at constant prices)	241

10.9 Measures of Propensities to Save by Households	242
Rural Household Saving and Investment Behaviour 1970-71 and 1981-82	
I.Z. BHATTY AND PREM VASHISHTHA	
11.1 Saving Rate by the Landowning Category: All India (As p.c. of Household Income at current prices)	246
11.2 Gross Fixed Capital Formation in the Household Farm Sector by Different Components, 1970-71 and 1981-82, All-India Sample	249
11.3 Gross Capital Formation in Non-Farm Assets by Major Components, 1970-71 and 1981-82, All India Sample	249
11.4 Change in Per Capita Income and Land Size by the Landowning Category: Panel Households	252
11.5 Mobility as Measured through Change in Landsize Category: Panel Households	253
11.6 Per Capita Income Change as Measured through Inter-Decile Mobility Within Each Landowning Category: Panel Households	254
11.7 Change in Per Capita Income and Land Size by the Landowning Category: All India	257
11.8 Saving Rate by the Landowning Category: Panel Households	258
A.1 Inter-Group Mobility for Landowning Categories: Panel Households	267
Savings Potential and Mobilisation Strategy: Method, Estimates and Policy Issues	
VINAY D. LALL	
12.1 Lumpy Expenditure Norms	273
Chart A: Financing of Lumpy Expenditures and Asset Holdings	271
Chart B: Composition of Household Savings: Formal Sector, Informal Sector	279

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INTRODUCTION

THE present volume is the outcome of a seminar organised by the NIPFP in November 1988 at the instance of the Planning Commission.

Recent trends in savings in the Indian economy have been a matter of concern. Breaking out of a low level of less than 10 per cent at the beginning of the plan era, the ratio of gross domestic savings to GDP went up steadily for nearly three decades. In the second half of the 1970s, the saving ratio had reached 22.6 per cent of GDP, compared to about 15 per cent a decade earlier. Thereafter the growth impulse in savings seems to have got dampened. According to the new series of National Accounts, the rate of savings in the Indian economy has been stagnating in the 1980s at about 21 per cent of GDP. The saving ratio was less than 20 per cent during the years 1982-83 to 1984-85. It went up to 22 per cent in 1985-86 but declined to 21.6 per cent in 1986-87 and 21.1 per cent in 1987-88. From indications it would seem that the level of savings contemplated at the end of the Seventh Plan is unlikely to be realised. This is far from an encouraging augury for the Eighth Plan.

It is now acknowledged that a high rate of savings by itself is no guarantee for a high rate of output growth. The process by which savings are converted into actual investments, the structure of investments, and efficiency in their utilisation play a crucial role in growth. This explains the present shift in emphasis in Indian thinking on growth strategy to the quality of investment rather than on its mere volume. Nevertheless, a high level of capital formation and adequate flow of domestic saving is still believed to be a necessary though not sufficient condition for development, especially for a country like India aiming at largely self-reliant growth. With increasing difficulty on the balance-of-payments front, India has in any event to look for ways in which its domestic savings rates can be

stepped up while making every effort to make the best use of the capital already created in the economy.

It is in this context that a seminar to analyse the trends in savings and factors underlying stagnation was thought necessary. The objective was to take a hard look at the trends and try to identify the factors responsible for the declining trend. Some time ago, questions had been raised about the reliability of the savings estimates. The methodology of the estimates and the data base were then gone into at considerable length by the Working Group headed by Prof. K.N. Raj. While nothing seriously wrong was found in the earlier savings estimates, the CSO has now brought out a new series of National Income Statistics (with 1980-81 as the base) along with revised figures on savings and capital formation. On the face of it, there are substantial changes in the figures in the absolute. Apart from seeking to update the source of data, the new estimates incorporate several notable methodological changes. Whether these changes are conceptually sound and whether the basic trends as derived from the new series are significantly different from those suggested by the old series, needed careful examination. Analysis of the trends has to go into the sectoral behaviour as well. Further, it is necessary to look at the structure of savings in order to judge the extent of financial intermediation taking place in the economy and assess the efficacy of alternative instruments in achieving the saving targets and also secure the intersectoral flow of available savings into desirable channels of investment.

Keeping these in view, the seminar was so structured as to focus on the trends in the first instance—whether the new series indicated any radically different trend in savings from those shown by the old series—and then take a close look at the methodology underlying the composition of the new series, both in the aggregate and sectorwise.

The issues arising out of the trends in saving estimates, their implications and areas for further research were spelt out succinctly by Professor Sukhamoy Chakravarty in his inaugural address. For reversing the current trends in domestic savings as was reportedly postulated in the exercises for the Eighth Plan, a better understanding was required of the behavioral forces which influence the major variables like savings

and consumption both in the public and private sectors of the economy. For this purpose, it is necessary to examine the behaviour of savings in the aggregate as well as at the sector levels.

In this context Chakravarty referred to the commonly held belief that the aggregate savings rate in the economy could be increased if only the public savings could be raised. Implicit in this proposition is the assumption that savings rate in the private and the public sectors are totally independent which might not be the case because of the many interrelations among aggregate magnitudes like savings and income. If suppose, in an attempt to improve the saving performance of the public sector, the government decides to raise the administered prices, would it have no impact on the savings behaviour of the household sector, he asked. This underlines the need to analyse the interrelationships between sectoral behaviour and aggregate savings. This, he clarified, was not to suggest that the Government should not raise taxes or re-examine the policies relating to subsidies and administered prices but only to sound a note of caution that these policies alone cannot remove the savings constraint. He felt that something deeper was involved and in that connection pointed at the growth of consumerism as a very major factor. He also drew attention to the role of financial intermediation in financing public investment and the conflicting theories regarding the impact of flow of foreign savings on domestic savings. Factors underlying the low level of private corporate savings also required some analysis and explanation. The tendency on the part of the Indian private sector to rely more on borrowing than on own funds contradicts Kalecki's theory of increasing risk. Whether this is caused by institutional factors or government policies in not allowing any private enterprises to go bankrupt, needs investigation.

Turning to the new series of National Accounts, Chakravarty noted that the basic difference arises from the sharply increased estimates of consumption of fixed capital. Correct estimation of capital consumption, though not relevant for short-period demand management—for which gross investment and gross savings were of greater concern—is now

thought important for an idea of sustainable rate of growth. Depreciation allowances are also of relevance in the context of sectoral financing and focusing attention on the possibility of bunching of investment for replacement purposes, to maintain the same rate of growth and the need for financial intermediation in a specifically directed sense. The basis on which the new estimates have been made needed to be clarified, he felt.

He also said, India's saving performance is high—an "outlier"—compared to other low income countries. The explanations in terms of either differential behaviour of sector price levels casting doubt about the level of real capital formation or the possibility of greater interest elasticity of saving in India do not seem to be adequate. More light was, therefore, needed on the determinants of savings behaviour in India, he concluded, for formulating sound policies. He also expressed some doubt as to whether the view that savings constitute a constraint on growth was valid. Whether causation runs from savings to investment as assumed in a purely supply-centric growth process or the other way round—a question which refers to the macro-dynamic processes of adjustment—also needs to be analysed if econometric models are to throw light on policy questions, he concluded.

The papers presented at the seminar addressed several of the issues posed by Chakravarty. Broadly, these may be grouped under the heads: (i) methodology, (ii) overall trends in the savings behaviour of the Indian economy in the aggregate and their determinants, (iii) saving behaviour at the sectoral level, and (iv) potential for saving in the economy. The impact of the revision in the NAS with 1980-81 as the base year on the trends observed earlier and the explanation offered in the past by researches were also discussed. The seminar benefited greatly from a paper presented by the CSO indicating the methodology adopted in carrying out the revisions in savings estimates.

Methodology

The paper from CSO on "Methodology of Estimation of Domestic Savings" gives the factual details of the method

of estimation with particular reference to the new series but makes no critical evaluation of the methodology, Vaidyanathan in his paper makes a critical evaluation but primarily of household savings in physical assets and that too with reference to the methodology adopted in the early seventies. These approaches have been revised substantially since then, particularly in the context of availability of new data both from the NSS (e.g., AIDIS) and otherwise.

In the contest of the New Series of Savings, Chakravarty particularly questioned the estimation of consumption of fixed capital. According to him, because of the substantial revision of the levels of consumption of fixed capital, even in the base year the difference being large, gross savings have to be written off by as much as nearly 50 per cent in order to arrive at the estimates of net savings. However, he felt that, though the CSO publications do mention that the life table of the various types of physical assets have been taken into account for measuring depreciation, it is not clear whether this has been done with the care that is needed. Although it is quite plausible that the estimate of depreciation in the old series might have been an underestimate, the basis on which the new estimates have been prepared need to be thoroughly examined because in sectors like transport, communication, electricity and gas, the results seem to suggest that in these cases the capital stock might have been undermaintained which might lead to a bunching of investment requirements for replacement purpose in the coming years for which necessary resources might not be available and even if the resources were forthcoming these investments will be required merely to maintain the current rate of growth.

Ghosh, on the other hand, argues that in spite of all the limitations, the estimates of savings at current prices are perhaps more accurate than any of the other macro-economic aggregates. This conclusion, of course, is directly based on the fact that with increasing monetisation of the economy, the gross/net savings in physical assets—which is subject to unknown error because of the absence of cross-checks—is now a relatively small proportion of total savings. Even if not on other grounds, one would be tempted to support the views expressed by Ghosh on the mere fact that the savings esti-

mates—the savings in financial assets, to be exact—have a sufficiently extensive and current data base which is not equally true of the estimates of capital formation as they are often based on proportionalities, etc. at different stages which are not equally supported by evidences and data sources.

Overall Trends

The papers, ‘Saving Behaviour in India : New and Old Series and Implications’ and ‘Savings in India: Some Broad Reflections’ authored by K. Krishnamurty jointly with P.D. Sharma and Arun Ghosh respectively investigate the problem of stagnation in rate of saving. Whereas Arun Ghosh attempts to identify the factors which possibly have led to this trend in the recent past, Krishnamurty and Sharma attempt to investigate the causal relationships empirically using the actual data on saving—both the old series and the new series for the time-trend study.

The point to be kept in mind, according to the authors, while judging the rapid increase in the rate of savings in the seventies is the high level of remittances from expatriate Indians during the seventies. According to Ghosh, these remittances from expatriate Indians working abroad are *not* part of domestic savings though they may be deemed to be national savings and therefore to that extent measures of domestic saving should be independent of remittances.

Reviewing the work already available on normal income and the current income hypothesis as well as the differential propensities to consume/save between agricultural and non-agricultural sectors and the role of inter-sectoral terms of trade, Krishnamurty and Sharma come to the following conclusions :

- (i) Empirical evidence through cross-sectional studies based on the survey results of the National Council of Applied Economic Research tends to support the normal income hypothesis and consequently lags in the response of saving/consumption to income. The time-trend studies at the same time indicate that 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 an adverse impact on savings rates.

The above results particularly with reference to differential propensities to save between agricultural and non-agricultural sectors and the role of inter-sectoral terms of trade partly answer the questions raised by Ghosh regarding the possible recent sources of household savings (which contributes the major share of total domestic savings) from outside agriculture, that is, in the main either from the unregistered manufacturing sector or from services sector (including trading activity). This, as indicated by Ghosh, is confirmed by the steep decline observed in the recent past in savings in the form of physical assets without any financial or monetary counterpart. Interpreting the results differently, one could perhaps therefore conclude that there is increasing stagnation—possibly a decline—in savings in rural areas and a marked increase in savings by the urban middle (and richer) classes over a wide range of households and not merely by the traditionally rich and well to do as reflected in the substantial increase in household saving in the form of financial assets.

Linking with the question of sharp rise in the levels of savings in the form of financial assets is the factor of financial intermediation. Krishnamurty and Sharma attempt to examine this question in terms of (a) the role of rate of interest in influencing saving behaviour and (b) strengthening of banking infrastructure over the years. The study of the interest rate as a determinant of the saving in India has restricted application because of the absence of data on interest rates in the unorganised financial sector. Limited studies undertaken by Krishnamurty and Sharma and other researchers using real rate of interest (i.e., nominal rate adjusted for rate of inflation) show a statistically significant positive effect of real rate of interest on aggregate savings for the economy as well as for the households. As regards the role of banking infrastructure, the empirical studies are limited to expansion of bank branches. The results in this case support the qualitative conclusions

and indicate a positive influence in promoting savings. However, this phenomenon may not be equally important in the future because of the tapering off of the expansion of bank branches.

Other determinants like rate of inflation, liquidity and wealth have also been tried to explain consumption/saving behaviour particularly in time-series studies. None of the results are however statistically robust enough to come to any positive conclusion regarding their influence in increasing levels of savings.

This brings one to the basic question of deflation of savings and whether real rate of saving or measurement of savings at constant prices is meaningful and whether studies should be undertaken with deflated series of savings. The Raj Committee on savings had considered the question in detail and had recognised that considering the complicated conceptual and measurement problems of real domestic saving, the study of trends particularly in the case of household sector can be undertaken with both savings and income measured at current prices only and may be said to be appropriate. However, to re-examine the issue, three papers, *viz.*, those by Ghosh, Vaidyanathan and Shetty discuss the problem. The paper by Roy Choudhury also discusses the problem and actually uses deflated data of household savings and personal disposable income to study the pattern of household savings in India. The deflator to be used for obtaining the series of savings at constant prices need not be the same for the total and for the household sector, argues Roy Choudhury.

Taking up the question of overall savings first, Ghosh argues that since in macro-terms $I=S$, the deflator for investment becomes, in effect, the deflator for savings. According to him, in theory, there is no other satisfactory way of deriving a deflator for domestic saving though some argue that the deflator for gross domestic expenditure may be a more meaningful deflator. This however would not give the *ex-post* identity of $I=S$ and hence cannot be accepted.

Shetty in his paper makes a plea for producing *real* saving series as a memorandum item in National Accounts. He argues that savings of the private corporate sector, the public sector and of the household sector (in physical assets only)

should be deflated by their respective capital formation deflators. Considering the relevance of life-cycle hypothesis and the social security component in financial savings, the deflator relating to household consumption expenditure may be applied to household saving in the form of financial assets. However, this approach of Shetty will not lead to the *ex-post* identity of $I=S$ and therefore will leave an unexplained gap. This gap is not the same as "terms of trade" effect and therefore will have to be resolved on its own.

Vaidyanathan in his paper does not go into the basic question of relevant deflator for measurement of saving in real terms but assumes that it would be same as for investment to maintain the identity $I=S$ in real terms. Vaidyanathan raises a more fundamental issue regarding the real and nominal savings trend. He stresses that the Raj Committee had argued that the real investment (and by implication, savings) has risen considerably more slowly than the nominal rates because the price of capital goods has risen relatively faster than that of consumer goods. If this is so, then according to Vaidyanathan, "the real returns to investment in terms of consumer goods must have steadily fallen over the last two decades. How is it that, despite this, the nominal saving rate rose so sharply? Has the shift in relative prices induced any significant changes in choice of technique, capacity utilisation, etc. leading to more efficient use of capital at least in the private sector?"

While addressing oneself to the functional relationship between disposable income and household savings (total or financial), one could argue that, *ex-ante*, it is real income and real consumption that determine savings and therefore for any functional relationship it would be desirable for both savings and income series to be deflated by the index of consumer goods and services prices. However, this would raise awkward issues in regard to the *ex-post* equality of savings and investment and therefore to satisfy the pure theorists it might be desirable to use the same deflator as for investment. Results presented by Roy Choudhury therefore use only the latter series.

Savings Behaviour of the Sectoral Level

From the discussion so far it is obvious that for more positive answers to questions of the factors leading to stagna-

tion of rate of saving in the eighties, one has to study the behaviour of savings at the sectoral level. In this context it is important to note, as elaborated by Ghosh, that (i) there has lately been a steep decline in the rate of public saving, particularly so in the eighties; (ii) corporate sector saving has stagnated at a low level all along and has even declined compared to the sixties and (iii) household sector saving has shown an increase over time and has remained to be the only sector of significance contributing to the overall domestic saving of the Indian economy.

Whereas both the inaugural address of Chakravarty and paper by Ghosh touch upon the issues which need to be considered for understanding the savings behaviour of the public sector and policy implications of raising the levels of public sector savings, the paper by Virmani* on "Saving Performance and Prospects: A Historical Perspective" analyses the trend in public sector saving in relation to overall saving to draw conclusions regarding its influence on overall saving. Paper by Uma Datta Roy Choudhury and Amaresh Bagchi entitled "Public Sector in National Measures of Savings and Capital Formation", on the other hand, examines critically the revisions undertaken by the Central Statistical Organisation of the estimates of savings in the public sector as a part of the New Series on National Accounts and makes an assessment of the quality of the estimates. This is important because of the large difference between the old and the new series of public sector saving.

It has often been argued that the stagnation in savings behaviour of the economy can be reversed if only the public sector savings are increased. In other words, the saving behaviour in the household sector or the corporate sector remain invariant to policies adopted by the government conducive to increasing its own savings rate like increasing taxes or reducing subsidies or increasing the administered prices of various commodities and services. Virmani's paper addresses this problem and concludes that increasing public sector saving may, in

*This paper was not presented at the Seminar but is included because of its relevance to the basic theme of the volume.

the long run, help in reversing the process and resulting in a rising trend in the rate of saving in the future.

Chakravarty, on the other hand, felt that it will be necessary to analyse the interrelationships between sectoral behaviour of savings and the corresponding aggregate savings and also to look into the issues connected with the behaviour of sectoral savings before one could come to any simple answer to the role of public sector savings in influencing the overall savings rate. For example, he argues that a part of the strength of the household sector savings may very well have been derived from the various policies adopted by the government, in particular, its unwillingness to tax the agricultural sector and its unwillingness to charge full cost for the commodities and services produced and/or supplied by the public sector to different sectors or sections of the population.

The paper by Roy Choudhury and Bagchi examines the actual level of public sector savings as postulated in the CSO estimates—particularly in the New Series of National Accounts estimates. Thus a comparison of the estimates of saving from the old and New Series shows that the levels of net savings for the public sector have been revised downward by as much as 110 per cent in 1980-81 and 270 per cent in 1984-85. On the other hand, the revisions in gross savings are marginal. The principal factors leading to this extent of revision have been:

- (i) imputation of provision of consumption of fixed capital for the administrative departments for the first time in the New Series and
- (ii) estimation of consumption of fixed capital in respect of departmental and non-departmental public sector commercial undertakings using the Perpetual Inventory method which in essence requires the derivation of the figures from independent estimates of gross fixed capital stock.

This major change introduced in the New Series in the case of government administrative departments has serious implications.

Thus, for measurement of gross and net savings of government administrative departments in the light of the “im-

putation" of depreciation provision, the adjustments which are called for are very complicated. For the old estimates, total current expenditures were deducted from total current receipts to obtain net savings on the argument that repairs and maintenance expenditure undertaken for capital assets in government administrative departments is sufficient to maintain the capital services of the assets intact and no separate depreciation provision need be provided. Also, since the budget accounts are maintained on a cash basis, recording transactions as and when they actually occur, providing for depreciation provision would require its meaningful treatment departing from the general principle of budget accounting besides revision of the figures of total revenue and total expenditure which are the controlling totals of the account. The New Series of National Accounts do not apparently consider this aspect of the problem and obtain the revised estimates of net savings as old estimates of savings (without any upward adjustment for imputed depreciation provision) *minus* estimated figures of consumption of fixed capital. This obviously upsets the accounting balance, inflating the total expenditure of government administrative departments by the amount of consumption of fixed capital with no corresponding adjustment to total revenue. Obviously, the new as well as the old estimates of gross and net savings will need to be carefully adjusted if the estimates of gross and net savings are to be meaningful and realistic and the accounting balance maintained. This aspect obviously needs much further investigation before it can be more definitely concluded that the net savings of public sector are as low as are presented in the New Series of National Accounts.

Another aspect which needs to be mentioned in the context of a realistic measure of government savings has been brought forward by Ghosh in his paper. According to him, there are increasingly new types of government expenditure under the Rural Development Department of the Ministry of Agriculture, which are really of the nature of capital expenditure but may not be treated as such in the national income accounts. To the extent that funds under the RLEGP/NREP/DPAP and similar programmes lead to payments for direct capital formation in the rural areas, such expenditures from the Revenue Budget should be treated as "saving" by government, spent for capital

formation in the rural areas. It is essential to examine this carefully as there is a possibility of such expenditures being treated as 'transfer payments' since they are often termed as 'subsidies' for the poor.

As regards the rate of saving of the private corporate sector, several basic issues have been raised in the inaugural address besides those in the paper by T. Rama Rao entitled "Saving of the Private Corporate Business Sector—Some Methodological Issues". The rate of saving in the private corporate sector has remained almost stagnant and it might have even declined in the recent past as compared to the sixties. This significant slowing down in the level of private corporate savings over the past twenty years or more needs a very careful analysis and explanation.

In this context, according to Chakravarty, it might be desirable to analyse first whether the private corporate sector is capable of getting resources from the household sector and then examine whether the existing institutional set-up really encourages the corporate sector to rely more on borrowed funds than on internal resources. Normally one would expect that there would be a tendency, in order to avoid increasing the risk, to shy away from greater degree of indebtedness than it is necessary. However, in the context of the special features of the Indian capital market and its fragmented nature, the inclination on the part of the corporate sector to rely more on borrowed funds may have to do with the government's unwillingness to allow any private enterprise to go bankrupt. It may be, as Chakravarty argued, that some of the government decisions have in fact been responsible in making it more attractive for the private corporate sector to seek more borrowed funds than plan for increasing their own internal resources. If that is so, then the argument for reducing the corporate rate of taxation on the assumption that it would lead to availability of more funds for investment for the corporate sector may not indeed be justified. Krishnamurty and Sharma emphasise the same aspect of private corporate sector saving when they state that "liberal availability of funds at relatively easy terms from term-lending and other public financial institutions could be a reason among others" for the long period stagnancy of the corporate sector

savings rate.

Krishnamurty and Sharma go further and raise the basic question of the method of estimation and whether the stagnancy observed is not due to the particular method adopted for estimating total corporate sector saving by using the blow-up factor (paid-up capital proportions) applied to RBI survey data and the nature of the sample.

The paper by T. Rama Rao on the subject addresses itself to this very aspect and reviews the methodological issues which require examination in this context. According to him, the most important limitation, of course, is the deficiency in the blowing-up procedure. According to Rama Rao, though exercises carried out do suggest a meaningful correlation between the paid-up capital and the balance sheet items, no such association can be seen in the case of saving. Added to this are the facts that (a) paid-up capital figures are made available by the Department of Company Affairs only once in five years and provisional figures are used during intercensal years which need to be revised subsequently, leading sometimes to substantial revision to the figures of savings etc. (b) there exists variations in accounting years and accounting practices and (c) there exists different practices between companies like the written down value method or the straight line method for determining depreciation provision, which all introduce errors in the estimates of savings for the private corporate sector. To add to all this, is the fact that for the New Series, the CSO uses gross savings and gross capital formation figures as estimated by the RBI using the blowing up method but adopts the economic criterion for measuring depreciation and thereafter deriving the net savings and net capital formation figures. According to Rama Rao, "it is difficult to derive the current market value of fixed assets of companies based on which the depreciation provision is worked out. The value of fixed assets presented in the books of accounts is neither at original value nor at current values as the companies revalue their fixed assets partly or fully at frequent intervals. In case the book values are revalued under the assumption that they are at acquisition costs, there is a possibility of revaluing the fixed assets which have already been revalued. This may lead to over-estimation of depreciation provision for the year". The estimates of savings for the private

corporate sector therefore become questionable on many counts and unless these questions can be satisfactorily answered, no conclusion regarding corporate sector savings can be drawn.

The study of household sector savings took entirely different form at the seminar and the two papers specifically on the subject deal with it substantially differently. These are the paper by Bhatta and Vashishtha entitled "Rural Household Saving and Investment Behaviour 1970-71 and 1981-82" which draws upon the results of the longitudinal study (1970-71—1981-82) of the National Council of Applied Economic Research to present broad conclusions regarding the saving and investment behaviour of different categories of rural households; and the paper by Roy Choudhury entitled "Savings Behaviour of Households: Trends and Pattern", on the other hand, uses the data on Household Savings available from old and New Series of National Accounts Statistics to draw conclusions regarding the household savings behaviour since 1970-71 and changes therein. The latter proceeds to analyse the time series of household financial and total savings by the use of alternative savings functions and draw conclusions regarding the household savings behaviour in terms of average and marginal propensities to save and income elasticity of saving both at current and constant prices.

Ghosh in his paper, on the other hand, attempts to investigate the causes for the change in the pattern of household savings since 1970-71—in the form of shift towards savings in financial assets against savings in physical assets in the sixties and early seventies and also discusses the quality of the estimates. To illustrate, in 1960-61 household savings in financial and physical assets were more or less of equal proportion, in 1986-87 the former increased to as much as 61.8 per cent of the total household savings and the latter correspondingly declined to 38.2 per cent. The paper by Krishnamurty and Sharma also studies the pattern of household savings in terms of causal factors in a very limited way. Vaidyanathan in his paper "Savings Estimates in India" also raises the question of reliability of the household sector saving but mainly refers to household saving in physical assets.

According to Ghosh, the derivation of estimates of saving by households in the form of financial instruments of

saving, is subject to error because the holding of currency as well as diverse financial instruments by the public and the private corporate sectors are only roughly estimated, the balance of the incremental amount of all such savings instruments being treated as household savings. There also exists a strong possibility of the savings of unincorporated enterprises sector being underestimated. This can be so as there is evidence that a modern small sector is fast emerging in many parts of the country with their output not being always recorded and their saving also being not recorded because of their direct investment in the sector itself. All these factors are of utmost importance for reliable measurement of household savings.

It is therefore essential to examine the savings behaviour at a much more disaggregated level, to obtain detailed data on the ownership of financial assets, to attempt an urban-rural break up of savings and investment, and a source-wise classification of household saving. All these and other related information may perhaps answer some of the questions which arise in our mind.

The paper by Roy Choudhury, on the trend and pattern of household savings, is very much in line with the study of Krishnamurty and Sharma if one ignores the fact that the former refers solely to household savings while the latter to aggregate and sectoral savings. Starting with the premise* that the methodology adopted for the compilation of the gross savings estimates of the various institutional sectors in the New Series is broadly the same as in the old series (explicitly so stated in the *New Series on National Accounts Statistics with 1980-81 as base year*), the old series for the earlier period has been considered jointly with the New Series from 1980-81 onwards to study the pattern of household saving over the period 1960-61 to 1986-87. Since household savings in financial assets register a much higher increase than saving in physical assets the analysis is undertaken with three different series of household savings, viz., aggregate household saving, household saving in financial assets *net* of liabilities and household savings in financial assets *gross* of liabilities. Also, the exercise investigates

*This premise is also supported by the results obtained by Krishna-murty and Sharma for the aggregate saving estimates.

the effect of rise in prices in determining savings behaviour of the households and therefore analyses the data both at current and constant prices.

The results present a picture of stability in the pattern of savings coupled with an increasing trend and rise in the value of marginal propensity to save between the two periods of 1960-61 to 1979-80 and 1980-81 to 1986-87. One can however question this increase in MPS over the two periods as they cover two different sets of data, *viz.*, the old series and the New Series and the latter presents an unusually high level of household financial saving. Vaidyanathan also raises doubts about the household sector investment in financial assets on the same count and feels that they need to be looked into more carefully.

A limited exercise has also been undertaken to investigate whether the households in India portray a stability in their savings behaviour with reference to permanent or normal income. For this two alternative measures of permanent income have been used. The exercise with total and financial household savings (net of liabilities) covering the period 1960-61 to 1986-87 and with household financial savings (gross of liabilities) for the period 1970-71 to 1985-86 as functions of personal disposable income suggest that 'normal' income rather than current income is more important factor influencing the current levels of household savings. Similar exercises by Krishnamurty and others also support the 'normal' income hypothesis. The results would thus imply lags in the response of household savings to income.

The exercise by Roy Choudhury also tests the Keynesian current income hypothesis, *i.e.*, savings as a function of current income using both current and constant price series. In other words, simultaneously with the test of current income hypothesis the effect of inflation on household savings behaviour is tested. This approach is mainly to answer, if possible, the question as to whether inflation promotes savings particularly in the household sector. The results do not indicate the possibility of rise in prices being an important determinant of the levels of saving though it appears to have a moderate influence.

Another independent source of data which might be looked into in this context are the survey results (*e.g.*, NCAER,

survey on household saving). The paper by Bhatta and Vashishtha attempts exactly this, using the data from the NCAER surveys for 1970-71 and 1981-82. However, at the seminar doubts were raised as to whether the limited small size of the NCAER household savings survey (4363 and 4947 households respectively for the all-India surveys of 1970-71 and 1981-82 and 3139 households for the panel data) gives reasonably reliable data and unbiased estimates to enable one to draw conclusions regarding the savings behaviour of the rural households. Bhatta and Vashishtha in their paper examine this question and attempt to justify the adequacy of the all-India and Panel sample sizes for analysing the income and savings behaviour of different socio-economic groups, arguing that this is to be judged by the standard error of the estimate of the population parameters and the number of sample observations in various cells representing cross-classification of different socio-economic groups. Enough details are however not included to test these criteria in their full and this may be kept aside for the present.

In view of this, it might be desirable only to refer to the overall patterns of rural household savings behaviour as revealed by the survey results and not to the actual figures and examine the extent to which this pattern is corroborated by other studies presented at the seminar (say, by Krishnamurty and Sharma).

The results show that the savings and investment rate of rural households at the all-India level increased significantly. This increase in the savings and investment rates in 1981-82 was principally due to the rise in the rate of financial saving as a result of both a rise in the rate of gross financial saving and a decline in the liabilities to gross financial saving ratio. This reduction of liabilities of the rural household sector was apparently due to the reduction of liabilities to indigenous moneylenders in mandi towns. This, according the authors, can be attributed to the rapid spread of bank branches in rural areas on the one hand and the expansion of FCI operations backed by price support policy, on the other. Krishnamurty and Sharma in their study have also found that the increase in the number of bank branches is a contributory factor to the increase in aggregate saving.

The details of composition of real gross capital forma-

tion in the household farm sector over the decade 1970-71 and 1981-82 shows a heavy tilt in favour of livestock and allied activities and decline in the use of farm machinery. Along with this there is also a moderate increase in investment in non-farm activities of the household sector. This phenomenon has also been referred to by Ghosh in his paper while investigating the factors leading to substantial increase in household saving in financial assets. Finally, looking into the pattern of saving of different groups of rural households classified by land ownership, the results of the survey show that all categories of households, except landless agricultural wage earners, had positive net financial savings in 1981-82 and saving rate had risen fast particularly for the marginal land-owners who have made significant contribution to the growth in farm investment.

Potential for Saving in the Economy

Lall in his paper "Savings Potential and Mobilisation Strategy: Method, Estimates and Policy Issues" examines the possibilities of tapping savings potential in the household sector and the question of introducing new instruments to make this possible. On the basis of limited survey for the household sector, the author feels that potentials do exist and it is necessary to determine the strategy to promote and market the saving instruments and work out details of associated infrastructure like the operational cost in terms of the rate of interest on the saving deposit, building up of collection and servicing institutions and so on. Most of the participants however expressed their reservations about generalisations from a very limited sample like the one involved and felt that proliferation of savings instruments would only cause shuffling of the savings rather than an increase in it.

Conclusion

Even after having gone through the whole course of examining all the issues connected with measurement of savings both at the aggregate and sectoral levels and analysis of the available data, one is unfortunately not in a position to provide an answer to the basic question with which the whole exercise started, *viz.*, is there a convincing explanation to the

savings behaviour of the Indian economy over the last 35 years? In particular, an answer to the question as to why the savings rate rose sharply in the late seventies and stagnate thereafter. Though the basic issue is yet to be resolved, the current examination of the method of estimation particularly at the sectoral level has raised doubts in one's mind about the reliability and accuracy of the savings estimates—particularly the New Series.

Even if the question of quality of data is left aside, no conclusion appears to have emerged regarding the basic attributing factors leading to the pattern of and trend in savings in the Indian economy as it has been since the fifties. This, however, can be no excuse for avoiding the basic question as to the means for reversing the process and examination of the potentialities for increase in savings in the future. Both Ghosh and Vaidyanathan in their papers have listed several studies which they feel should be undertaken in the future to understand the process fully. Krishnamurty and Sharma as well as Ghosh at the same time, list a number of policy issues which need to be considered and perhaps put into action to ensure that the reversal process does come through in the future. It might be worthwhile to conclude this introduction with the optimistic note that in the not too distant future it will be possible not only to undertake further studies but to come to a stage of understanding when the policy issues need no longer be based on surmises but on sound basis of data and analysis.

Uma Datta Roy Choudhury
Amaresh Bagchi

SAVINGS ESTIMATES IN INDIA
Recent Trends and Underlying Factors

1

INAUGURAL ADDRESS

Sukhamoy Chakravarty

THE theme of this seminar, *viz.*, "Savings Estimates in India: Recent Trends and Underlying Factors", is an extremely important issue in the present Indian economic situation. In fact I feel that a convincing explanation is yet to be provided for the savings behaviour in the Indian economy over the last 35 years. We have not fully understood as to why the savings rate in our economy went up significantly towards the late seventies and why it has stagnated in recent years. The present stagnation in the savings rate, coming after a period of accelerated growth, would seem to require some explanation. Prof. Krishnamurty and Dr. Sharma have been working on this problem for a considerable period of time and I hope that their paper in this seminar may throw some light on this aspect.

The issue of stagnation in the savings rate needs serious attention because a rate of growth of 6 per cent in GDP has been postulated for the Eighth Five Year Plan on the assumption that the savings rate will be raised from 21.68 per cent to 24 per cent over the period of the Eighth Plan. This implies that the policy-makers expect the average savings rate during the next quinquennium to be somewhat higher than at present, thereby reversing the downward trend or stagnation that has been noticed for the last five to six years. In other words, a certain kind of a U-turn is anticipated in the savings behaviour. While this may not be an impossible task, we have to basically understand the factors which might really lead to this kind of reversal in the savings behaviour. To postulate a marginal propensity to save of the order of around 40 per cent is a

statistical exercise, but realising the same would require much better understanding of the behavioural forces which shape the outcome of the major variables like savings and consumption both in the public and private sectors of the economy.

An assumption that I have noticed in a great deal of recent discussion is that the aggregate savings rate in our economy could be increased if only the public savings could be raised. This is based on the findings that the present stagnation in the aggregate savings rate is almost exclusively attributable to the behaviour of public savings in recent years. This assumption implies that the savings rates in the public and private sectors are not related to each other, which need not, however, be true since there are many interrelationships among aggregate magnitudes like savings and income. For instance, if it is assumed that Government has been spending more than it is in a position to raise as revenues in its so-called "income account", then obviously such expenditures of the Government have some impact through various multipliers and other kinds of mechanism in the economy on the generation of private income. Supposing the Government decides to tax more or reduce the subsidies or increase the administered prices of various commodities and services, then is it reasonable to expect that, other things remaining the same, the overall rate of saving should go up because the Government or the public sector will be able to improve its savings rate? Does it also then follow that the savings behaviour of the household sector or the corporate sector will remain invariant to such policies adopted by the Government? In other words, is there something to the point that a part of the strength of the household sector savings may very well have been derived from the various policies adopted by the Government, in particular, its unwillingness to tax the agricultural sector and its unwillingness to charge full cost for the commodities and services produced and/or supplied by the public sector to different sectors or sections of the population? In my opinion, this class of questions needs careful analysis.

I feel that it is necessary to examine first the behaviour of aggregate savings in relation to gross domestic product, then analyse the interrelationships between sectoral behaviour and aggregate savings and later look into the issues connected with the behaviour of sectoral savings. In this context, the problem

of financial intermediation is an important and related question, though by no means an identical question. Financial intermediation will remain an important issue even when the Government does behave better. If public investment is considered to be very important and the Government decides to step it up, then a higher rate of aggregate savings might help the Government to finance a higher level of public investment, even though the Government might be getting more indebted in the short run. However, if the rate of growth of domestic product is sufficiently high and the interest rate is suitably fixed in real terms, then the Government need not run into a debt trap, provided the underlying strength is given by the level of aggregate savings.

In this context, there is a view that if we are able to obtain more loans or aid from abroad, then it might help to raise the rate of investment. But there is also another view that this might adversely affect the domestic saving in the sense that there is a negative relationship between domestic savings and foreign savings—a theory that has been postulated by some economists.

In my opinion, we have to first clearly identify the forces underlying the rise in savings rate in our economy during the second half of the seventies and its subsequent decline and stagnation during the eighties. Such an analysis would enable us to postulate a properly structured set of policies for reversing the present stagnation in the savings rate. This does not, however, imply that the Government should not raise taxes nor am I suggesting that the Government should not re-examine its policies relating to subsidies and administered prices, all of which should help in a variety of ways. But it does not follow that aggregate savings constraint, if it were indeed a constraint, can be effectively overcome merely by adopting such policies alone. In my opinion, something deeper is involved in the present situation.

There is some evidence to believe that consumerism has now become a very major factor. Household expenditure on consumer durables has been growing faster in recent years than expenditure on other items. If we have to reckon with this increasing trend of consumerism, it is then quite possible that the household sector would now save less than it would have

done in the kind of environment that existed earlier. It is, therefore, worth investigating whether the rise in consumerism has any relationship with the policies that the Government has adopted in recent years, especially in relation to taxation—both direct taxation and commodity taxation. This set of issues requires careful analysis. In my opinion it would be an oversimplified analysis to assume that the savings behaviour of the public sector is directly responsible for the present stagnation in the aggregate savings rate. It may indeed be responsible, but this cannot be established by merely analysing the different components as if they are altogether independent. These components arise from the same set of forces and there are obvious relationships of interdependence between components.

Another aspect in recent discussions which somewhat surprises me is that a great deal of interest is shown towards the private corporate sector. The rate of saving in the private corporate sector in our economy has remained almost stagnant. It might have even declined compared to the sixties. The significant slowing down in the level of private corporate savings over the past twenty years or more needs a very careful analysis and explanation. We know that in certain economies where capitalism has shown dynamism, the corporate sector does not save a large percentage of their income. But then these cannot be really considered as typical economies.

Further, a great deal of economic theory on “investment demand” functions has also been based on the behaviour of corporate profits. In the Indian context, however, we have to analyse first whether the private corporate sector is capable of getting resources from the household sector and then examine whether the existing institutional set-up really encourages the corporate sector to rely more on borrowed funds than on internal resources. Normally one would expect that there would be a tendency, in order to avoid increasing the risk, to shy away from greater degree of indebtedness than is necessary. This is based on Kalecki’s theory of increasing risk, but the Indian capital market may have some special features. If that is indeed the case and the capital markets are fragmented, then the inclination on the part of the corporate sector to rely more on borrowed funds may have more to do with the Government’s unwillingness to allow any private enterprise to go

bankrupt. It may be that some of the Government decisions have in fact been responsible in making it more attractive for the private corporate sector to seek borrowed funds more than plan for increasing their own internal savings. If that is so, then the argument for reducing the corporate rate of taxation on the assumption that it would lead to availability of more funds for investment for the corporate sector may not indeed be justified. So this again raises a set of questions, which needs to be carefully analysed.

Then we come to the question of the so-called New Series of National Accounts with 1980-81 as the base year which, as far as I can see, differ from the Old Series basically in respect of the estimation of consumption of fixed capital. For the base year, the difference is as much as 50 per cent and so the gross savings have to be written off by about 50 per cent in order to arrive at the estimates of the net savings. In the 1930s there was a great deal of discussion on this matter, especially between Pigou and Hayek, about what is meant by maintaining capital intact. Many got tired with this debate and gave it up because nothing concrete seemed to have emerged out of it, although it was very clear that from a welfare theoretic point of view net savings was an important factor to be reckoned with. However, from the point of view of short period demand management, which became the centre of attention after Keynes, people were more concerned with gross investment and gross savings. More recently, welfare theorists are returning to consumption of fixed capital as an analytical issue to get an idea of sustainable rate of growth. Furthermore, in the context of sectoral financing, depreciation allowances form a major issue. In other words, it could be the case that in some of the sectors where in fact depreciation allowance has been shown to be low, capital stock might have been undermaintained which might lead to a bunching of investment requirements for replacement purposes for which necessary resources might not be available. Even if the resources are available, the productive capacity will increase only marginally. The National Accounts data (New Series) pertaining to transport, communication, electricity, gas, etc., would seem to suggest that this may indeed be the important issue involved in these sectors which reflects the need for financial intermediation in a specifically directed sense. In

other words, intersectoral flow of funds has to be much more carefully studied in the present context than mere aggregative analysis would permit. It seems to me that the more important lesson to be drawn from this particular set of estimates is that we may be faced with serious problems of bunching of investment for replacement purposes in coming years, merely to maintain the same rate of growth. Estimation of incremental capital output ratios based on the assumption that investment increase *per se* would really give rise to a significant additionality in growth in output may not in fact be justified in these circumstances. The information that is given in the CSO's publications does not seem to be very adequate for forming any opinion about the fresh estimates of depreciation although it is mentioned that the life table of the various types of physical assets have been taken into account for this purpose. But I am not indeed quite sure whether this has been done with the care that is needed. Although it is quite plausible that the earlier estimate of depreciation might have been an underestimate, the basis on which the new estimates have been prepared needs to be clarified.

One final point that I would like to mention is that cross-sectionally the Indian saving performance is indeed something of an exception for poor countries which are supposed to belong to the low-income category. The saving rates as per the CSO's estimates (the gross saving estimates are more or less the same in both the old and the new series) would seem to suggest that the Indian saving rate is significantly higher than those recorded in Bangladesh, Sri Lanka, Pakistan and a number of other countries, but it is certainly lower than in the case of Taiwan and South Korea. The saving rate in India is quite comparable with that achieved by Malaysia and Thailand, but these are middle income countries. The saving rate in China is significantly high, but China is a different kind of economy.

From the above analysis it is very clear that one of the necessary conditions of growth seems to have been fulfilled in the Indian case, although it is not a sufficient condition, *viz.*, that we have achieved a fairly high level of savings rate, even though people have raised some doubts in this respect. The Raj Committee itself raised questions as to whether indeed the

real capital formation figures are as high as savings figures would seem to suggest. They attributed it to the differential behaviour of the sectoral price levels. Vaidynathan has also raised this question in his paper. Even so, if one goes by the normal standards of comparison, I do find that the Indian savings behaviour is an outlier compared to other most low income countries. If so, the answer will have to rely on the deeper understanding of the institutional dimensions which figure in relation to the savings determination processes. Elasticity of aggregate saving with respect to interest rate as distinguished from income elasticity is not decisively any higher in India as compared to many other countries. This could not, therefore, by itself provide an adequate explanation. But there are other variables such as terms of trade between industry and agriculture, which Dr. Krishnamurty and Dr. Sharma have analysed and which might provide some light on this aspect.

Coming back to the question with which I started, if the Eighth Five Year Plan projections on growth are so critically dependent on stepping up the rate of domestic savings, then a much clearer understanding of the forces which shape the savings behaviour would appear to me to be of decisive importance. The policy instruments which are appropriate for this purpose can only be visualised after we have had a clearer comprehension of the former. Otherwise it is quite possible that a series of measures which, *ex-ante*, are intended to raise the saving rate, would work out, through mutually offsetting of decisions, to a figure which might very well be lower than what we are hoping for at this particular stage.

Finally, the assumption that savings is a constraint on growth itself seems to me to be a hypothesis requiring much clearer elucidation. In a purely supply-centric view of the growth process, this may indeed be so, but there are people like Kaldor and others who maintain the demand-centric position, in which case the causation runs not from savings to investment, but from investment to savings. In that case, higher rate of realised savings might in fact mean that the potential rate of inflation need not be as high as in comparison with situations where the savings rates were considerably lower. This leads us to the question of inflationary income redistri-

bution and mechanism of that nature, well beyond the scope of simple neo-classical processes of adjustment. These macro-dynamic processes of adjustment, possibly neo-classical, also require, therefore, careful analysis by those who are building econometric models in order to throw light on the policy question.

METHODOLOGY OF ESTIMATION OF DOMESTIC SAVING

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1. Introduction

THE Central Statistical Organisation (CSO) has been releasing the official estimates of national income and related aggregates including those of saving in its annual publication *National Accounts Statistics* (NAS). On the other hand, the Reserve Bank of India (RBI) also publishes the estimates of saving in its *Report on Currency and Finance*. For this purpose the RBI utilises the information/estimates as available in the NAS and its own estimates of household financial saving and saving of private corporate sector. The difference between the above two sets of estimates of domestic saving has been a subject of discussion in a number of forums. The Working Group on Saving set up by the Department of Statistics, under the Chairmanship of Prof. K.N. Raj in 1981, while undertaking a critical review of the estimates of capital formation and saving, also looked into the differences in the two sets of estimates of saving mentioned above. The Working Group recommended that steps be initiated for reconciliation of the two sets of estimates; regular exchange of data between the two agencies, timely availability of survey results, etc. The Group commented, "if these recommendations are fully adopted by the RBI and CSO the series published by these two official agencies should in future show no other discrepancy other than those caused by differences in the time of preparation and publication of their respective estimates." After examining the estimates put out by the CSO in respect of

saving and capital formation, the Working Group further observed, ". . . on the whole, the improvements thus achieved in the series on gross capital formation and saving over the last two decades as a part of more comprehensive series on national income and expenditure, have made these estimates almost as good as they can be expected to be, given the nature of the economy and difficulties inherent in securing adequately reliable data. It is doubtful whether the estimates for any other country at similar stage of development have a much firmer foundation."

Following the recommendation of the Working Group, the CSO and RBI had a series of discussions and have agreed on a uniform methodology and data base and areas of responsibilities so as to avoid duplication of work in future. The RBI will prepare and supply the estimates of saving for private corporate sector including cooperatives to the CSO. The CSO will continue to prepare the estimates of saving from the public sector and household saving in the form of physical assets. In the case of saving of the households in the form of financial assets, the responsibility has also been divided. Thus RBI would be responsible for providing estimates of currency, bank deposits, shares and debentures and net claims on government, while the CSO would supply estimates of provident and pension funds, insurance funds and investment in the bonds of public sector undertakings. For this the relevant data available with the two agencies will be mutually exchanged. This arrangement came into effect in late 1987. With this, all the issues by and large have been sorted out. It has also been agreed that the CSO and the RBI officials would be in continuous touch with each other to ensure further improvements, wherever possible. Thus, with the introduction of the New Series of National Accounts with 1980-81 as base year in February 1988, the only difference between the two sets of figures of domestic saving prepared by RBI and CSO commencing from 1980-81 would be due to the time of preparation of estimates and their release. The methodology and source material used for preparing the domestic saving is discussed in what follows.

Saving represents the excess of current income over current expenditure and is the balancing item on the income and outlay accounts of producing enterprises and households, govern-

ment administration and other final consumers. For preparing the estimates of gross domestic saving, the economy has been divided into three broad institutional sectors—(i) public sector, (ii) private corporate sector, and (iii) household sector.

2. Public Sector

Public sector covers government administration, departmental enterprises and non-departmental enterprises. The non-departmental enterprises comprise government companies, statutory corporations and port trusts.

Government Administration and Departmental Enterprises: The gross saving of government administration and departmental enterprises is defined as the excess of current receipts over current expenditure. This is derived from economic classification of the budgets of Central and State governments and Local Bodies.

Non-departmental Enterprises: The gross saving of the non-departmental enterprises (except the LIC and the Issue Department of the RBI) is estimated from the results of the analysis of annual accounts of these companies and corporations. The gross saving is obtained as an aggregate of transfers of certain reserves, profits and retained earnings from profit-and-loss and appropriation account to the balance sheet duly adjusted for expenditure/income relating to previous years. The gross saving of the Banking Department of the RBI is estimated as the sum of annual changes in (i) National Agriculture Credit (long-term operation) Fund, (ii) National Agriculture Credit (stabilisation) Fund, (iii) National Industrial Credit (long-term operation) Fund, and (iv) Depreciation Fund. The saving of the Issue Department of the RBI is included under Government Administrative Departments. In the case of LIC, the saving arising out of its general insurance business is only considered whereas the saving arising out of the life insurance business is taken into account in the household sector. This is obtained as the sum of net transfer to balance sheet and net transfer to reserves including provision for depreciation.

3. Private Corporate Sector

Private corporate sector comprises all non-government, non-financial/financial corporate enterprises and cooperative insti-

tutions. Non-government non-financial enterprises include public and private limited companies (inclusive of foreign-controlled rupee companies) registered under the Indian Joint Stock Companies Act, 1956. Non-government financial institutions constitute all scheduled and non-scheduled commercial banks in the private sector, other financial and investment companies engaged in activities such as financing of hire purchases, transactions in share and commodities and financing of loans or investments in securities, Industrial Credit and Investment Corporation of India (ICICI) and Housing Development Finance Corporation Limited (HDFC). Cooperative institutions comprise all cooperative banks, and credit and non-credit societies.

Non-government Non financial Companies: The basic data for non-government and non-financial corporate companies are available from the results of the analysis of RBI studies on company finances. The analysis is undertaken separately for public limited companies and private limited companies. The gross saving of public and private limited companies has been taken as equivalent to the retained profits (excluding non-operating surplus/deficit) gross of depreciation provision. The non-operating surplus/deficit comprises (a) profit/loss on account of (i) sale of fixed assets, investment etc., (ii) revaluation/devaluation of foreign currencies, (b) provision no longer required, written back, (c) insurance claims realised, and (d) income of expenditure relating to the previous year and such other items of non-current nature. The estimates for all companies in each category are obtained by blowing up the sample results on the basis of coverage of paid-up capital of sample companies to the paid-up capital of all companies.

4. Non-Government Financial Institutions

Private Commercial Banks: The saving of private commercial banks is estimated as addition to the reserve funds. The transfers to reserve funds include net amount carried to reserves, depreciation provision, amount allocated to other special purposes and amount carried forward to next year's account net of surplus/deficit of the previous year brought forward, as available from the details of "Earnings and Expenses of Commercial Banks" published in the RBI's *Statistical Tables Relating to Banks in India*.

Private Financial and Investment Companies: The saving of financial and investment companies is estimated on the basis of RBI studies on performance of financial and investment companies following the same procedure as relating to non-financial companies. As the RBI studies do not cover ICICI and HDFC in their analysis, the saving of these two institutions is estimated from their annual reports and added to the saving estimates from RBI studies to arrive at the saving of non-government financial companies.

Cooperative Institutions: In the case of cooperative societies, data on statutory reserves/funds, bad debt reserves, and other reserves are available in the *Statistical Statement relating to Cooperative Movement in India* published by National Bank of Agriculture and Rural Development (NABARD). The gross saving is taken as the increase in statutory funds and other reserves/funds.

5. Household Sector

The household sector comprises, apart from individuals, all non-government, non-corporate enterprises like sole proprietorships and partnership-owned and/or controlled by individuals and non-profit institutions which furnish educational, health, cultural, recreational and other social and community service to households. Since direct annual data on household savings as an excess of current income over current expenditure of households and household enterprises are not available, the saving of the household sector is worked out following the residual method and taken as sum of their investments in various instruments of financial saving and in the form of physical assets.

Financial Saving: The investment in financial saving comprises currency, net deposits, shares and bonds, net claims on government in the form of small saving and investment in Central and State Government Securities, Life Insurance Fund and Provident Fund and Pension Funds.

Currency: Household saving in the form of currency is estimated as a residual by deducting the amount of currency held by the private corporate sector and public sector enterprises from the total currency with the public. The data on total currency with the public (i.e., total currency in circulation

minus currency held by the commercial and cooperative banks) as on 31st March each year are available in the special tables published in the *RBI Bulletin*. The institutions/sectors other than households in respect of which the amount of currency holdings is deducted are: (i) private corporate business, comprising non-government financial and non-financial companies registered under the Companies Act, (ii) cooperative institutions other than cooperative banks, (iii) government companies and statutory corporations (both financial and non-financial), (iv) Railways and Central and State government treasuries.

Data on currency held by the private corporate business are estimated by the RBI on the basis of its sample studies on company finances of non-government non-financial (public and private limited) companies, and private financial and investment companies published in the *RBI Bulletin*.

The information on currency held by cooperative credit and non-credit societies is taken from the publication *Statistical Statements relating to Cooperative Movement in India* (NABARD).

The currency held by the government companies and statutory corporations is estimated from the results of the analysis of the annual accounts of these companies and corporations. However, in the case of LIC, GIC including its subsidiary companies and Railways, the data on currency holding are obtained from respective institutions. The cash balances of the treasuries are taken from finance and accounts of each State and Central government.

On the question of cash in hand, the Advisory Committee on National Accounts in its meeting held in June, 1987 had suggested that the present procedure of estimating the currency with the households by deducting from the total currency, the currency held by various institutional sectors, may be examined. It had further suggested that a simple procedure of possibly taking a proportion of the total currency in circulation might serve the purpose. Accordingly, on the basis of past trends of currency holding of the household and non-household sectors, RBI estimated this proportion to be 0.93—which has been used for estimating the currency holding of the households from 1985-86 onwards. This proportion is likely to undergo change as soon as more data based on the survey results of the

RBI become available.

Net Deposits: Saving of the household sector in the form of net deposits comprises deposits with commercial banks, non-banking companies comprising financial and non-financial companies in the public and private sectors including State Electricity Boards (SEBs), cooperative banks and societies and trade debt (net) minus bank credit and loans and advances to the households by these institutions.

Data on commercial banks deposits as on 31st March of each year are published by the RBI in the special tables on Scheduled and Non-scheduled Commercial Banks' Business in India in the RBI *Bulletin*. Deposits under foreign currency non-resident (FCNR) accounts and intra-bank deposits are excluded from bank deposits. These bank deposits excluding FCNR deposits and intra-bank deposits are then bifurcated into current, saving and fixed deposits on the basis of relationship of these categories of deposits observed from data on liabilities and assets of scheduled commercial banks in India. The share of households' deposits in current, saving and fixed deposits is estimated on the basis of details obtained from the RBI biannual survey on "Ownership of Deposits with Scheduled Commercial Banks" which provides data on household and non-household deposits.

Bank credit to households comprises (i) bills purchased and discounted and (ii) loans/advances, cash credit and overdrafts to institutions like partnership, proprietary concerns, joint families, etc., and individuals. Loans and advances by the RBI to its staff are also included separately on the basis of information obtained from the RBI. Data on total commercial bank credit are published by the RBI separately in respect of credit "to bank" and "to others" in the special tables on Scheduled and Non-scheduled Commercial Banks' Business in India. Credit "to others" includes credit given to institutions of the public and private sectors (excluding banks). But institution-wise details are not available. In order to estimate the proportion of credit given to households by commercial banks, the information collected by the RBI on bank credit according to organisation and occupation and accounts with credit limit of Rs 25,000 and less along with sectoral deployment of Gross Bank Credit published in the RBI Annual Report are used

within the occupational groups, i.e., agriculture, medium and large industries, small-scale industries, etc. Institutions like partnership, proprietary concerns, joint families and individuals have been covered in the household sector. Moreover, the amount shown under credit limits of Rs 25,000 and less is assumed to be the credit given to the household sector.

The main sources of information on deposits of households with non-banking companies other than SEBs are the RBI surveys on "Growth of Deposits with Non-Banking Companies" and "Studies on Company Finances" published in the *RBI Bulletin* from time to time. In the case of SEBs, information on security deposits for supply of power to consumers, as available in their reports, is used. Deposits with non-banking companies are broadly classified into two categories, viz., (i) deposits and (ii) exempted borrowings. Deposits are subject to ceiling and other restrictions as imposed by regulatory measures. Exempted borrowings include borrowings from banks, financial institutions, monies received from Central and State governments, inter-company borrowings, security deposits, advance received from purchasing, selling or other agents, monies received from shareholders of private limited companies, etc. In the case of non-banking government companies, deposits falling under ceiling and other restrictions are taken as household deposits and the share of household investment in the exempted borrowings is assumed as negligible. However for non-government financial companies, besides deposits falling under ceiling restrictions, exempted borrowings excluding money received from other companies, banks and government are taken as household deposits. This information is collected from the RBI survey on "Growth of Deposits with Non-Banking Companies." This survey also covers non-government non-financial companies but the results for these have not been utilised as the coverage of these companies under the survey is inadequate. Alternatively, the data available in the RBI studies on company finances in the form of public deposits are made use of.

Data on total security deposits of consumers for supply of power, available from the annual reports of SEBs, do not provide separate details of deposits by households. The share of household deposits in the total security deposits is worked out

by allocating it on the basis of the share in total consumption of electricity.

Deposits with non-banking companies are netted for the loans extended to the households by these companies. Information on loans extended to households is taken from the following sources:

- (i) Loans extended by State Financial Corporations (SFCs) and State Industrial Development Corporations (SIDCs) etc., to staff members as well as to proprietor and partnership concerns, Hindu Undivided Families and trusts;
- (ii) Loans and advances granted by other government financial corporations, namely, Industrial Development Bank of India (IDBI), Industrial Finance Corporation of India (IFCI), ICICI, Rural Electrification Corporation (REC) to their staff members, loans by HDFC and Housing and Urban Development Corporation (HUDCO) to individuals;
- (iii) Loans and advances by chit fund and mutual saving fund companies specially obtained from the RBI, and loans and advances given by SEBs to their employees available from their annual reports.

Information on deposits with and advances given to households by cooperative societies (credit and non-credit)/banks available annually from the publications *Statistical Statements Relating to the Cooperative Movement in India* (NABARD) and *Important Items of Data, Credit and Non-Credit Cooperative Societies* (NABARD) is made use of.

The trade debt (net) has been estimated as change in trade dues in respect of sundry creditors *minus* change in loans and advances to sundry debtors. This information is available in the RBI studies on company finances published in the *RBI Bulletin* from time to time. The sample results are blown up on the basis of coverage of sample paid-up capital to total paid-up capital of all companies.

Shares, Debentures and Bonds: This component of household investment includes investment in shares and debentures issued by non-government non-financial and financial com-

panies, and cooperative banks and societies, bonds issued by public sector enterprises, units of UTI, and shares and debentures issued by financial corporations other than UTI. However, investment in share and debentures issued by non-financial government companies is not taken into account for want of requisite data. So far this amount can be assumed to be negligible.

Information on household investment in shares and debentures of non-government (financial and non-financial) companies is not available separately. This is derived from the total investment in this instrument as a residual after subtracting the investment of public sector and private corporate sector. Data on total paid-up capital on non-government non-financial as well as financial companies are available from the Department of Company Affairs (DCA). To this paid-up capital, the value of debentures issued, as available from either the DCA or Controller of Capital Issues (CCI), is added to obtain the total investment in shares and debentures. From this total investment the investments made by other institutions comprising Central and State governments, statutory corporations like LIC and GIC, banks, non-residents and intra-sectoral investments of joint stock companies are deducted to obtain the household investments in shares and debentures.

Details of ownership of share capital for each type of cooperative institutions are available in the NABARD publication, *Statistical Statements relating to Cooperative Movement in India*. The share capital contributed by individuals and others is assumed as household investment in the cooperative share capital.

Data on household investment in bonds issued by public sector undertakings are obtained from the Ministry of Finance. Similarly, household investment in the units of UTI is estimated on the basis of information obtained from the UTI. The data on household investment in shares and debentures of financial corporations are available from their balance sheets.

Net Claims on Government: This includes investment in government securities, small savings, bearer bonds, capital investment bonds, national rural development bonds, national deposit scheme, compulsory deposits and any other scheme brought out by the Government from time to time, less house-

hold net borrowing from the government. In the absence of data no corresponding estimates relating to local authorities can be prepared.

Household investment in government securities (rupee debt) is estimated on the basis of data on sale of total securities available in the budget documents of the Central and State governments, using the proportion of securities purchased by the households to total securities obtained from the RBI survey on 'Ownership of Government (rupees) Debt'. Small savings comprise national saving certificates, national plan saving certificates, post office saving bank deposits, post office cash certificates and defence certificates, cumulative time deposits, national defence certificates, treasury saving deposit certificates and annuity deposits, Indira Vikas Patra, Rahat Patra, etc. The bearer bonds, capital investment bonds, national rural development bonds, national deposit schemes and compulsory deposits are also added to small savings. The data on small savings are taken from the budget documents of the Central government. The household share is derived by adjusting the investment made in small savings out of provident fund contributions and deposit-linked insurance funds. The investment in small savings out of provident fund contributions by the employees is worked out on the basis of information obtained on pattern of investment of provident fund contributions from Provident Fund institutions. Information on capital investment bond, national rural development bonds, national deposit schemes, etc., is obtained from the Central Debt Section of the Central Office of the RBI. Saving in the form of compulsory deposits has been estimated as excess of receipts over payments. This scheme, however, has been discontinued with effect from April, 1986. Since 1981-82 the bearer bonds scheme has also been discontinued. The net borrowing of households culled out from the budget documents of the Central and State governments is subtracted to arrive at the households' net claim on government on this account.

Life Insurance Funds: The life insurance business is primarily considered as a conduit of saving of the households sector and as such the saving of the LIC arising strictly out of its life insurance business (net of the transfer to government) is regarded as accruing to the policy-holders and therefore, included in

the estimates of saving of the household sector. Household saving in the case of LIC is estimated as an increase in the life funds of the LIC and bonus to policy-holders in India excluding government share in profit, capital gains and old claims. Loans advanced to policy-holders and households against mortgage of property in India and also loans given by the General Insurance Companies to their staff, etc., are subtracted to arrive at the estimates of the household saving net of loans and advances. Data on loans to households have been obtained from the LIC and General Insurance Companies.

Saving in the form of postal life insurance, State government life insurance and Central government employees group insurance scheme is estimated as the excess of receipts over payments. Receipts include subscriptions realised, interest accrued, etc., while payments comprise payment of loans to policy-holders, payment of assured sum on maturity of policy or death of policy-holder, and payment for other miscellaneous charges. The data on postal life insurance, Central government employees group insurance scheme and State insurance are available from the annual reports of the P & T, and the budget documents of the Central/State governments, respectively. The total saving of households in the form of life insurance thus includes saving through the LIC, postal life insurance, Central Government group insurance scheme and State Government life insurance net of loans and advances to households by the LIC and GIC, etc.

Provident and Pension Funds: Employees' saving in the form of provident fund (PF) is through PF schemes which are either contributory or non-contributory. In the former scheme the employers and the employees both contribute to the PF. The total contributions *minus* withdrawals *plus* interest credited to PF account constitute the saving of the employees. For the purpose of estimation, employees of the following categories of institutions/schemes have been considered: (a) Central and State governments, (b) local authorities, (c) non-financial statutory corporations, (d) financial institutions, (e) educational institutions, (f) employees PF Scheme, 1952, (g) Coal Mines PF Scheme, (h) Assam Tea Plantations PF Scheme, (i) Seamen's PF Scheme, (j) Public PF Scheme, (k) Port Trusts PF Scheme, and (l) Dock Labour Boards PF Scheme.

Information on PF contributions relating to Central and State governments and Public PF Scheme is culled out from the budget documents. For want of requisite data on PF of employees of local authorities, the same is estimated as 6 per cent of wages and salaries paid to the employees of these authorities.

Non-financial statutory corporations include Air India, Indian Airlines and similar organisations. Figures of PF relating to Air India and Indian Airlines are obtained from these institutions. For other statutory corporations, information is culled from their respective annual reports. The PF contributions of employers as available in annual reports, is doubled to include employees' contributions. For want of requisite data, no adjustments are made for withdrawals, interest accrued and employees' contributions made in excess of the minimum prescribed limit. Financial institutions comprise RBI, commercial banks, LIC, Export Credit Guarantee Corporation of India Ltd., Employees State Insurance Corporation, UTI, IDBI and others. Information on PF of RBI and commercial banks is obtained from the RBI while for others, the same is obtained from the respective institutions or their annual reports.

No data are available on PF contributions of employees of various non-government educational institutions. This has been estimated upto 1981-82 on the basis of wages and salaries paid to employees in all non-government recognised educational institutions. Employees' contribution to the PF is estimated assuming that it forms 6.25 per cent of the wages and salaries. Since 1982-83 PF of this category is included under Employees PF Scheme, 1952 and as such no separate estimates are prepared.

Data relating to PF contributed by the employers and employees of various establishments covered under the Employees Provident Fund Act, 1952 are made available by the Central Provident Fund Commissioner (CPFC). Since, 1971-72 net contributions towards the Pension Fund within the framework of Employees Family Pension Scheme, 1971, are also included. Similarly, PF and pension fund contributions relating to the employees covered by the two schemes of Coal mines, Assam Tea Plantation and Seamen are collected from the respective authorities. Data on PF contributions by employees of Dock

Labour Boards and Port Trusts are also collected from each Board/Trust.

Physical Assets: Net addition to physical assets of the households comprising investment in fixed assets of construction and machinery and equipment, and change in stocks is taken to constitute household saving in physical assets. Estimates of investment in fixed assets for the economy as a whole are worked out independently in connection with the estimates of capital formation. Household investment in fixed assets and change in stocks is derived as a residual, deducting the corresponding estimates of public and private corporate sectors from the total.

6. Consumption of Fixed Capital

The net domestic saving for different institutional sectors is obtained by subtracting the corresponding consumption of fixed capital from the estimates of gross domestic saving in respect of each of these institutional sectors. In the 1970-71 series the estimates of consumption of fixed capital were based on the depreciation provision as provided in the books of accounts of enterprises or on the basis of the proportion of depreciation to value-added observed from various censuses, surveys or *ad hoc* studies. In the case of fixed assets of the Government, no estimate of consumption of fixed capital was being made, as no provision for depreciation is made by Government departments. The method of estimation hitherto followed has been the subject of criticism on the ground that the depreciation included in the books of accounts of enterprises did not provide the replacement cost of fixed assets. Together with the absence of any such estimates in respect of the Government, the result was an under-estimate of the consumption of fixed capital by the economy, resulting in the over-estimation of aggregates like net value-added, net rate of saving, net rate of capital formation, etc.

An alternative method for arriving at the estimates of consumption of fixed capital is to obtain the estimates of gross fixed capital stock built up, on the basis of detailed estimates of gross fixed capital formation for each type of assets of con-

struction (i.e., buildings, railway track, irrigation works, electricity transmission works, etc.) and machinery and equipment (i.e., agricultural machinery, manufacturing machinery, railway coaches, buses, furniture, etc.) and the life of each type of assets. In this method, the estimates of consumption of fixed capital at constant prices (say 1980-81) are compiled first and then converted to current prices with suitable price indicators. In order to arrive at the estimates of consumption of fixed capital at constant prices, the estimates of gross fixed capital stock also need to be worked out at constant prices. These are arrived at by accumulating the estimates of gross fixed capital formation converted to constant prices with suitable indicators. Taking into account the estimated life of each type of asset and the corresponding gross fixed capital stock, the consumption of fixed capital is estimated at constant prices and then converted to current prices. The prime requisite for adopting this alternative method is to have reasonably reliable estimates of gross fixed capital formation over a long period. Although the estimates of gross fixed capital formation in the public sector and the private corporate sector, based on their annual reports, are reasonably reliable, the estimates in respect of household sector are based on benchmark surveys from time to time and are rather weak. The AIDIS, 1981-82, provided for the first time the estimates of fixed capital formation and fixed capital stock for the entire household sector, separately for the rural and urban areas for the year 1981-82. National Accounts Division of the CSO could hence undertake studies to compile estimates of consumption of fixed capital for the household sector, relating such consumption to the stock of fixed assets. Similar procedure has been adopted in the case of the industrial and other institutional sectors of the economy. These estimates, based on capital stock and life of various types of fixed assets, approximate closely to the replacement value of such assets and are hence preferable to the mere adoption of depreciation amounts shown in the books of accounts. Accordingly, these alternative estimates of consumption of fixed capital have been adopted in the New Series issued by the CSO in February 1988.

The new estimates of consumption of fixed capital are significantly higher than the earlier estimates, i.e., by almost 50 per

cent and have resulted in the lower estimates of net saving and its rates to the 1970-71 series. The rates of gross saving have also marginally declined, both as a result of downward revision of gross saving as a consequence of the revisions in the estimates of the private corporate sector and the higher GDP in the New Series as explained in the *Brochure on the New Series on National Accounts Statistics, with 1980-81 as base year*, released in February, 1988.

3

SAVINGS IN INDIA: SOME BROAD REFLECTIONS

Arun Ghosh

1. Accuracy of Savings Estimates

IN recent years, it may be stated, our estimates of saving (at current prices) are perhaps more accurate than any other macro-economic magnitude. The reason is that with increasing monetisation of the economy, the element of direct labour (or material) input for capital formation—which is, of course, subject to unknown error because of the absence of cross-checks—is now a relatively small proportion of total saving/capital formation.

There are, of course, several possibilities of error in the estimates of saving. To understand the degree of error in the estimate of saving, one has to examine the source material for the three sectors: government, corporate sector and households (including unincorporated enterprises).

One may expect the estimate for the government sector to be reasonably accurate except that the availability of accounts of local authorities is not adequate. Indeed, increasingly, one should take note of the functioning of the 'panchayats', which should be treated as part of the government sector. However, the panchayats do not so far have any significant taxation powers, and hence have no saving; municipalities have, if anything, negative savings made good by subventions from State Governments. In practice, no deduction is made for the possible negative savings of municipalities, and to that extent there may be a slight exaggeration in the estimate of government saving.

On the other hand, there are increasingly new types of government expenditure under the Rural Development Department of the Ministry of Agriculture, which are really of the nature of capital expenditures but may not be treated as such in the national income accounts. To the extent that funds under the RLEGP/NREP/DPAP and similar programmes lead to payments for direct capital formation in the rural areas, such expenditures from the Revenue Budget should be treated as 'saving' by government, spent for capital formation in the rural areas. I am not sure whether and to what extent this is already being done; there is a possibility of such expenditures being treated as 'transfer payment', since they are popularly known as 'subsidies' for the poor. Incidentally, such capital formation—e.g., by way of kutchra roads—may have a high rate of obsolescence, but that is another matter. The gross and net investment figures, as well as savings, would presumably need to be improved in this context.

Next, we come to the estimate for the corporate sector which is derived by blowing up an estimate of corporate saving obtained from a sample analysis of balance sheets of approximately 2000 large and medium companies. The problems here are several. The accounting years of the companies vary. So do accounting practices; and several procedures such as writing back depreciation provision made in the past into current profit and loss accounts can introduce errors in the estimates. Hence, much more than the problem of the procedure adopted for blowing up the sample estimates (by the amount of paid-up capital of companies analysed in relation to total paid-up capital), the varying accounting years as well as varying accounting practices adopted by companies can distort the estimate of corporate saving. The Reserve Bank of India has lately been attempting to introduce corrections for changes in accounting practices from year to year, and thereby reduce the possibility of error therefrom. Nonetheless, the estimates of corporate saving remain subject to an unknown margin of error.

The direction of error in the RBI estimates cannot be assessed. However, to the extent that corporate savings are a small proportion of total savings, the error involved in the estimate of total saving may not be very large.

In regard to household saving, the estimates are derived

largely from the totality of financial savings in the community from year to year (including savings in the form of currency) adjusted for an estimate of such financial instruments of saving acquired by the 'government' sector or by the corporate sector, and direct saving in the form of physical assets, by households. The latter form of saving occurs primarily in the rural areas, though direct investment by unincorporated enterprises on plant and machinery, etc., without recourse to financial intermediation, would also be part of such saving. These savings invested directly in physical assets (as a percentage of total savings) have been declining lately. As stated earlier, this lends greater assurance to the over-all estimate of saving, because the data on financial instruments are reasonably firm.

The derivation of estimates of saving by households, in the form of financial instruments of saving, is subject to error because the holding of currency as well as diverse financial instruments by both 'government' and by the corporate sector is only roughly estimated, the balance of the incremental amount of all such savings instruments being treated as household saving. (For instance, even the ownership of time deposits with banks is imperfectly known, there being a large chunk of 'unclassified' owners. These could be non-profit-making institutions—treated as part of the household sector—or municipalities, or even other financial institutions).

However, once again, the error likely to arise herein may not be significant, though unfortunately the non-formal financial intermediates have a very shaky base in our national accounts. In fact, we do not know even whether the actual size of the non-formal financial intermediaries sector is close to what is being estimated.

There is, of course, a strong possibility that both the income originating in and the savings of the unincorporated enterprises sector may be grossly under-estimated of late. There is evidence that a modern small sector is fast emerging in many parts of the country. Much of the output of this sector is not recorded in official statistics, and it is possible that the savings of this sector also—directly invested into the same or similar enterprises—are not fully recorded. There is some possibility, therefore, that both output and savings of unincorporated enterprises are not fully reflected in official statistics. Efforts need to

be made to catch this element through special surveys, in areas of concentration of the modern small-scale industry. These are fairly well known and are capable of identification.

There are two further problems which arise. In the first place, our savings estimate includes savings arising from remittances from expatriate Indians working abroad. *These are not part of domestic savings*, though they may still be deemed to be national saving (or the saving of Indian nationals abroad). There are no means available at present of precisely determining the extent of such saving. Since remittances from expatriates are sizeable, we need to take note of this point, because *our domestic savings are to that extent less*.

The second problem arises from the possibility of unrecorded (black) incomes and savings therefrom. Two issues arise herein. To the extent that unrecorded or black incomes are saved in the form of currency—or in the form of bearer bonds like the Indira Vikas Patra—they get covered in our estimate of saving. To the extent that such savings are kept in the form of smuggled gold or jewellery made therefrom, our savings are underestimated (except that acquisition of jewellery may be deemed to be consumption rather than saving). Smuggled gold could be treated as a hoard, but in fact, it leads to the generation of further black income. The considerable income—and consumption—from activities like smuggling are in any case missed out from our national accounts.

Finally, we do not have any estimate of the flight of capital from the country, for which diverse estimates are available. In technical parlance, such export of capital should be treated as such; however, to the extent that such capital may never come back, the income accruing from that capital being spent abroad, we may have to ignore this magnitude and not treat it as saving invested abroad. The large 'errors and omissions' in the balance of payments statistics are, however, *not* connected with capital flight. The usual technique for the siphoning off and the stashing of funds abroad are under-invoicing of exports and over-invoicing of imports (Cuts or commissions on purchases abroad may be lumped with over-invoicing of imports.)

With all these defects, it may still be reasonable to assert that our savings estimate is more accurate than our estimates of capital formation which depends on diverse proportionalities

for classification of certain products as meant for final consumption or capital formation (e.g., vehicles, typewriters, air-conditioners, other office equipment which could also be used for household consumption).

2. Saving in Real Terms

In macro terms $I=S$. Hence, the deflator for investment becomes, in effect, the deflator for saving. The only problem herein is that in India

$$I = S_d + S_i$$

where

S_d = domestic saving

S_i = imported saving

Over some years past, S_i has been 1.5 to 2 per cent of the GDP where S_d has been around 22 per cent of the GDP. That is, S_i is less than 10 per cent of S_d . Hence, unless we have reason to believe that the prices of capital goods abroad and in India are moving in different directions—and there is no reason for this belief—the deflator for capital formation would be a reasonably good deflator for domestic saving. One would also need to think over the “terms of trade” effect—in the matter of debt repayment—on imported saving. But that concept may be equally, indeed more, relevant for over-all GDP than merely for the estimate of saving.

There is, in theory, no other satisfactory way of deriving a deflator for domestic saving. There are those who argue that the deflator for Gross Domestic Expenditure would give a better deflator for saving than the deflator for “investment” (again as a deflator for saving), but the former would not give the *ex-post* identity of $I = S$. Hence, the series of domestic saving in real terms can in practice be derived from the series of domestic capital formation in real terms.

3. Behaviour of Savings and Some Reflections Thereon

Savings increased rapidly during the seventies, but have stagnated thereafter. (Part of the rapid increase may also be ascribed to the rapid increase in remittances from expatriate Indians during the seventies). There is also some evidence that the distribution of income has been getting to be increasingly

skewed. Is it possible that the increase in savings (since the seventies) is linked to the increasing inequality in the distribution of income?

There are certain flaws in the above hypothesis. Presumably, the distribution of income has been getting to be increasingly more uneven during both the seventies, and the eighties. The savings rate showed an increase during the seventies but stagnation (even some decline) during the eighties. So, one needs to do more empirical research on the sources of savings before coming to any conclusion. Is it possible that the increasing proportion of saving in the form of financial assets in the eighties is a reflection of (a) the increasing role of black money (mainly in the urban areas) in the economy, (b) increasing inequality in the distribution of income—or is that not even proved?—and (c) declining growth of as well as declining return from investment in agriculture?

We need more detailed data on the ownership of financial assets to be able to come to any judgement on the subject. (We are discussing only the sources of saving and their causal relationships; we are not concerned with any value judgement on the fact of inequality here). It does mean that we should attempt, first, an urban/rural break-up of savings and investment, and a source-wise classification of household saving (which includes the savings of unincorporated enterprises).

For an analysis of savings, therefore, we first need to look into the savings behaviour of different sectors. In this context, we need to note the following: (a) there has lately been a steep decline in the rate of government saving, particularly in the eighties; (b) corporate saving has stagnated at a low level all along and in fact has been declining of late; and (c) household saving has shown an increase over time. Since farm output has stagnated lately, it is possible that household savings have come in the main either from the unregistered manufacturing sector or the services sector (including trading activity), and not from the farm sector. This last hypothesis is confirmed by the steep decline observed in 'rural investment' without any financial or monetary counterpart, indicating the possibility of a decline in investment in the rural areas generally. The above implications may be hypothesised as follows: (i) there is increasing stagnation—possibly a decline—in savings in the rural areas;

(ii) there has been a marked increase in savings by the urban middle (and richer) classes; and (iii) the above developments have been reflected in a spectacular increase in saving in the form of financial assets by households. Again, this last development reflects an increase in the savings of the urban classes over a wide range of households and not merely the traditionally rich and well to do.

While the increase in financial asset holding by households has increased both in absolute magnitude and as a proportion of total saving in recent years, some recent surveys (e.g., by the NCAER) have indicated a decline in farm investment in Punjab in recent years. The shift from farm investment to the holding of bank deposits and other form of financial assets (in Punjab) has been hailed as signifying increased monetisation in the economy, in some quarters. In fact, it is perhaps a retrograde step, because it is likely to slow down the growth of farm output. This decline also explains the decline in "real investment" and increase in the holding of financial assets by the household sector.

To conclude, then, the following *possibilities* need to be investigated:

(a) Despite increases in the GDP, the rate of saving has stagnated. The increases in GDP have occurred mainly in the tertiary sector. Real output of agriculture has increased relatively slowly. The rate of saving has also stagnated. Is there a link between the two? One has, of course, to attempt a break-up of savings into those by different segments of the population, which is necessary before one can come to any conclusion on this subject. A break-up of savings by different sectors has been briefly indicated earlier, with certain implications which have been noted already.

(b) There is evidence of an increase in untaxed incomes. How much of it arises in the modern small-scale manufacturing sector and how much in services? There seems to be some link between increased deployment of saving and increased output in the modern small-scale sector. But where do the savings of the services sector get invested? Inventory holding is one possibility. But what about the cash savings of this sector? Are these going primarily into increased holding of financial instruments of saving?

(c) To get an answer to some of these questions, we need an analysis of the holders of financial instruments of saving. What is the best way of proceeding in this type of study? The RBI data pertain to earlier years and relate only to bank deposits. What about the ownership of other forms of financial assets?

(d) Can we get the banking sector to segregate the savings from remittances from expatriates (and their investment)?

(e) The stagnation of the savings rate is a worrying factor, especially because we need an increasingly higher rate of saving to allow for an increasingly higher rate of obsolescence. Hence, we need a better analysis of incomewise distribution of savings. Is it possible, for instance, that the higher rate of return on financial instruments has had the effect of merely shifting savings from, say, farm investments to financial instruments? That may not be such a good thing, though it may help to reduce the immediate problems of the government.

(f) In order to give a boost to investment (and real saving) by small and marginal farmers—which would help to raise output as well as employment, and also improve the distribution of income—do we need to pursue a wholly different policy for the agriculture sector? There is a possibility that a well-conceived policy in this regard may help to increase the generation of savings for investment on the farm directly. The focus has to shift to decentralised decision-making by the panchayats which can become the instruments of micro planning in rural areas. Is there any study which can be quickly undertaken to examine this hypothesis? A change of focus in investment planning may then help to increase the effective rate of saving, and help to raise rural incomes.

(g) Finally, as indicated earlier, a major factor in the stagnation of the over-all rate of savings of late is the decline in government saving. In fact, government saving (i.e., saving of government administration) is now negative. The revenue deficit of the Government of India in 1986-87 was approximately 2 per cent of the GDP (at market prices). So the questions to be asked are:

(i) To what extent is it possible to hold government consumption expenditure?

(ii) To what extent have the tax concessions to industry

helped to increase corporate saving and investment, if at all? In fact, corporate saving has taken a worse dive as a proportion of total saving.

(iii) To what extent has the higher rate of interest on personal savings helped to increase personal savings, and to what extent has there been merely a shift in the pattern of investment of these savings by the households?—And *inter alia* led to larger interest payments (and a negative saving) by Government.

Depending on the answers to the above questions, the whole set of policies of the government in regard to financial instruments of saving would need to be overhauled. Since there is no visible decline in saving in financial assets, in fact, a steady increase even in a difficult year, after the reduction of the rate of interest of NSCs (from 12 per cent to 11 per cent), this is one subject which needs careful study.

4

SAVING ESTIMATES IN INDIA

A. Vaidyanathan

THE purpose of this brief note is to focus on some questions connecting the data and assumptions underlying the official estimates of saving, and on the need for more analytical work on the trends in savings rates and their impact on growth.

1. **Estimational Problems**

The concepts, procedures and the data base underlying the CSO's estimates of capital formation and savings have been quite clearly detailed in the Raj Committee Report; the changes in estimation procedure in the latest revision of the series are also documented. It is clear that except for capital consumption and the estimated savings of the public and the private corporate sectors, the basic methodology of the estimates as adopted in the early 1970s remains substantially intact. While the rationale for the recent changes can no doubt be found, it seems worthwhile to remind ourselves of the many weaknesses of the basic procedure underlying both series and address the problems of remedying these defects.

It is well known that the capital formation estimates, which also form the basis of the estimates of aggregate savings and household savings, are derived from "the commodity flow" method which suffers from a number of defects. These are:

- (i) lack of reliable and complete data on the volume and value of various construction materials and machinery/equipment entering capital formation;
- (ii) the numerous assumptions made to fill in the gaps;

- (iii) arbitrary assumptions on the (a) percentage of the total absorption of various commodities used for capital formation, (b) the ratio of the value of material inputs to total value of capital formation in the form of construction and in machinery/equipment;
- (iv) from the viewpoint of reliability of the series in judging *trends* in capital formation, the weak and tenuous data base to assess changes in brick output, the output of various kinds of equipment manufactured in the small factories and unregistered workshops, the unverified assumptions on the proportion of output of items like transport vehicles, sewing machines, air conditioners, etc., going into consumption; and the treatment of components and parts, have been specifically noted;
- (v) the validity of assuming a constant ratio between (a) value of the selected material inputs of construction materials and the total value of construction, (b) value of machinery absorbed to total value of investment in plant and equipment, has also been questioned.

These points were sharply raised by Ashok Rudra in 1972 and reiterated by Mihir Rakshit recently. However, there has been very little attempt to meet these objections and remedy these deficiencies.

Several things could be done:

First, we need to devise some practical ways of getting reasonably reliable estimates of the output of principal construction materials and machinery/equipment in the non-ASI Census sector at periodic intervals.

Second, we need periodic surveys on the end-use of different types of equipment which can be used both as durable consumer goods and as capital equipment so that the allocation as between these two issues can be estimated properly.

Third, we need to find some way of verifying that the assumption of a constant ratio of material input to total value of construction is reasonably accurate. Changes can and do occur in the composition of construction, the type of construction in each category of building and the technique of construc-

tion. Each of these could have significant effect on the material-to-total-value ratio. The surveys should therefore capture changes in all these dimensions.

Fourth, systematic comparisons of the estimates of capital formation, by type of asset and sector, obtained from independent sample surveys of savings and investment with those derived by the commodity flow method. The NCAER Surveys and the NSS Debt and Investment Surveys are obvious cases in point. But their potential for better understanding of the structure of capital formation and changes therein, and as a basis for checking and improving the commodity flow estimate, have not been explored.

Fifth, it is with examining what we can learn from the experience of the various sample surveys in this area (including construction activity surveys done by NSS) as the basis for designing better enquiries on a regular periodic basis.

Sixth, the revised estimates for sectoral savings and capital formation differ substantially from the earlier ones. The basis for blow-up of estimates of corporate savings and investment, as well as likely biases in the estimate of household sector investment in financial assets deserve special discussion.

2. Analysis and Interpretation of Capital Formation and Savings Trends

We need not only better estimates of savings and investment in the aggregate and by sectors, but also more analytical work on the determinants of savings behaviour. Rakshit has pointed to the lack of a convincing explanation for the trends in savings behaviour revealed by the official series. Hardly any studies are available explaining the trends in aggregate savings as revealed by the official series.

We clearly also need more disaggregated analysis of savings behaviour. A minimum classification could be government, private corporate sector and households. There are relatively few studies on the determinants of corporate savings; in the case of households we have some analytical studies on the determinants of household savings based on cross-section survey

data available from the NCAER. The NCAER-type surveys offer the advantage of disaggregated analysis of the household sector—unincorporated enterprises, rural and urban households, types of household etc.—and should be a useful complement to analysing aggregate savings behaviour. The potential for using periodic surveys of the NCAER/NSS type to get an independent monitoring of the level and composition of savings in the Household sector needs to be explored more systematically.

Rakshit also pointedly referred to the necessity both to verify the basis for the phenomenal growth of savings in the form of financial assets and explicate its significance. He has pointed to the likely upward biases in the estimated accumulation of certain categories of financial assets which need discussion.

A particularly important question, which cries out for study, concerns the reasons for and significance of the wide divergence between real and nominal savings trends. The Raj Committee had argued that the real investment (and by implication, savings) has risen considerably more slowly than the nominal rates because the price of capital has risen relatively faster than that of consumer goods. One implication of this is that the *real* rate of capital formation (and in particular of fixed capital formation) did not rise much. Indeed, according to the Raj Committee, estimates of the real rates of fixed investment in the early eighties was barely equal to the peak achieved in 1965-66 and that for most of the time since it has been hovering at considerably lower levels. If this is true, it would follow that the nominal savings rate of 24% gives a misleading impression that Indian economy has achieved a significant growth in the rate of accumulation and that the rate has reached relatively high levels. It would also throw doubt on the thesis that the failure of the Indian economy to accelerate the overall growth despite the rise in investment reflects a progressive decline in the efficiency of capital use. On the contrary, in real terms, as some recent studies have shown, there is no basis for asserting a secular rise in the ICOR, either overall or in the public sector. When we look at trend in real investment the problem seems not mainly one of inefficiency but more one of inadequate accumulation. The implications of this are rather profound

and yet the question has not received much attention from analysts.

Another puzzle is: Given that relative prices of capital goods rose, the real returns to investment in terms of consumer goods must have steadily fallen in the last two decades. How is it that despite this, nominal savings rate rose so sharply? Has the shift in relative prices induced any significant changes in choice of technique, capacity utilisation, etc., leading to more efficient use of capital at least in the private sector?

SAVING BEHAVIOUR: NEW AND OLD SERIES AND IMPLICATIONS*

K. Krishnamurty & P.D. Sharma

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*, February, 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

*This is a revised version of the paper presented in the Seminar. We wish to acknowledge competent assistance provided by Shri Rajiv Sharma and the staff of the Computer Unit of the Institute of Economic Growth.

(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 nutshell, 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)
<i>Output</i>						
GDPFC	175066.0 (0.2371)	161482.5 (0.2373)	148.68 (1703.0)	* 1.08 (0.0103)	0.99	0.0002 (0.0015)
NDPFC	156490.8 (0.2318)	148804.8 (0.2332)	953.00 (1531.9)	* 1.05 (0.0101)	0.99	- 0.0004 (0.0015)
GDPMP	195227.8 (0.2388)	182045.0 (0.2384)	-288.25 (1717.9)	* 1.07 (0.0092)	0.99	0.0003 (0.0013)
NDPMP	176652.7 (0.2343)	169367.3 (0.2349)	516.24 (1463.8)	* 1.04 (0.0085)	0.99	-0.0001 (0.0013)
<i>Gross Saving</i>						
GPS	6869.3 (0.1798)	6706.7 (0.1722)	-170.45 (698.43)	1.05 (0.103)	0.96	0.0126 (0.0053)
GCS	3319.3 (0.3142)	3363.4 (0.2106)	* -1596.40 (307.99)	*1.46 (0.09)	0.99	*0.0488 (0.0080)
GHS	29911.7 (0.2869)	31230.9 (0.2775)	-134.00 (3758.9)	0.96 (0.117)	0.94	-0.0061 (0.0161)
HFS	13606.0 (0.3125)	13581.8 (0.3231)	555.56 (881.63)	0.96 (0.062)	0.98	-0.0050 (0.0107)
GHSP	16305.7 (0.3057)	17648.8 (0.2528)	-2071.70 (3663.7)	1.04 (0.202)	0.87	-0.0059 (0.0302)
GDS	40100.3 (0.2567)	41300.8 (0.2379)	-2092.40 (4901.7)	1.02 (0.116)	0.95	0.0010 (0.0132)
<i>Net Saving</i>						
NPS	- 879.7 (2.1465)	2968.1 (0.4383)	*-4950.00 (760.93)	1.37 (0.238)	0.89	-
NCS	696.5 (0.4706)	1221.1 (0.1958)	* -932.81 (195.72)	1.33 (0.158)	0.95	0.0954 (0.0456)

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

Notes:

- Figures in parentheses in columns (1) and (2) are coefficient of variation (Standard Deviation/Mean).
- Figures in parentheses in columns (3), (4) and (6) are standard errors. The period is 1980/81--1985/86.
- * in column (4) indicates coefficient is significantly different from unity at 5% level of significance.
- * in columns (3) and (6) indicates coefficients are significantly different from zero at 5% level of significance.
- 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 $(N/O) =$ $A + Bt$
			a	b	$R-SQ$	B
	New (N)	Old (O)	(3)	(4)	(5)	(6)
<i>Gross Saving Rates</i>						
GPS/GDPMP	3.6 (0.1950)	3.8 (0.2188)	* 0.40 (0.139)	* 0.84 (0.036)	0.99	0.0123 (0.0056)
GCS/GDPMP	1.7 (0.0865)	1.9 (0.0640)	1.34 (1.126)	0.18 (0.604)	0.02	* 0.0485 (0.0075)
GHS/GDPMP	15.2 (0.0778)	17.0 (0.0533)	1.12 (8.620)	0.83 (0.505)	0.40	-0.0064 (0.0158)
HFS/GDPMP	6.9 (0.0987)	7.3 (0.1095)	1.10 (1.122)	0.79 (0.152)	0.87	-0.0093 (0.0098)
GHSP/GDPMP	8.4 (0.1686)	9.7 (0.0763)	-8.26 (4.050)	1.71 (0.416)	0.81	-0.0062 (0.0302)
GDS/GDPMP	20.5 (0.0513)	22.7 (0.0128)	-8.29 (38.64)	1.27 (1.702)	0.12	0.0006 (0.0128)
<i>Net Saving Rates</i>						
NPS/NDPMP	-0.4 (2.7605)	1.9 (0.5614)	* -2.06 (0.065)	* 0.89 (0.030)	0.99	---
NCS/NDPMP	0.4 (0.2984)	0.7 (0.2223)	0.09 (0.220)	0.40 (0.290)	0.32	0.0955 (0.0457)
NHS/NDPMP	12.2 (0.1085)	14.3 (0.0697)	1.07 (7.720)	0.78 (0.539)	0.34	-0.0094 (0.0232)
HFS/NDPMP	7.6 (0.1025)	7.9 (0.1127)	1.14 (1.240)	0.82 (0.157)	0.87	-0.0089 (0.0101)
NHSP/NDPMP	4.6 (0.3457)	6.4 (0.1215)	-7.01 (3.08)	1.81 (0.477)	0.78	-0.0196 (0.0800)
NDS/NDPMP	12.3 (0.0985)	17.0 (0.0288)	-9.22 (17.98)	1.27 (1.06)	0.26	-0.0664 (0.0234)

Notes:

- Figures in parentheses in columns (1) and (2) are coefficient of variation (Standard Deviation/Mean).
- Figures in parentheses in columns (3), (4) and (6) are standard errors. The period is 1980/81—1985/86.
- * in column (4) indicates coefficient is significantly different from unity at 5% level of significance.
- * 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)
<i>Composition: Gross Saving</i>						
GPS/GDS	17.6 (0.2035)	16.7 (0.2211)	1.66 (1.46)	0.95 (0.085)	0.97	0.0117 (0.0090)
GCS/GDS	8.2 (0.0728)	8.2 (0.0535)	9.96 (5.51)	-0.22 (0.671)	0.03	* 0.0479 (0.0089)
GHS/GDS	74.2 (0.0447)	75.1 (0.0501)	11.99 (11.49)	0.83 (0.153)	0.88	-0.0070 (0.0032)
HFS/GDS	33.6 (0.1265)	32.3 (0.1091)	-1.76 (8.20)	1.09 (0.252)	0.83	-0.0100 (0.0127)
GHSP/GDS	40.6 (0.1306)	42.8 (0.0718)	-29.88 (11.14)	1.65 (0.26)	0.91	-0.0068 (0.0187)
HFS/GHS	45.4 (0.1343)	43.0 (0.0860)	-20.89 (12.51)	1.54 (0.29)	0.88	-0.0029 (0.0154)
<i>Composition: Net Saving</i>						
NPS/NDS	-3.0 (2.6612)	11.3 (0.5546)	*-17.29 (0.76)	* 1.27 (0.06)	0.99	--
NCS/NDS	3.2 (0.2599)	4.4 (0.1929)	1.48 (1.99)	0.39 (0.45)	0.16	0.1020 (0.0465)
NHS/NDS	99.8 (0.0768)	84.4 (0.0780)	2.20 (5.65)	1.16 (0.067)	0.99	-0.0030 (0.0019)
HFS/NDS	62.8 (0.1809)	46.5 (0.1280)	-16.33 (20.24)	1.70 (0.432)	0.80	-0.0025 (0.0220)
NHSP/NDS	37.0 (0.2799)	37.8 (0.1103)	*-50.41 (17.34)	* 2.31 (0.456)	0.87	-0.0132 (0.0593)
HFS/NHS	62.9 (0.1638)	55.1 (0.0847)	-51.28 (21.09)	2.07 (0.382)	0.88	0.0005 (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 significance.

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

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

Notes:

- Figures in parentheses in columns (1) and (2) are coefficient of variation (Standard Deviation/Means).
- Figures in parentheses in columns (3), (4) and (6) are standard errors. The period is 1980/81—1984/85.
- * in column (4) indicate coefficient is significantly different from unity at 5% level of significance.
- 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 Madhūr (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, Krishnamurthy 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 Krishnamurthy (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 ratio⁴) 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 hypothesis²² 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 compatibility 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 relationship 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	.0012582	.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	.0004236	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 relatively 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 rates⁸ 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 burden¹⁰, 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 sector¹¹ 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 (1987/).
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 dragnet (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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6

OVERALL ASPECTS OF SAVINGS: MEASUREMENT OF SAVINGS IN REAL TERMS

S. L. Shetty

1. An Intriguing Feature

A cursory glance at macro-economic statistics of developing countries suggests an intriguing feature which is evidently, contrary to the historical experiences of the present industrialised countries at comparable stages of economic development. This refers to the relatively impressive ratios of domestic saving (and investment) to income, measured in nominal terms, in respect of a large number of developing countries. The Asian developing countries, for instance, are now enjoying an average saving to GDP ratio of about 29 per cent.¹ The domestic saving and investment rates are usually high among the low-income developing countries.²

The above profile of high saving and investment ratios for the developing countries generally reflects a wide variety of structural features, both domestic as well as international. This brief paper does not propose to probe into those factors. It has rather a limited objective of pinpointing the factual inappropriateness of such a profile (taking India's case as an example), based as it is on the existing system of reporting national accounts statistics. This is specifically true of the estimates of saving ratios because the existing framework of national accounts statistics does not permit deflation of their nominal numbers. There is indeed sound theoretical reason for the national accounts compilers to resist from deflating the current price series of savings to produce series in *real* terms. But the purpose of this note is to make a plea that as the entire

system of deflation involves 'arbitrary choice and compromise',³ domestic saving series at least be singled out for subjecting it to some agreed system of deflation so that their *real* worth can be depicted, as in the case of many other components of national accounts.

2. Practical Difficulties of Decomposition

The UN-SNA (1968) has taken a firm view against deflating saving for, above all, method of decomposing current series into an appropriate price component and a quantity component cannot be applied to them.⁴ Elaborating the SNA recommendations in greater detail, yet another UN (1979) publication delineates the precise coverage of the national accounts at *constant* prices and argues against deflating monetary flows within the national accounts framework.⁵ This is because "there are generally no unique or even obvious price deflators to choose"; their choice would be 'arbitrary and subjective'.⁶ Secondly, the introduction of deflators based on single indicators cannot produce a consistent system of accounts without introducing new balancing items which have no counterparts in current price series. In turn, these balancing items serve purely to bring the two sides of the accounts into a kind of "spurious equality"; they do not represent any kind of statistical discrepancies as they are not attributable to errors in the data.⁷

3. Not Illegitimate to Deflate Saving

However, the above UN (1979) publication asserts that it is not "inappropriate or illegitimate" to deflate various monetary flows (or saving) in the accounts by price indices; but such efforts are "a job for the *users* of statistics and not for the *compilers or producers* of statistics."⁸ Both the UN publications (1968, 1979) emphasise the fact that there could be a whole range of possible deflators and the choice of one or the other will depend upon the purposes and objectives the *user* has in mind.⁹

It is the contention of this note that the above separation of the roles of *compilers* and *users* is a legitimate one but, in the interest of clarity and avoiding misleading judgements, some exceptions and compromises may have to be made by the com-

plers and provide a set of time series for, say, saving-income ratios, which reflect the trends in *real* terms. Secondly, it is possible to arrive at a consensus on the least objectionable, and some general purpose, method of deflation for achieving this goal. Further, deflation of savings need not be avoided only on the ground that such a value aggregate cannot be factorised into quantity and price counterparts.

4. Real Savings Series as a Memorandum Item

The need to gauge the trends in *real* saving-to-income ratio cannot be over-emphasised, particularly in developing countries where inflationary methods of financing social and economic development (and on occasions, even current consumption expenditures) are rampant. There are many considerations which emphasise the growing divergence between saving in nominal values and saving in *real* terms. Apart from the general level of inflation, there is relatively more pressure on the domestic prices of investment goods which tend to use up a large part of savings through investment costs. This in turn is the result of relentless pressure on the LDCs to build social and economic overhead capital as well as basic industries at a historically rapid pace, on the one hand, and shortage of capital goods supplies, on the other. Inefficient application and unproductive appropriations of investible funds, which are a function of social conditions of these societies, are other domestic causes. Yet another factor is the general tendency on the part of LDCs to experience high levels of imported inflation (partly also due to an over-all depreciation of the domestic currencies in trade-weighted terms).

Apart from the question of choosing appropriate indicators, the main hindrance to deflating saving arises from the national accounts compilers' requirement to construct complete systems of accounts at constant prices. This purity of form has much to commend itself, particularly in the context of a tidiness of mind, a structure of interrelationships, and the need to construct disaggregated models, as the UN-SNA (1968) has emphasised. It is also to be conceded that the entire sets of income and outlay and capital finance accounts are not capable of being reduced to *real* numbers, without giving rise to the charge of "spurious equality", as mentioned earlier.

Nevertheless, considering the importance of *real* saving series, a memorandum item in national accounts deserves to be presented so as to make available to the *users* of data a ready series which depicts the saving trends much more realistically.

5. A Suggested Method for India

A pre-condition for doing so is the possibility of a consensus, as suggested earlier, on some general purpose method of deflating savings, which we hope to achieve in the following paragraph. Briefly, it is proposed that the individual components of saving be deflated by separate indicators as follows:

<i>Saving components</i>	<i>To be deflated by</i>
1. Household saving in financial assets	Household consumption expenditure deflator*
2. Household saving in physical assets	Respective capital formation deflators (gross <i>or</i> net)
3. Private corporate sector	
4. Public sector	

*In the absence of this exact series, private final consumption expenditure series, as presented in CSO's *National Accounts Statistics*, has been used. Finally, it would be appropriate to use household consumption expenditure deflators.

While considering the possible candidates as deflators for saving, the UN-SNA (1968) is constrained by the need to make the whole system balance. Giving the example of a closed system, it is argued that capital formation is equal to saving and hence the deflator for saving is equal to the deflator of capital formation.¹⁰ Thus, "saving at constant prices is defined in terms of capital goods it will buy rather than in terms of either of the consumption goods forgone to make it possible or of the benefits expected to accrue from it in terms of future consumption."¹¹ In our view, a weighted combination of both of these motivations for saving—consumption and investment—should be treated as an agreed set of deflators.

6. Need for Including Consumption Deflators

The subjects of saving and capital have passed through

three stages in economic thought: saving was for consumption (consumption of wealth was a known feature of the aristocracy); saving was attained by the exercise of personal abstinence from consumption to create capital; and the more recent tendency to view capital, not as a fund saved from consumption, but as a natural development of the productive process, of greater specialisation and division of labour.¹² All these three motivations are relevant and against their background, it is possible to attribute them to individual components of saving.

The attribute of saving being neither the result of non-consumption nor that of the desire for future consumption, but rather being guided by the motivation for capital creation for augmenting production capacity, can be indisputably applied to savings of the private corporate sector and the public sector as well as those of the household sector in the form of physical assets formation. Therefore, for these components of saving, their corresponding investment deflators implicit in CSO's estimates of capital formation could be considered as appropriate for converting them into constant prices.

This leaves only the household sector saving in the form of financial assets requiring an indicator for deflation. Indeed, a complex set of motivations should be playing part in this component of saving. A substantial part of these savings is contractual savings intended as a substitute for social security (as much as 30 to 35 per cent of net savings in the 1980s). Even in voluntary savings, there is a substantial social security component which is evident from the long maturities preferred for these savings. For instance, what is implied in the life-cycle hypothesis of savings for a developing country, is that increases in life expectancy, with a growing number of the middle-aged, would cause household savings ratio to rise as higher wealth accumulation is required to sustain a given level of consumption.

No doubt all of these financial savings of the household sector are transferred directly or indirectly to the deficit private corporate and public sectors for investment in physical assets. However, in determining the real worth of saving (as distinguished from that of investment), the balance of considerations is for giving preference to motivations of consumption—con-

sumption forgone and consumption postponed.

7. Derived Saving Rates in Real Terms

Tables 6.1 and 6.2 present the results of deflating domestic savings on the lines of the method suggested above. Briefly, in Table 6.1 the deflation is attempted at aggregative level. That is, household sector saving in financial form at current prices has been converted into constant prices by using private final consumption expenditure deflator; all other components of savings are converted into constant prices by using the deflator relating to aggregate gross domestic capital formation. On the other hand, Table 6.2 attempts deflation on the disaggregated basis. That is, while financial savings are converted into constant prices by the private consumption expenditure deflator as in Table 6.1, the other three components of sectoral savings are converted into real terms by using the sectors' respective capital formation deflators.

Indeed the results are not startling, but nevertheless confirm that saving-to-income ratios based on some agreed constant price series turn out to be lower than those based on nominal numbers. As per the 1980-81 series, the differential has already reached about 1.0 percentage point in gross saving rates and 0.5 percentage point in net saving rates within a period of six years or earlier, as per the 1970-71 series,¹³ the corresponding erosion in the ratio worked out to 2.0 percentage points in gross terms and to 1.0 percentage point in net terms in a period of 14 years from 1970-71 to 1984-85. Deflators used for this purpose suggest that the erosion in the saving rate due to price increases, particularly those of capital goods, during the six-year period 1980-81 to 1986-87, has been the highest in respect of household savings in physical assets followed by savings of the public sector and private corporate sector in that order.

TABLE 6.1. Domestic Saving (Gross and Net) Ratios at Current and Constant Prices

Year	Gross Domestic Savings as per cent of GDP at Market Prices		Net Domestic Savings as per cent of NDP at Market Prices	
	Current Prices	At 1970-71 Prices	Current Prices	At 1970-71 Prices
	(1)	(2)	(3)	(4)
1960-61	13.7	13.5	9.3	9.3
1961-62	13.1	12.6	8.4	8.3
1962-63	14.5	14.1	9.6	9.5
1963-64	14.4	14.2	9.8	9.8
1964-65	13.6	13.9	9.2	9.4
1965-66	15.7	16.3	11.2	11.5
1966-67	16.3	17.1	11.9	12.4
1967-68	13.7	14.3	9.4	9.6
1968-69	15.0	15.5	10.5	10.7
1969-70	16.2	16.6	11.6	11.7
1970-71	16.8	16.8	12.0	12.0
1971-72	17.3	17.3	12.4	12.4
1972-73	16.3	16.5	11.3	11.4
1973-74	19.4	20.2	15.0	15.5
1974-75	18.3	18.2	13.8	13.6
1975-76	20.1	18.6	15.4	14.2
1976-77	22.5	21.8	17.9	17.2
1977-78	22.5	22.0	18.0	17.5
1978-79	24.7	23.1	20.0	18.6
1979-80	23.0	21.4	17.8	16.5
1980-81	23.0	21.6	17.8	16.8
1981-82	22.7	20.8	17.2	15.8
1982-83	22.6	20.9	16.9	15.8
1983-84	22.2	20.3	16.4	15.2
1984-85	22.9	20.9	16.9	15.8
1985-86	—	—	—	—

(Contd.)

Table 6.1 (Contd.)

<i>Year</i>	<i>Gross Domestic Savings as per cent of GDP at Market Prices</i>		<i>Net Domestic Savings as per cent of NDP at Market Prices</i>	
	<i>Current Prices</i>	<i>At 1980-81 Prices</i>	<i>Current Prices</i>	<i>At 1980-81 Prices</i>
<i>(1)</i>	<i>(2)</i>	<i>(3)</i>	<i>(4)</i>	<i>(5)</i>
<i>1980-81 Series</i>				
1980-81	21.2	21.2	13.5	13.5
1981-82	21.1	20.9	13.3	13.2
1982-83	19.5	19.3	11.1	11.1
1983-84	19.8	19.1	11.5	11.3
1984-85	19.5	18.9	10.9	10.8
1985-86	22.0	21.0	13.3	12.9
1986-87	21.7	20.7	12.7	12.5

Note : Household sector saving in financial form at current prices has been converted into constant prices by using private final consumption expenditure deflator; all other components of savings are converted into constant prices by using the deflator relating to aggregate gross domestic capital formation

Source : *National Accounts Statistics: Different Issues.*

TABLE 6.2. Domestic Saving (Gross and Net) at Current and Constant (1980-81) Prices (Rs. Crores)

Year	Household Sector Saving					
	Current Prices			At 1980-81 Prices		
	Financial	Physical	Total	Financial	Physical	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	1. Gross Domestic Saving at Current and 1980-81 Prices					
1980-81	8597	13238	21835	8597	13238	21835
1981-82	9804	14114	23918	8976	12332	21308
1982-83	12792	11148	23940	10961	8608	19569
1983-84	13281	17795	31076	10459	12405	22864
1984-85	18037	16224	34261	13297	9778	23075
1985-86	19125	25315	44440	13254	15258	28512
1986-87	23388	27400	50788	15204	14907	30111
	2. Net Domestic Saving at Current and 1980-81 Prices					
1980-81	8597	7746	16343	8597	7746	16343
1981-82	9804	7514	17318	8976	6654	15630
1982-83	12792	3582	16374	10961	2837	13798
1983-84	13281	9275	22556	10459	6355	16814
1984-85	18037	6524	24561	13297	3477	16774
1985-86	19125	13973	33098	13254	8663	21917
1986-87	23388	14438	37846	15204	8017	23221

(Contd.)

Year	Public Sector		Private Corporate Sector		Total		Saving as per cent of GDP	
	Current	At 1980-81 Prices	Current	At 1980-81 Prices	Current	At 1980-81 Prices	Current	At 1980-81 Prices
	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	1. Gross Domestic Saving at Current and 1980-81 Prices							
1980-81	4654	4654	2284	2284	28773	28773	21.2	21.2
1981-82	7254	6505	2496	2271	33668	30084	21.1	20.8
1982-83	7822	6507	2908	2555	34670	28631	19.5	19.0
1983-84	6775	5177	3172	2415	41023	30456	19.8	18.8
1984-85	6586	4632	3991	2985	44838	30692	19.5	18.3
1985-86	8125	5044	5065	3472	57630	37028	22.0	20.8
1986-87	7536	4451	5089	3283	63413	37845	21.7	20.4
	2. Net Domestic Saving at Current and 1980-81 Prices							
1980-81	- 241	- 241	584	584	16686	16686	13.5	13.5
1981-82	1396	1252	495	444	19209	17326	13.3	13.1
1982-83	842	705	568	476	17784	14979	11.1	10.9
1983-84	-1262	- 959	407	309	21701	16164	11.5	10.9
1984-85	-2802	-1953	822	573	22581	15994	10.9	10.1
1985-86	-3211	-1968	1303	798	31190	20747	13.3	12.9
1986-87	- 5434	-3196	881	518	33293	20543	12.7	12.2

Note: In this table, financial savings are converted to constant prices by the private consumption expenditure deflator (as in Table 6.1), while the other three components of saving are converted using their respective capital formation deflators (unlike in Table 6.1).

REFERENCES

1. See Bank for International Settlements, *58th Annual Report, 1987-88* p. 43.
2. See World Bank, *World Development Report, 1988*, p. 190.
3. Dealing with double-deflation method, the UN-SNA (1968) admits thus: "The necessity for choice and compromise can be easily seen." See United Nations (1968), *A System of National Accounts: Studies in Method* (Series F, No. 2, Rev. 3), p. 62.
4. See UN-SNA (1968), op. cit., pp. 52-53.
5. The monetary flows referred to are: compensation of employees, net indirect taxes, capital consumption, and operating surplus which is the balancing item. Saving estimates are also of the same genre.
6. United Nations (1979), *Manual on National Accounts at Constant Prices* (Series M, No. 64), p. 6.
7. *Ibid.*, pp. 6-7.
8. *Ibid.*, p. 8.
9. UN-SNA (1968), op. cit., p. 53 and United Nations (1979), p. 8.
10. This is precisely the view that Raj Working Group Report on Savings held. See Reserve Bank of India, *Capital Formation and Saving in India: 1950-51 to 1979-80* (Report of the Working Group on Savings, February 1982), pp. 42-43.
11. UN-SNA (1968), p. 53.
12. Higgs, Henry (Edited), *Palgrave's Dictionary of Political Economy* (Vol. III, N-Z, 1936), pp. 214-15 & 356.
13. For details of a slight difference in the methodology, see Tables 6.1 and 6.2.

APPENDIX TO CHAPTER 6
STATISTICAL ANNEXURES TO
RAJ COMMITTEE REPORT ON SAVINGS : UPDATED

S.L. Shetty

ANNEXURE - I

Rates of Gross Saving and Capital Formation
(at current prices)

Year	Gross Domestic (Rupees Crores)			Consumption of fixed capital (Rupees, Crores)	Rate of (% of GDP)		
	Saving	Capital forma- tion	Product at market prices		Saving	Capital forma- tion	Con- sump- tion of fixed capital
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I. Existing (1970-71) Series							
1950-51	975	954	9564	324	10.2	10.0	3.4
1951-52	1005	1188	10021	359	10.0	11.9	3.6
1952-53	806	772	9759	389	8.3	7.9	4.0
1953-54	922	909	10451	392	8.8	8.7	3.8
1954-55	1054	1070	9684	429	10.9	11.0	4.4
1955-56	1430	1469	10261	448	13.9	14.3	4.4
1956-57	1599	1959	11816	486	13.5	16.6	4.1
1957-58	1370	1843	11986	536	11.4	15.4	4.5
1958-59	1409	1785	13438	627	10.5	13.3	4.7
1959-60	1765	1996	13979	661	12.6	14.3	4.7
1960-61	2063	2544	15018	736	13.7	16.9	4.9
1961-62	2093	2438	15977	812	13.1	15.3	5.1
1962-63	2476	2913	17099	932	14.5	17.1	5.5
1963-64	2826	3266	19656	1001	14.4	16.6	5.1
1964-65	3135	3735	23044	1112	13.6	16.2	4.8
1965-66	3791	4390	24112	1229	15.7	18.2	5.1
1966-67	4514	5437	27662	1402	16.3	19.7	5.1
1967-68	4497	5334	32294	1558	13.9	16.5	4.8
1968-69	4697	5113	33279	1686	14.1	15.4	5.1
1969-70	6044	6285	36851	1915	16.4	17.1	5.2
1970-71	6783	7177	40263	2217	16.8	17.8	5.5
1971-72	7498	7976	43356	2399	17.3	18.4	5.5
1972-73	7769	8066	47865	2669	16.2	16.9	5.6
1973-74	11392	11784	58940	3023	19.3	20.0	5.1
1974-75	12653	13306	69595	3526	18.2	19.1	5.1

(Contd.)

□

Annexure-1 (Concld..)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1975-76	14846	14729	74084	4046	20.0	19.9	5.5
1976-77	18030	16721	80198	4503	22.5	20.8	5.6
1977-78	20230	18765	89848	4992	22.5	20.9	5.6
1978-79	24138	24266	97748	5737	24.7	24.8	5.9
1979-80	24698	25278	107695	6698	23.0	23.5	6.2
1980-81	29375	31476	127453	8103	23.0	24.7	6.3
1981-82	33458	36076	147684	9797	22.7	24.4	6.6
1982-83	37365	39941	165136	11473	22.6	24.2	7.0
1983-84	43083	45507	194061	13448	22.2	23.5	6.9
1984-85	49090	52389	214385	15399	22.9	24.4	7.2
1985-86	55431	59916	243551	17846	22.8	24.6	7.3
II. Revised (1980-81) Series							
1980-81	28773	30867	135812	12087	21.2	22.7	8.9
1981-82	13668	36279	159420	14459	21.1	22.8	9.1
1982-83	34670	37236	177588	16886	19.5	21.0	9.5
1983-84	41023	43540	207272	19322	29.8	21.0	9.3
1984-85	44838	48130	229342	22257	19.5	21.0	9.7
1985-86	57630	63864	261733	26440	22.0	24.4	10.1
1986-87	63413	68508	292787	30120	21.7	23.4	10.3

ANNEXURE—2

Rates of Net Saving and Capital Formation
(at current prices)

Year	Net-domestic (rupees, crores)			Rate (% of NDP)	
	Saving	Capital formation	Product at market prices	Net saving	Net capital formation
(1)	(2)	(3)	(4)	(5)	(6)

I. Existing (1970-71) Series

1950-51	651	630	9240	7.0	6.8
1951-52	646	829	9662	6.7	8.6
1952-53	417	383	9370	4.5	4.1
1953-54	530	517	10059	5.3	5.1
1954-55	625	641	9255	6.8	6.9
1955-56	982	1021	9813	10.0	10.4
1956-57	1113	1473	11330	9.8	13.0
1957-58	834	1307	11450	7.3	11.4
1958-59	782	1158	12811	6.1	9.0
1959-60	1104	1335	13318	8.3	10.0
1960-61	1327	1808	14282	9.3	12.7
1961-62	1281	1626	15165	8.4	10.7
1962-63	1544	1984	16167	9.6	12.3
1963-64	1825	2265	18655	9.8	12.1
1964-65	2023	2623	21932	9.2	12.0
1965-66	2562	3161	22883	11.2	13.8
1966-67	3112	4035	26260	11.8	15.4
1967-68	2939	3776	30736	9.6	12.3
1968-69	3011	3427	31593	9.5	10.8
1969-70	4129	4370	34936	11.8	12.5
1970-71	4566	4960	38046	12.0	13.0
1971-72	5099	5577	40957	12.4	13.6
1972-73	5100	5397	45196	11.3	11.9
1973-74	8369	8761	55917	15.0	15.7
1974-75	9127	9780	66069	13.8	14.8
1975-76	10800	10683	70038	15.4	15.3
1976-77	13522	12213	75690	17.9	16.1
1977-78	15238	13773	84856	18.0	16.2
1978-79	18401	18529	92011	20.0	20.1
1979-80	18000	18580	100844	17.8	18.4
1980-81	22272	23373	119350	17.8	19.6

(Contd.)

Annexure -2 (Contd.)

(1)	(2)	(3)	(4)	(5)	(6)
1981-82	23661	26279	137887	17.2	19.1
1982-83	25895	28468	153663	16.9	18.5
1983-84	29635	32150	180613	16.4	17.8
1984-85	33691	36990	198986	16.9	18.6
1985-86	37585	42070	225705	16.7	18.6
II. Revised (1980-81) Series					
1980-81	16686	18780	123725	13.5	15.2
1981-82	19209	21820	144961	13.3	15.1
1982-83	17784	20350	160702	11.1	12.7
1983-84	21701	24218	187950	11.5	12.9
1984-85	22581	25873	207285	10.9	12.5
1985-86	31190	37424	235293	13.3	15.9
1986-87	33293	38388	262667	12.7	14.6

ANNEXURE—3

Rates of Gross Capital Formation
(at constant prices)

<i>Year</i>	<i>Gross domestic capital formation adjusted (Rupees, crores)</i>	<i>Gross domestic product at market prices (Rupees, crores)</i>	<i>Rate of gross domestic capital formation (per cent)</i>
(1)	(2)	(3)	(4)
I. Existing (1970-71) Series			
1950-51	2379	18442	12.9
1951-52	2804	18924	14.8
1952-53	1838	19547	9.4
1953-54	2127	20793	10.2
1954-55	2363	21503	11.0
1955-56	3323	22320	14.9
1956-57	4271	23520	18.2
1957-58	4088	23310	17.5
1958-59	3382	25724	13.4
1959-60	3741	25803	14.5
1960-61	4523	27164	16.7
1961-62	4140	28292	14.6
1962-63	4808	29127	16.5
1963-64	5080	30886	16.4
1964-65	5581	33272	16.8
1965-66	6170	31923	19.3
1966-67	6675	31886	20.9
1967-68	6139	34555	17.8
1968-69	5758	35756	16.1
1969-70	6677	38039	17.6
1970-71	7177	40263	17.8
1971-72	7547	41196	18.3
1972-73	7075	40901	17.3
1973-74	9072	42370	21.4
1974-75	8205	42437	19.3
1975-76	8422	46574	18.1
1976-77	9316	47298	19.7
1977-78	10207	51164	19.9
1978-79	12304	54563	22.6
1979-80	11024	51937	21.2
1980-81	12227	55291	22.1

(Contd.)

Annexure-3 (Contd.)

(1)	(2)	(3)	(4)
1981-82	12468	58598	21.3
1982-83	12652	60751	20.8
1983-84	13132	65493	20.1
1984-85	13846	67993	20.4
1985-86	14477	72274	20.0
II. Revised (1980-81) Series			
1980-81	30867	135812	22.7
1981-82	32362	144814	22.3
1982-83	30809	150600	20.5
1983-84	32172	162176	19.8
1984-85	32874	167529	19.6
1985-86	39965	177694	22.5
1986-87	I 39783	185482	21.4

ANNEXURE—4

Rates of Net Capital Formation
(at constant prices)

<i>Year</i>	<i>Net domestic capital formation (Rupees, crores)</i>	<i>Net domestic product at market prices (Rupees, crores)</i>	<i>Rate of net capital formation (per cent)</i>
(1)	(2)	(3)	(4)
I. Existing (1970-71) Series			
1950-51	1641	17704	9.3
1951-52	2049	18169	11.3
1952-53	1054	18763	5.6
1953-54	1321	19987	6.6
1954-55	1501	20641	7.3
1955-56	2422	21419	11.3
1956-57	3329	22578	14.7
1957-58	3082	22304	13.8
1958-59	2298	24140	9.5
1959-60	2615	24677	10.6
1960-61	3349	25990	12.9
1961-62	2886	27038	10.7
1962-63	3388	27707	12.2
1963-64	3616	29422	12.3
1964-65	3990	31681	12.6
1965-66	4482	30235	14.8
1966-67	4892	30103	16.3
1967-68	4264	32680	13.0
1968-69	3811	33809	11.3
1969-70	4567	35929	12.7
1970-71	4960	38046	13.0
1971-72	5262	38911	13.5
1972-73	4667	38493	12.1
1973-74	6629	39927	16.6
1974-75	5850	40032	14.6
1975-76	5915	44067	13.4
1976-77	6669	44651	14.9
1977-78	7427	48384	15.4
1978-79	9278	51537	18.0
1979-80	7927	48840	16.2
1980-81	8930	51994	17.2

(Contd.)

Annexure-4 (Contd.)

(1)	(2)	(3)	(4)
1981-82	8934	55064	16.2
1982-83	8934	57033	15.7
1983-84	9172	61533	14.9
1984-85	9662	63809	15.1
1985-86	10037	67834	14.8
II. Revised (1980-81) Series			
1980-81	18788	123725	15.2
1981-82	19574	132026	14.8
1982-83	17214	137005	12.6
1983-84	17676	147680	12.0
1984-85	17425	152080	11.5
1985-86	23576	161305	14.6
1986-87	22420	168119	14.3

ANNEXURE—5

Rates of Saving and Capital Formation
(Three-yearly Moving Averages)

(Per cent)

Year	At Current Prices					At Constant Prices	
	Gross saving	Gross capital formation	Consumption of fixed capital	Net saving	Net capital formation	Rate of GD CF	Rate of ND CF
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I. Existing (1970-71) Series							
1950-51	—	—	—	—	—	—	—
1951-52	9.5	9.9	3.7	6.1	6.5	12.4	8.7
1952-53	9.0	9.5	3.8	5.5	5.9	11.5	7.8
1953-54	9.3	9.2	4.1	5.5	5.4	14.0	6.5
1954-55	11.2	11.3	4.2	7.4	7.5	16.7	8.4
1955-56	12.8	14.0	4.3	8.9	10.1	14.7	11.1
1956-57	12.9	15.4	4.3	9.0	11.6	16.9	13.3
1957-58	11.8	15.1	4.4	7.7	11.1	16.4	12.7
1958-59	11.5	14.3	4.6	7.2	10.1	15.1	11.3
1959-60	12.3	14.8	4.8	7.9	10.6	14.9	11.0
1960-61	13.1	15.5	4.9	8.7	11.1	15.3	11.4
1961-62	13.8	16.4	5.2	9.1	11.9	15.9	11.9
1962-63	14.0	16.3	5.2	9.3	11.7	15.8	11.7
1963-64	14.2	16.6	5.1	9.5	12.1	16.6	12.4
1964-65	14.6	17.0	5.0	10.1	12.6	17.5	13.2
1965-66	15.2	18.0	5.0	10.7	13.7	19.0	14.6
1966-67	15.3	18.1	5.0	10.9	13.8	19.3	14.7
1967-68	14.8	17.2	5.0	10.3	12.8	18.3	13.5
1968-69	14.8	16.3	5.0	10.3	11.9	17.2	12.3
1969-70	15.8	16.8	5.3	11.1	12.1	17.2	12.3
1970-71	16.8	17.8	5.4	12.1	13.0	17.9	13.1
1971-72	16.8	17.7	5.5	11.9	12.8	17.8	12.9
1972-73	17.6	18.4	5.4	12.9	13.7	19.0	14.1
1973-74	17.9	18.7	5.3	13.4	14.1	19.3	14.4
1974-75	19.2	19.7	5.2	14.7	15.3	19.6	14.9
1975-76	20.1	19.9	5.4	15.7	15.4	19.0	14.3

(Contd.)

Annexure -5 (Contd.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1976-77	21.7	20.5	5.6	17.1	15.9	19.2	14.6
1977-78	23.2	22.2	5.7	18.7	17.5	20.7	16.1
1978-79	23.4	23.1	5.9	18.6	18.2	21.2	16.5
1979-80	23.6	24.3	6.1	18.5	18.4	22.0	17.1
1980-81	22.9	24.3	6.4	17.6	19.0	21.5	16.3
1981-82	22.8	24.4	6.6	17.3	19.1	21.4	16.4
1982-83	22.5	24.0	6.8	16.8	18.5	20.7	15.6
1983-84	22.6	24.0	7.0	16.7	18.3	20.4	15.3
1984-85	22.6	24.2	7.1	16.7	18.3	20.2	14.9
1985-86	—	—	—	—	—	—	—

II. Revised (1980-81) Series

1980-81	—	—	—	—	—	—	—
1981-82	20.6	22.2	9.2	12.6	14.3	21.8	14.2
1982-83	20.1	21.6	9.3	12.0	13.6	20.9	13.1
1983-84	19.6	21.0	9.5	11.2	12.7	20.0	12.0
1984-85	20.4	22.1	9.7	11.9	13.8	20.7	12.7
1985-86	21.1	22.9	10.0	12.3	14.3	—	—
1986-87	—	—	—	—	—	—	—

ANNEXURE—6
Composition of Gross Domestic Capital Formation
(Rupees, Crores)

Year	At Current Prices				At 1970-71 Prices			
	GDFCF*	Change in stocks	GDCF*	3 as % of 4	GDFCF*	Change in stocks	GDCF*	7 as % of 8
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1950-51	970 (10.1)	160 (1.7)	1130	14.2	2484 (13.5)	334 (1.8)	2818	11.9
1951-52	964 (9.6)	198 (2.0)	1162	17.2	2352 (12.4)	391 (2.1)	2743	14.3
1952-53	886 (9.1)	(-) 27 (-)(0.3)	859	(-) 3.1	2118 (10.8)	(-) 73 (-)(0.4)	2045	(-) 3.6
1953-54	893 (8.5)	(-) 29 (-)(0.3)	864	(-) 3.4	2100 (10.1)	(-) 78 (-)(0.4)	2022	(-) 3.9
1954-55	1021 (10.5)	67 (0.7)	1088	6.2	2250 (10.5)	151 (0.7)	2401	6.3
1955-56	1283 (12.5)	133 (1.3)	1416	9.4	2884 (12.9)	319 (1.4)	3203	10.0
1956-57	1621 (13.7)	270 (2.3)	1891	14.3	3562 (15.1)	561 (2.4)	4123	13.6

(Contd.)

Annexure-6 (Contd.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1957-58	1692 (14.1)	248 (2.1)	1940	12.8	3775 (16.2)	528 (2.3)	4303	12.3
1958-59	1707 (12.7)	30 (0.2)	1737	1.7	3244 (12.9)	47 (0.2)	3291	1.4
1959-60	1870 (13.4)	244 (1.7)	2114	11.5	3493 (13.5)	469 (1.8)	3962	11.8
1960-61	2155 (14.4)	427 (2.8)	2582	16.5	3823 (14.1)	769 (2.8)	4592	16.7
1961-62	2410 (15.1)	270 (1.7)	2680	10.1	4068 (14.4)	483 (1.7)	4551	10.6
1962-63	2664 (15.6)	387 (2.3)	3051	12.7	4385 (15.1)	646 (2.2)	5031	12.8
1963-64	3149 (16.0)	380 (1.9)	3529	10.8	4884 (15.8)	605 (2.0)	5489	11.0
1964-65	3659 (15.9)	410 (1.8)	4069	10.1	5469 (16.4)	611 (1.8)	6080	10.0
1965-66	4131 (17.1)	295 (1.2)	4426	6.7	5798 (18.2)	424 (1.3)	6222	6.8
1966-67	4601 (16.6)	715 (2.6)	5316	13.4	5663 (17.8)	863 (2.7)	6526	13.2
1967-68	5084 (15.7)	623 (1.9)	5707	10.9	5924 (17.1)	644 (1.9)	6568	9.8
1968-69	5376 (16.1)	164 (0.5)	5540	3.0	6056 (16.9)	183 (0.5)	6239	2.9
1969-70	5898 (16.0)	578 (1.6)	6476	8.9	6285 (16.5)	595 (1.6)	6880	8.6

(Contd.)

Annexure—6 (Contd.)

Year	At Current Prices			At 1970-71 Prices				
	GDPCF*	Change in stocks	GDCF*	3 as % of 4	GDPCF*	Change in stocks	GDCF*	7 as % of 8
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1970-71	6305 (15.7)	1039 (2.6)	7344	14.1	6305 (15.6)	1039 (2.6)	7344	14.1
1971-72	7074 (16.3)	1337 (3.1)	8411	15.9	6686 (16.2)	1273 (3.1)	7959	16.0
1972-73	8066 (16.8)	460 (1.0)	8526	5.4	7059 (17.3)	420 (1.0)	7479	5.6
1973-74	9029 (15.3)	2323 (3.9)	11352	20.5	7060 (16.7)	1679 (4.0)	8739	19.2
1974-75	10930 (15.7)	3579 (5.1)	14509	24.7	6856 (16.2)	2091	8947	23.4
1975-76	13249 (17.9)	3171 (4.3)	16419	19.3	7314 (16.1)	1874 (14.0)	9388	20.0
1976-77	15303 (19.1)	2402 (3.0)	17705	13.6	8502 (18.0)	1362 (2.9)	9864	13.8
1977-78	17219 (19.2)	1402 (1.6)	18621	7.5	9348 (18.3)	781 (1.5)	10129	7.7
1978-79	18876 (19.3)	4108 (4.2)	22984	17.9	9430 (17.3)	2224 (4.1)	11654	19.1
1979-80	21307 (19.8)	4836 (4.5)	26143	18.5	9182 (17.7)	2219 (4.3)	11401	19.5
1980-81	25209 (19.7)	6248 (4.9)	31457	19.9	9732 (17.6)	2488 (4.5)	12220	20.4

(Contd.)

Annexure—6 (Concl.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1981-82	29783 (20.2)	6446 (4.4)	36229	17.8	10254 (17.5)	2267 (3.9)	12521	18.1
1982-83	34919 (21.2)	5557 (3.4)	40476	13.7	10946 (18.0)	1875 (3.1)	12821	14.6
1983-84	40561 (20.9)	6694 (3.4)	47225	14.2	11493 (17.5)	2113 (3.2)	13606	15.5
1984-85	45828 (21.4)	8016 (3.7)	53884	14.9	11964 (17.6)	2267 (3.3)	14231	15.9
1985-86	53611 (22.0)	7907 (3.2)	61518	12.9	19627 (27.2)	2237 (3.1)	14864	15.0
II. Revised (1980-81) Series**								
1980-81	26276 (19.3)	6653 (4.9)	32929	20.2	26276 (19.3)	6653 (4.9)	32929	20.2
1981-82	31455 (19.7)	10117 (6.3)	41572	24.3	28079 (19.4)	99005 (6.2)	37084	24.3
1982-83	35679 (20.1)	5794 (3.3)	41563	13.9	29296 (19.5)	5092 (3.4)	34388	14.8
1983-84	39866 (19.2)	8312 (4.0)	48178	17.3	29242 (18.0)	6358 (3.9)	35600	17.9
1984-85	44487 (19.5)	9448 (4.1)	54295	17.4	30191 (18.0)	6894 (4.1)	37085	18.6
1985-86	54549 (20.8)	13628 (5.2)	68177	20.0	33212 (18.7)	9452 (5.3)	42664	22.2
1986-87	63376	8481	71857	11.8	36251	5477	41728	13.1

Figures in brackets are proportions to GDP at market prices.

* No adjustment is made for 'Errors and Omissions' in GDFCF and GDCF both at current and constant prices.

** Cols. (6), (7) and (8) are at 1980-81 prices.

ANNEXURE—7

Gross Domestic Capital Formation by Sectors
(at current prices)

Year	Public Sector		Private Corporate Sector		Household Sector	
	Amount (Rupees, Crores)	Ratio to total GDCF	Amount (Rupees, Crores)	Ratio to total GDCF	Amount (Rupees, Crores)	Ratio to total GDCF
(1)	(2)	(3)	(4)	(5)	(6)	(7)

I. Existing (1970-71) Series

1950-51	260	23.0	214	18.9	657	58.1
1951-52	304	26.1	251	21.6	607	52.2
1952-53	257	29.9	73	8.5	529	61.6
1953-54	293	33.9	5	0.6	567	65.5
1954-55	437	40.2	144	13.2	508	46.6
1955-56	498	35.2	219	15.4	699	49.4
1956-57	666	35.2	341	18.0	884	46.8
1957-58	833	42.9	390	20.1	717	37.0
1958-59	815	46.9	238	13.7	684	39.4
1959-60	901	42.6	297	14.1	916	43.3
1960-61	1141	44.2	535	20.7	906	35.1
1961-62	1147	42.8	738	27.5	795	29.7
1962-63	1445	47.4	533	17.5	1073	35.1
1963-64	1681	47.6	861	24.4	987	28.0
1964-65	1948	47.9	898	22.1	1223	30.0
1965-66	2215	50.1	696	15.7	1515	34.2
1966-67	2135	40.1	615	11.6	2566	48.3
1967-68	2332	40.8	809	14.2	2567	45.0
1968-69	2168	39.1	756	13.7	2616	47.2
1969-70	2259	34.9	661	10.2	3556	54.9
1970-71	2813	38.3	1030	14.0	3502	47.7
1971-72	3212	38.2	1287	15.3	3912	46.5
1972-73	3674	43.1	1331	15.6	3521	41.3
1973-74	4812	42.4	1630	14.4	4910	43.2
1974-75	5640	38.9	2707	18.6	6163	42.5
1975-76	7746	47.2	2139	13.0	6534	39.8
1976-77	8569	48.4	1291	7.3	7845	44.3
1977-78	7671	41.2	2338	12.6	8612	46.2
1978-79	9841	42.4	2245	9.8	10998	47.8
1979-80	11929	45.6	3029	11.6	11185	42.8

(Contd.)

<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
1980-81	14079	44.7	3764	12.0	13615	43.3
1981-82	17784	49.1	4511	12.5	13934	38.4
1982-83	20330	50.2	6196	15.3	13950	34.5
1983-84	21988	46.5	6806	14.4	18461	39.1
1984-85	6355	49.0	7505	13.9	19985	37.1
1985-86	28697	46.6	8408	13.7	24413	39.7

@The data are not adjusted for (i) errors & omissions and (ii) net purchase of second-hand physical assets.

II. Revised (1980-81) Series

1980-81	14000	42.5	5691	17.3	13238	40.2
1981-82	17656	42.5	9802	23.6	14114	34.0
1982-83	20219	48.6	10196	24.5	11148	26.8
1983-84	21713	45.1	8670	18.0	17795	36.9
1984-85	26235	48.3	11836	21.8	16224	29.9
1985-86	30553	44.8	12309	18.1	25315	37.1
1986-87	34123	47.5	10334	14.4	27400	38.1

ANNEXURE—8
Gross Fixed Capital Formation and Change in Stocks by Sectors
 (at current prices)

Year	Public Sector				Private Corporate Sector			
	Change in stocks		GFCF		Change in stocks		GFCF	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1950-51	35.61	(0.4)	224.31	(2.3)	130.58	(1.4)	83.06	(0.9)
1951-52	41.41	(0.4)	262.77	(2.6)	159.98	(1.6)	91.08	(0.9)
1952-53	24.64	(—)	281.52	(2.9)	(—)	27.49	(—)	100.38
1953-54	() 35.34	(—)	327.92	(3.1)	(—)	57.99	(—)	62.74
1954-55	41.97	(0.4)	394.39	(4.1)	27.48	(0.3)	116.82	(1.2)
1955-56	(—)	34.49	532.41	(5.2)	116.90	(1.1)	102.17	(1.0)
1956-57	50.88	(0.4)	615.18	(5.2)	157.02	(1.3)	183.75	(1.6)
1957-58	190.31	(1.6)	642.92	(5.4)	98.33	(0.8)	291.22	(2.4)
1958-59	113.63	(0.8)	701.45	(5.2)	11.97	(0.1)	225.90	(1.7)
1959-60	16.70	(0.1)	883.82	(6.3)	75.55	(0.5)	221.83	(1.6)
1960-61	86.55	(0.6)	1054.45	(7.0)	209.80	(1.4)	325.75	(2.2)
1961-62	40.03	(0.3)	1106.98	(6.9)	231.98	(1.5)	506.03	(3.2)
1962-63	133.13	(0.8)	1311.92	(7.7)	132.59	(0.8)	400.03	(2.3)

I. Existing (1970-71) Series

(Contd.)

Annexure-8 (Contd.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1963-64	119.29	(0.6)	1561.83	(7.9)	213.70	(1.1)	647.54	(3.3)
1964-65	124.46	(0.5)	1823.99	(7.9)	309.52	(1.3)	588.43	(2.6)
1965-66	169.63	(0.7)	2046.06	(8.5)	298.18	(1.2)	397.52	(1.7)
1966-67	88.19	(0.3)	2046.73	(7.4)	151.10	(0.5)	463.73	(1.7)
1967-68	319.39	(1.0)	2012.13	(6.2)	270.60	(0.8)	538.59	(1.7)
1968-69	56.44	(0.2)	2111.28	(6.3)	223.26	(0.7)	522.79	(1.6)
1969-70	69.22	(0.2)	2189.50	(5.9)	205.02	(0.6)	456.73	(1.2)
1970-71	378.12	(0.9)	2434.28	(6.0)	410.52	(1.0)	619.66	(1.5)
1971-72	363.32	(0.8)	2849.00	(6.6)	505.04	(1.2)	781.96	(1.8)
1972-73	(-) 12.43	neg.	3686.23	(7.7)	507.29	(1.1)	824.01	(1.7)
1973-74	805.58	(1.4)	4006.99	(6.8)	566.63	(1.0)	1063.28	(1.8)
1974-75	1393.12	(2.0)	4246.83	(6.1)	1548.05	(2.2)	1159.11	(1.7)
1975-76	2078	(2.8)	5668	(7.6)	376	(0.5)	1763	(2.4)
1976-77	1464	(1.8)	7105	(8.8)	178	(0.2)	1113	(1.4)
1977-78	(-) 247	(-)	7918	(8.8)	808	(0.9)	1530	(1.7)
1978-79	1274	(1.3)	8467	(8.7)	1106	(1.1)	1140	(1.2)
1979-80	1842	(1.7)	10087	(9.4)	1173	(1.1)	1856	(1.7)
1980-81	2282	(1.8)	11797	(9.3)	1286	(1.0)	2478	(1.9)
1981-82	3028	(2.1)	14756	(10.0)	1769	(1.2)	2742	(1.9)
1982-83	1587	(1.0)	18743	(11.4)	1627	(1.0)	4569	(2.8)
1983-84	1230	(0.6)	20758	(10.7)	1934	(1.0)	4872	(2.5)
1984-85	2599	(1.2)	23756	(11.1)	2184	(1.0)	5320	(2.5)
1985-86	2228	(0.9)	26469	(10.9)	2641	(1.1)	5767	(2.4)

Figures in brackets are percentages to GDP at market prices.

(Contd.)

Annexure—8 (Contd.)

Year	Public Sector		Private Corporate Sector					
	Change in stocks	GFCF	Change in stocks		GFCF			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
II. Revised (1980-81) Series								
1980-81	2307	(1.7)	11693	(8.6)	2150	(1.6)	3541	(2.6)
1981-82	3058	(1.9)	14598	(9.2)	3974	(2.5)	5828	(3.7)
1982-83	1633	(0.9)	18586	(10.5)	2802	(1.6)	7394	(4.2)
1983-84	1278	(0.6)	20435	(9.9)	1941	(0.9)	6729	(3.2)
1984-85	2856	(1.2)	23377	(10.2)	3643	(1.6)	8193	(3.6)
1985-86	3136	(1.2)	27417	(10.5)	5197	(2.0)	7112	(2.7)
1986-87	2851	(1.0)	31272	(10.7)	2871	(1.0)	7453	(2.5)

(Contd.)

ANNEXURE—8 (Contd.)
Gross Fixed Capital Formation and Change in Stocks by Sectors
(in current prices)

Year	Household Sector					Total				
	Change in stocks		GFCF		Change in stocks		GFCF			
	(10)	(11)	(12)	(13)	(14)	(15)				
(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)		
1950-51	(-)	6.09	(-)	(0.1)	662.56	(6.9)	160.10	(1.7)	969.93	(10.1)
1951-52	(-)	3.70	(neg.)	(neg.)	610.26	(6.1)	197.69	(2.0)	964.11	(9.6)
1952-53		24.98	(0.3)	(0.3)	504.03	(5.2)	(-)	27.15	885.93	(9.1)
1953-54		63.87	(0.6)	(0.6)	502.76	(11.8)	(-)	29.46	893.42	(8.5)
1954-55	(-)	2.76	(neg.)	(neg.)	510.04	(5.3)	66.69	(0.7)	1021.25	(10.5)
1955-56		50.15	(0.5)	(0.5)	648.97	(6.3)	132.56	(1.3)	1283.55	(12.5)
1956-57		61.63	(0.5)	(0.5)	822.19	(7.0)	269.53	(2.3)	1621.12	(13.7)
1957-58	(-)	41.05	(-)	(0.3)	758.31	(6.3)	247.59	(2.1)	1692.45	(14.1)
1958-59	(-)	96.09	(-)	(0.7)	779.69	(5.8)	29.51	(0.2)	1707.04	(12.7)
1959-60		151.71	(1.1)	(1.1)	764.33	(5.5)	243.96	(1.7)	1869.98	(13.4)
1960-61		130.56	(0.9)	(0.9)	775.28	(5.2)	426.91	(2.8)	2155.48	(14.3)
1961-62	(-)	1.76	(neg.)	(neg.)	796.94	(5.0)	270.25	(1.7)	2409.95	(15.1)
1962-63		121.53	(0.7)	(0.7)	951.75	(5.6)	387.25	(2.3)	2663.70	(15.6)

I. Existing (1970-71) Series

(Contd.)

Annexure-8 (Contd.)

Year	Household Sector						Total		
	Change in stocks			GFCF			Change in stocks		
	(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1963-64		47.05	(0.2)	939.33	(4.8)	380.04	(1.9)	3148.70	(16.0)
1964-65		(-) 23.71	(-) (0.1)	1246.13	(5.4)	410.27	(1.8)	3658.55	(15.9)
1965-66		(-) 172.75	(-) (0.7)	1687.78	(7.0)	295.06	(1.2)	4131.36	(17.1)
1966-67		475.58	(1.7)	2090.85	(7.6)	714.87	(2.6)	4601.31	(16.6)
1967-68		33.11	(0.1)	2533.56	(7.8)	623.10	(1.9)	5084.28	(15.7)
1968-69		(-) 125.96	(-) (0.4)	2742.12	(8.2)	163.74	(0.5)	5376.19	(16.2)
1969-70		303.95	(0.8)	3251.99	(8.8)	578.19	(1.6)	5898.22	(16.0)
1970-71		250.33	(0.6)	3251.02	(8.1)	1038.97	(2.6)	6304.96	(16.0)
1971-72		468.65	(1.1)	3442.93	(7.9)	1337.01	(3.1)	7073.89	(16.3)
1972-73		(-) 35.14	(-) (0.1)	3555.56	(7.4)	459.72	(1.0)	8065.80	(16.9)
1973-74		950.99	(1.6)	3959.20	(6.7)	2323.10	(3.9)	9029.47	(15.3)
1974-75		638.39	(0.9)	5594.37	(7.9)	3579.56	(5.1)	10930.31	(15.7)
1975-76		717.00	(1.0)	5818.00	(7.8)	3171.00	(4.3)	13249.00	(17.8)
1976-77		760.00	(0.9)	7085.00	(8.8)	2402.00	(3.0)	15303.00	(19.1)
1977-78		841.00	(0.9)	7771.00	(8.6)	1402.00	(1.6)	17219.00	(19.2)
1978-79		1729.00	(1.8)	9269.00	(9.5)	4108.00	(4.2)	18876.00	(19.3)
1979-80		1821.00	(1.7)	9365.00	(8.7)	4836.00	(4.5)	21307.00	(19.8)
1980-81		2680.00	(2.1)	10935.00	(8.6)	6248.00	(4.9)	25210.00	(19.8)
1981-82		1649.00	(1.1)	12285.00	(8.3)	6446.00	(4.4)	29783.00	(20.2)

(Contd.)

Annexure — 8 (Contd.)

(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1982-83	2343.00	(1.4)	11607.00	(7.0)	5557.00	(3.4)	34919.00	(21.1)
1983-84	3530.00	(1.8)	14931.00	(7.7)	6694.00	(3.4)	40561.00	(20.9)
1984-85	3232.00	(1.5)	16753.00	(7.8)	8016.00	(3.7)	45828.00	(21.4)
1985-86	3038.00	(1.2)	21375.00	(8.8)	7907.00	(3.2)	53611.00	(22.0)
II. Revised (1980-81) Series								
1980-81	2196.00	(1.6)	11042.00	(8.1)	6653.00	(4.9)	26276.00	(19.3)
1981-82	3085.00	(1.9)	11029.00	(6.9)	10117.00	(6.3)	31455.00	(19.7)
1982-83	1359.00	(0.8)	9789.00	(5.5)	5794.00	(3.3)	35769.00	(20.1)
1983-84	5093.00	(2.5)	12702.00	(6.1)	8312.00	(4.0)	39866.00	(19.2)
1984-85	2947.00	(1.3)	13277.00	(5.8)	9448.00	(3.6)	44847.00	(19.5)
1985-86	5295.00	(2.0)	20020.00	(7.6)	13628.00	(5.2)	54549.00	(20.8)
1986-87	2756.00	(0.9)	24641.00	(8.4)	8481.00	(2.9)	63376.00	(21.6)

Figures in brackets are percentages to GDP at market prices.

ANNEXURE—9

Investment and National Income Deflators

Year	Const- ruction	Machi- nery & equip- ment	GDFCF	Change in stocks	GDCF (unad- justed)	GDP at factor cost	GDP at market prices
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I. Existing 1970-71 Series (1970-71 = 100)							
1950-51	44.7	28.2	39.0	47.9	40.1	51.0	51.9
1951-52	46.2	32.4	41.0	50.6	42.4	52.5	53.0
1952-53	46.3	34.4	41.8	37.0	42.0	49.1	49.9
1953-54	45.4	37.0	42.5	37.2	42.7	49.5	50.3
1954-55	45.6	44.9	45.4	44.4	45.3	44.2	45.0
1955-56	46.1	42.0	44.5	41.7	44.2	45.3	46.0
1956-57	49.5	39.9	45.5	48.1	45.9	49.5	50.2
1957-58	52.3	37.5	44.8	47.0	45.1	50.5	51.4
1958-59	53.8	50.7	52.6	63.8	52.8	52.6	53.3
1959-60	55.4	50.5	53.5	52.0	53.4	53.5	54.2
1960-61	57.9	54.1	56.4	55.5	56.2	55.1	55.3
1961-62	60.9	56.9	59.2	55.9	58.9	56.3	56.5
1962-63	63.2	57.7	60.7	59.9	60.6	58.6	58.7
1963-64	64.5	64.4	64.5	62.8	64.3	63.7	63.6
1964-65	67.6	66.1	66.9	67.1	66.9	69.4	69.3
1965-66	72.7	69.4	71.3	69.6	71.2	75.9	75.5
1966-67	78.0	86.4	81.2	82.9	81.5	85.9	86.8
1967-68	82.4	91.8	85.8	96.7	86.9	93.7	93.5
1968-69	87.2	91.5	88.8	89.6	88.8	93.3	93.1
1969-70	93.9	93.7	93.8	97.1	94.1	97.1	96.9
1970-71	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1971-72	107.3	103.7	105.8	105.0	105.7	105.2	105.2
1972-73	115.8	112.2	114.3	109.5	114.0	117.1	117.0
1973-74	133.1	122.1	127.9	138.4	129.9	139.1	139.1
1974-75	161.2	157.5	159.4	171.2	162.2	162.3	164.0
1975-76	175.1	177.8	176.3	169.2	174.9	155.6	159.1
1976-77	182.1	177.4	180.0	176.4	179.5	166.0	169.6
1977-78	189.7	177.2	184.2	179.5	183.8	172.5	175.6
1978-79	206.3	193.3	200.2	184.7	197.2	175.8	179.1
1979-80	237.1	227.0	232.1	217.9	229.3	202.1	207.1

(Contd.)

Annexure-9 (Contd.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1980-81	269.4	248.9	259.0	251.1	257.4	224.3	230.5
1981-82	317.8	260.6	290.5	284.3	289.4	244.6	252.0
1982-83	379.5	271.7	319.0	296.4	315.7	265.1	271.8
1983-84	427.8	299.5	352.9	316.8	347.3	290.1	296.3
1984-85	479.1	299.2	383.0	353.6	378.4	308.7	315.3
1985-86	531.4	349.0	273.1	353.5	413.9	330.9	337.0

II. Revised (1980-81) Series (1980-81 = 100)

1980-81	100	100	100	100	100	100	100
1981-82	11.8	109.9	112.0	112.4	112.1	110.1	110.1
1982-83	128.1	155.6	122.1	113.8	120.9	118.7	117.9
1983-84	140.7	121.4	136.3	130.7	135.3	129.1	127.8
1984-85	158.5	127.2	148.5	137.1	146.4	138.8	137.0
1985-86	181.7	142.8	164.2	144.2	159.8	149.5	147.3
1986-87	192.1	149.1	174.8	173.1	172.2	160.5	157.9

ANNEXURE—10
Gross (Net) Domestic Fixed Capital Formation
as percentage of GDP (NDP) at Market Prices
(all at constant prices)

(Rupees, Crores)

<i>Year</i>	<i>NDFCF</i>	<i>NDP at market prices</i>	<i>GDFCF</i>	<i>GDP at market prices</i>
(1)	(2)	(3)	(4)	(5)
I. Existing (1970-71) Series (at 1970-71 prices)				
1950-51	1746 (9.9)	17704	2484 (13.5)	18442
1951-52	1597 (8.8)	18169	2352 (12.4)	18924
1952-53	1334 (7.1)	18763	2118 (10.8)	19547
1953-54	1294 (6.5)	19987	2100 (10.1)	20793
1954-55	1388 (6.7)	20641	2250 (10.5)	21503
1955-56	1983 (9.2)	21419	2884 (12.9)	22320
1956-57	2620 (11.6)	22578	3562 (15.1)	23520
1957-58	2769 (12.4)	22304	3775 (16.2)	23310
1958-59	2160 (8.9)	24140	3244 (12.9)	25224
1959-60	2367 (9.6)	24677	3493 (13.5)	25803
1960-61	2649 (10.2)	25990	3823 (14.1)	27164
1961-62	2814 (10.4)	27038	4068 (14.4)	28292
1962-63	2965 (10.7)	27707	4385 (15.1)	29127
1963-64	3420 (11.6)	29422	4884 (15.8)	30886
1964-65	3878 (12.2)	31681	5469 (16.4)	33272
1965-66	4110 (13.6)	30235	5798 (18.2)	31923

Annexure-10 (Contd.)

(1)	(2)	(3)	(4)	(5)
1966-67	3880 (12.9)	30103	5663 (17.8)	31886
1967-68	4049 (12.4)	32680	5924 (17.1)	34555
1968-69	4109 (12.1)	33809	6056 (16.9)	35756
1969-70	4175 (11.6)	35929	6285 (16.5)	38039
1970-71	4088 (10.7)	38046	6305 (15.6)	40263
1971-72	4401 (11.3)	38911	6686 (16.2)	41196
1972-73	4651 (12.1)	38493	7059 (17.3)	40901
1973-74	4617 (11.6)	39927	7060 (16.7)	42370
1974-75	4501 (11.2)	40082	6856 (16.2)	42437
1975-76	5007 (11.4)	44067	7514 (16.1)	46574
1976-77	5855 (131)	44651	8502 (18.0)	47298
1977-78	6568 (13.6)	48384	9348 (18.3)	51164
1978-79	6404 (12.4)	51537	9430 (17.3)	54563
1979-80	6085 (12.5)	48840	9182 (17.7)	51937
1980-81	6435 (12.4)	51994	9732 (17.6)	55291
1981-82	6720 (12.2)	55064	10254 (17.5)	58598
1982-83	7228 (12.7)	57033	10946 (18.0)	60751
1983-84	7533 (12.2)	61533	11493 (17.5)	65493
1984-85	7780 (12.2)	63809	11964 (17.6)	67993
1985-86	8187 (12.1)	67834	12627 (17.5)	72274

(Contd.)

Annexure—10 (Concl.)

<i>Year</i>	<i>NDFCF</i>	<i>NDP at market Prices</i>	<i>GDFCF</i>	<i>DGP at mar- ket prices</i>
(1)	(2)	(3)	(4)	(5)
II. Revised (1980-81) Series (at 1980-81 prices)				
1980-81	14139 (11.5)	123725	26276	135812
1981-82	15291 (11.6)	132026	28079	144814
1982-83	15701 (11.5)	137008	29296	150600
1983-84	14746 (10.0)	147680	29242	162176
1984-85	14742 (9.7)	152080	30191	167529
1985-86	16823 (10.4)	161305	33212	177614
1986-87	18838 (11.2)	168119	36251	185482

* Quick Estimates.

1. Figures in brackets are percentages to NDP at Market Prices and GDP at Market Prices (at constant prices) respectively.
2. No adjustment is made for 'errors & omissions' in NDFCF and GDFCF.

ANNEXURE—11

Gross Domestic Fixed Capital Formation—by
Sectors & Assets
(at current prices)

(Rupees, Crores)

Year	Construction				Machinery & Equipment			
	Public sector	Private corporate sector	Household sector	Total	Public sector	Private corporate sector	Household sector	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Existing (1970-71) Series								
1950-51	169	15	545	729	55	69	117	241
1951-52	209	19	446	674	53	73	164	290
1952-53	230	16	366	612	51	85	138	274
1953-54	262	19	345	626	65	44	158	267
1954-55	303	17	376	696	91	100	134	325
1955-56	423	22	365	810	110	79	284	473
1956-57	454	30	542	1026	161	154	280	595
1957-58	494	57	426	977	149	234	332	715
1958-59	529	50	508	1087	172	176	272	620
1959-60	541	52	593	1186	343	170	171	684
1960-61	676	101	560	1337	379	225	215	819
1961-62	752	98	608	1458	355	408	189	952
1962-63	912	100	536	1548	400	301	415	1116
1963-64	1144	146	481	1771	418	502	458	1378
1964-65	1248	150	638	2036	576	439	608	1623
1965-66	1377	114	869	2360	669	284	819	1772
1966-67	1316	60	1338	2714	731	403	753	1887
1967-68	1247	120	1741	3108	765	418	793	1976
1968-69	1249	135	1902	3336	812	388	840	2040
1969-70	1499	124	2054	3677	691	332	1198	2221
1970-71	1547	104	2308	3959	887	516	943	2346
1971-72	1914	186	2164	4264	935	596	1279	2810
1972-73	2427	149	2138	4714	1259	676	1417	3352
1973-74	2589	178	2163	4930	1418	885	1796	4099
1974-75	2476	165	3113	5754	1771	994	2411	5176
1975-76	2872	226	4160	7258	2796	1537	1659	5191
1976-77	3730	197	4573	8500	3375	916	2512	6803
1977-78	4418	246	5282	9946	3500	1283	2490	7273
1978-79	5132	158	5026	10136	3334	982	4244	8560

(Contd.)

Annexure—II(Contd.)

	<i>Construction</i>				<i>Machinery & Equipment</i>			
	<i>Public sector</i>	<i>Private corporate sector</i>	<i>Household sector</i>	<i>Total</i>	<i>Public sector</i>	<i>Private corporate sector</i>	<i>Household sector</i>	<i>Total</i>
<i>(1)</i>	<i>(2)</i>	<i>(3)</i>	<i>(4)</i>	<i>(5)</i>	<i>(6)</i>	<i>(7)</i>	<i>(8)</i>	<i>(9)</i>
1979-80	6087	287	4581	10955	4000	1569	4783	10352
1980-81	6956	378	5681	13015	4341	2100	5253	12194
1981-82	8804	435	6102	15341	5952	2307	6183	14442
1982-83	10113	661	7424	18218	8510	3908	4183	16701
1983-84	11439	694	8568	20701	9319	4178	6263	19860
1984-85	12991	749	10321	24061	10764	4571	6432	21767
1985-86	14862	804	12135	27801	11507	4963	9240	25810
New (1980-81) Series								
1980-81	6900	508	6241	13649	4793	3033	4801	12627
1981-82	8409	894	7097	16400	6189	4934	3932	15055
1982-83	9822	995	7510	18327	8764	6399	2279	17442
1983-84	11247	1153	7613	20013	9188	5576	5089	19853
1984-85	12545	1555	8583	22683	10832	6638	4694	22164
1985-86	15094	1357	10876	27327	12323	5755	9144	27222

Note: Data exclude net purchase of second-hand physical assets.

ANNEXURE—12

Gross Capital Formation in Kutchha and Pucca Construction
(at current prices)

(Rupees, Crores)

Year	Public Sector		Private Corporate Sector		Household Sector		Total	
	Kutchha*	Pucca	Kutchha**	Pucca	Kutchha	Pucca	Kutchha	Pucca
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Existing (1970-71) Series								
1950-51	1	168	5	9	174	372	180	549
1951-52	1	208	7	12	157	289	165	509
1952-53	1	229	4	12	141	225	146	466
1953-54	1	261	7	12	141	204	149	477
1954-55	2	301	4	13	137	239	143	553
1955-56	3	420	9	14	140	224	152	658
1956-57	3	451	5	25	182	360	190	836
1957-58	4	490	14	43	151	275	169	808
1958-59	5	524	20	30	186	322	211	876
1959-60	5	536	11	41	206	387	222	964
1960-61	3	673	10	91	215	345	228	1109
1961-62	3	749	14	84	232	376	249	1209
1962-63	4	908	10	90	217	319	231	1317
1963-64	4	1140	13	133	218	263	235	1536
1964-65	5	1243	12	138	274	364	291	1745
1965-66	6	1371	10	104	319	550	335	2025
1966-67	7	1309	16	44	446	892	469	2245
1967-68	9	1238	17	103	589	1152	615	2493
1968-69	9	1290	19	116	616	1286	644	2692
1969-70	8	1491	18	106	669	1385	695	2982
1970-71	9	1538	24	80	655	1653	688	3271
1971-72	10	1904	25	161	722	1442	757	3507
1972-73	11	2417	33	115	732	1406	776	3938
1973-74	13	2576	43	135	951	1212	1007	3923
1974-75	11	2465	28	137	1081	2032	1120	4634
1975-76	14	2858	68	158	1260	2898	1342	5914
1976-77	17	3732	78	154	1364	3183	1459	7069
1977-78	19	4235	79	191	1535	3813	1633	8239
1978-79	24	5217	84	191	1693	3646	1801	9054
1979-80	28	5649	96	206	1804	3716	1928	9571

*Relates to 'forestry' sector only.

**Relates to tea, coffee and rubber plantations only.

ANNEXURE—13
Composition of Gross Fixed Capital Formation: Public and Private Sectors
 (at current prices)

Year	Public (Rupees, Crores)		Private (Rupees, Crores)		Public as per cent of total			
	Construction	Machinery and equipment	Construction	Machinery and equipment	Construction	Machinery and equipment		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1950-51	169	55	224	560	186	746	23.2	22.8
1951-52	209	53	262	465	237	702	31.0	18.3
1952-53	230	51	281	382	223	605	37.6	18.6
1953-54	262	65	327	364	202	566	41.9	24.3
1954-55	303	91	394	393	234	627	43.5	28.0
1955-56	423	110	533	387	363	750	52.2	23.3
1956-57	454	161	615	572	434	1006	44.2	27.1
1957-58	491	149	643	483	566	1049	50.6	20.8
1958-59	529	172	701	558	448	1006	48.7	27.7
1959-60	541	343	884	645	341	986	45.6	50.1
1960-61	676	379	1055	661	440	1101	50.6	46.3

I. Existing (1970-71) Series

(Contd.)

Annexure—13 (Contd.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1961-62	752	355	1107	706	597	1303	51.6	37.3
1962-63	912	400	1312	636	716	1352	58.9	35.8
1963-64	1144	418	1562	627	960	1587	64.6	30.3
1964-65	1248	576	1824	788	1047	1835	61.3	35.5
1965-66	1377	669	2046	983	1103	2086	58.3	37.8
1966-67	1316	731	2047	1398	1156	2554	48.5	38.7
1967-68	1247	765	2012	1861	1211	3072	40.1	38.7
1968-69	1299	812	2111	2037	1228	3265	38.9	39.8
1969-70	1499	691	2190	2178	1530	3708	40.8	31.1
1970-71	1547	887	2434	2412	1459	3871	39.1	37.8
1971-72	1914	935	2849	2350	1875	4225	44.9	33.3
1972-73	2427	1259	3686	2287	2093	4380	51.5	37.6
1973-74	2589	1418	4007	2341	2681	5022	52.5	34.6
1974-75	2476	1771	4247	3278	3405	6683	43.0	34.2
1975-76	2872	2796	5668	4386	3194	7580	39.6	46.7
1976-77	3730	3375	7105	4770	3428	8198	43.9	49.6
1977-78	4418	3500	7913	5528	3773	9301	44.4	48.1
1978-79	5133	3334	8467	5184	5226	10410	49.8	39.0
1979-80	6087	4000	10087	4868	6352	11220	55.6	38.6
1980-81	6956	4841	11797	6059	7354	13413	53.4	39.7
1981-82	8804	5952	14756	6537	8490	15027	57.4	41.2
1982-83	10133	8610	18743	8085	9091	16176	55.6	51.6
1983-84	11439	9319	20758	9262	10542	19804	55.3	46.9
1984-85	12991	10764	23755	11070	11003	22073	54.0	49.5
1985-86	14862	11607	26469	12939	14203	27142	53.5	45.0

(Contd.)

Annexure—13 (Contd.)

Year	Public (Rupees, Crores)		Private (Rupees, Crores)		Public as per cent of total			
	Construction	Machinery and equipment	Total	Construction	Machinery and equipment	Construction	Machinery and equipment	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
II. New (1980-81) Series								
1980-81	6900	4793	11693	6749	7824	14583	50.6	38.0
1981-82	8409	6189	14598	7991	8866	16857	51.3	41.1
1982-83	9822	8764	18586	8505	8678	17183	53.6	50.2
1983-84	11247	9188	20435	8766	10665	19431	56.2	46.3
1984-85	12545	10832	23377	10138	11332	21470	55.3	48.9
1985-86	15094	12323	27417	12233	14889	27132	55.2	45.3
1986-87	16993	14279	31272	12817	18787	32104	57.0	43.2

ANNEXURE—14
Consumption of Gross Fixed Capital Formation:
Public and Private Sectors
 (at current prices)

(Percentage Distribution)

	<i>Public</i>		<i>Private</i>		<i>Total</i>	
	<i>Cons- truction</i>	<i>Machinery and equipment</i>	<i>Cons- truction</i>	<i>Machinery and equipment</i>	<i>Cons- truction</i>	<i>Machinery and equipment</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Existing (1970-71) Series						
1950-51	75.4	24.6	75.1	24.9	75.2	24.8
1951-52	79.8	20.2	66.2	33.8	69.9	30.1
1952-53	81.9	18.1	63.1	36.9	69.1	30.9
1953-54	80.1	19.9	64.3	35.7	70.1	29.9
1954-55	76.9	23.1	62.7	37.3	68.2	31.8
1955-56	79.4	20.6	51.6	48.4	63.1	36.9
1956-57	73.8	26.2	56.9	43.1	63.3	36.7
1957-58	76.8	23.2	46.0	54.0	57.7	42.3
1958-59	75.5	24.5	55.5	44.5	63.7	36.3
1959-60	61.2	38.8	65.4	34.6	63.4	36.6
1960-61	64.1	35.9	60.0	40.0	62.0	38.0
1961-62	67.9	32.1	54.2	45.8	60.5	39.5
1962-63	69.5	30.5	47.0	53.0	58.1	41.9
1963-64	73.2	26.8	39.5	60.5	56.2	43.8
1964-65	68.4	31.6	42.9	57.1	55.6	44.4
1965-66	67.3	32.7	47.1	52.9	57.1	42.9
1966-67	64.3	35.7	54.7	45.3	59.0	41.0
1967-68	62.0	38.0	60.6	39.4	61.1	38.9
1968-69	61.5	38.5	62.4	37.6	62.1	37.9
1969-70	68.4	31.6	58.7	41.3	62.3	37.7
1970-71	63.6	36.4	62.3	37.7	62.8	37.2
1971-72	67.2	32.8	55.6	44.4	60.3	39.7
1972-73	65.8	34.2	52.2	47.8	58.4	41.6
1973-74	64.6	35.4	46.6	53.4	54.6	45.4
1974-75	58.3	41.7	49.0	51.0	52.6	47.4
1975-76	50.7	49.3	57.9	42.1	54.8	45.2
1976-77	52.5	47.5	58.2	41.8	55.5	44.5
1977-78	55.8	44.2	59.4	40.6	57.8	42.2
1978-79	60.6	39.4	49.8	50.2	54.7	45.3
1979-80	60.3	39.7	43.4	56.6	51.4	48.6
1980-81	59.0	41.0	45.2	54.8	51.6	48.4
1981-82	59.7	40.4	43.5	56.5	51.5	48.5
1982-83	54.1	45.9	50.0	50.0	52.2	47.8
1983-84	55.1	44.9	46.8	53.2	51.0	49.0
1984-85	54.7	45.3	50.2	49.8	52.5	47.5

ANNEXURE—15

Gross Domestic Capital Formation by Industry of Use
(at current prices)

(Rupees, Crores)

Year	Agri- culture, forestry & logging and fishing	Mining and quarry- ing	Manu- factur- ing, electri- city, gas and water supply	Regis- tered Manu- factur- ing	Storage, trans- port, commu- & trade	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I. Existing (1970-71) Series							
1950-51	213	7	132	95	214	388	954
1951-52	284	19	304	266	185	396	1188
1952-53	243	8	173	136	83	265	772
1953-54	276	12	148	95	200	273	909
1954-55	261	12	185	84	206	406	1070
1955-56	344	13	364	251	305	443	1469
1956-57	373	6	598	411	362	620	1959
1957-58	374	10	489	376	379	591	1843
1958-59	393	12	372	214	427	581	1785
1959-60	344	13	599	477	396	644	1996
1960-61	416	40	829	650	475	784	2544
1961-62	397	40	851	584	449	701	2433
1962-63	446	56	1054	677	580	780	2916
1963-64	502	77	1084	667	740	863	3266
1964-65	618	104	1303	811	733	977	3735
1965-66	777	53	1632	1089	687	1241	4390
1966-67	849	99	2124	1461	907	1458	5437
1967-68	880	90	1844	1137	835	1685	5334
1968-69	1003	72	1586	854	770	1582	5113
1969-70	1180	128	2168	1291	742	2067	6285
1970-71	1365	92	2626	1420	1416	1678	7177
1971-72	1466	150	2809	1501	1596	1955	7976
1972-73	1726	131	2588	1174	1440	2181	8066
1973-74	2129	230	3934	2156	2389	3102	11784
1974-75	2045	337	5644	3731	2477	2803	13306
1975-76	2255	641	5599	3470	3363	2901	14729

(Contd.)

Annexure-15 (Contd.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1976-77	3411	786	5046	2417	3321	4157	16721
1977-78	3794	763	6480	2931	2847	4881	18765
1978-79	4955	621	8891	4894	4182	5617	24266
1979-80	4900	876	9443	5214	3762	6297	25278
1980-81	6002	1259	11032	5994	5266	7917	31476
1981-82	6224	1675	13343	7664	5857	8977	36076
1982-83	6538	2849	14224	7607	6195	10135	39941
1983-84	7855	2956	15272	8301	7488	11581	45607
1984-85	8960	4272	17201	9288	8619	13337	52389

II. New (1980-81) Series

1980-81	4903	1517	11040	5925	5894	6916	30270
1981-82	5447	2067	14353	7543	9476	8927	40270
1982-83	6081	3460	14989	7511	7081	10108	41719
1983-84	6872	3186	16809	8560	10116	11659	48642
1984-85	7967	3307	18088	8822	12823	13033	55218
1985-86	8497	4483	21922	10438	16780	15370	67052

ANNEXURE—16

Gross Domestic Capital Formation by Industry of Use

(at current prices)

(Percentage Distribution)

Year	Agri- culture, forestry & log- ging and fishing	Mining and quarry- ing	Manu- factur- ing, gas and water supply	Regis- tered Manu- factur- ing	Trans- port, com- munica- tion and trade	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Existing (1970-71) Series							
1950-51	22.3	0.7	13.8	9.9	22.5	40.7	100.0
1951-52	23.9	1.6	25.6	22.4	15.6	33.3	100.0
1952-53	31.5	1.0	22.4	17.6	10.8	34.3	100.0
1953-54	30.4	1.3	16.3	10.4	22.0	30.0	100.0
1954-55	24.4	1.1	17.3	7.8	19.3	37.9	100.0
1955-56	23.4	0.9	24.8	17.1	20.8	30.1	100.0
1956-57	19.0	0.3	30.5	21.0	18.5	31.7	100.0
1957-58	20.3	0.5	26.5	20.4	20.6	32.1	100.0
1958-59	22.0	0.7	20.8	12.0	23.9	32.6	100.0
1959-60	17.2	0.7	30.0	23.9	19.8	32.3	100.0
1960-61	16.3	1.6	32.6	25.5	18.7	30.8	100.0
1961-62	16.3	1.6	34.9	23.9	18.4	28.8	100.0
1962-63	15.3	1.9	36.1	23.2	19.9	26.8	100.0
1963-64	15.4	2.4	33.2	20.5	22.6	26.4	100.0
1964-65	16.5	2.8	34.9	23.3	19.6	26.2	100.0
1965-66	17.7	1.2	37.2	24.8	15.6	28.3	100.0
1966-67	15.6	1.8	39.1	26.9	16.7	26.8	100.0
1967-68	16.5	1.7	34.6	21.3	15.6	31.6	100.0
1968-69	19.6	1.4	31.0	16.7	15.1	32.9	100.0
1969-70	18.8	2.0	34.5	20.5	11.8	32.9	100.0
1970-71	19.0	1.3	36.6	19.8	19.7	23.4	100.0
1971-72	18.4	1.9	35.2	18.8	20.0	24.5	100.0
1972-73	21.4	1.6	32.1	14.5	17.9	27.0	100.0
1973-74	18.1	1.9	33.4	18.3	20.3	26.3	100.0
1974-75	15.4	2.5	42.4	28.0	18.6	21.1	100.0
1975-76	15.3	4.4	38.0	23.6	22.8	19.7	100.0
1976-77	20.4	4.7	30.2	14.5	19.9	24.8	100.0
1977-78	20.2	4.1	34.5	15.6	15.2	26.0	100.0
1978-79	20.4	2.6	36.6	20.2	17.2	23.2	100.0

(Contd.)

Annexure-16 (contd.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1979-80	19.4	3.5	37.3	20.6	14.9	24.9	100.0
1980-81	19.1	4.0	35.0	19.0	16.7	25.2	100.0
1981-82	17.3	4.6	37.0	21.2	16.2	24.9	100.0
1982-83	16.4	7.1	35.6	19.0	15.5	25.4	100.0
1983-84	17.2	6.5	34.5	18.3	16.4	25.4	100.0
1984-85	17.1	8.2	32.8	17.7	16.4	25.5	100.0

ANNEXURE—17

Gross Domestic Capital Formation by Industry of Use
(at constant prices)

(Rupees, Crores)

Year	Agri- culture, forestry & log- ging and fishing	Mining and quarry- ing	Manu- factur- ing, electri- city, gas and water supply	Regis- tered Manu- factur- ing	Trans- port, stor- age, commu- nication and trade	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I. Existing (1970-71) Series (at 1970-71 prices)							
1950-51	531	17	366	276	520	945	2379
1951-52	716	41	736	649	417	894	2804
1952-53	608	16	471	385	126	617	1838
1953-54	699	25	334	212	442	627	2127
1954-55	562	30	392	178	436	943	2363
1955-56	819	26	821	583	686	971	3323
1956-57	852	10	1339	958	748	1322	4271
1957-58	868	21	1213	973	762	1224	4088
1958-59	815	24	652	365	767	1124	3382
1959-60	640	25	1171	954	695	1210	3741
1960-61	786	70	1381	1005	826	1460	4523
1961-62	707	68	1422	968	692	1251	4140
1962-63	802	89	1668	1067	897	1352	4808
1963-64	832	111	1611	985	1134	1392	5080
1964-65	995	153	1871	1235	1041	1521	5581
1965-66	1200	67	2179	1449	931	1793	6170
1966-67	1018	118	2580	1778	1096	1863	6675
1967-68	1009	102	2108	1316	889	2031	6139
1968-69	1114	80	1776	952	861	1927	5758
1969-70	1246	139	2317	1369	785	2190	6677
1970-71	1365	92	2626	1420	1416	1678	7177
1971-72	1391	143	2666	1414	1508	1839	7547
1972-73	1513	117	2287	1031	1265	1893	7075
1973-74	1594	185	3030	1619	1890	2373	9072
1974-75	1296	214	3418	2209	1555	1722	8205

(Contd.)

Annexure—17 (Concl.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1975-76	1278	354	3229	2008	1959	1602	8422
1976-77	1879	445	2865	1388	1901	2226	9316
1977-78	2013	437	3581	1621	1618	2558	10207
1978-79	2481	325	4622	2600	2202	2674	12304
1979-80	2135	375	4234	2372	1686	2594	11024
1980-81	2364	479	4385	2371	2134	2865	12227
1981-82	2220	570	4790	2750	2119	2778	12468
1982-83	2156	903	4724	2582	2157	2712	12632
1983-84	2333	872	4790	2616	2422	2715	13132
1984-85	2472	1185	4848	2736	2569	2772	13846

II. New (1980-81) Series (at 1980-81 prices)

1980-81	4903	1527	11040	5925	5894	6916	30270
1981-82	4798	1717	12867	6777	8354	7677	35413
1982-83	4860	2796	12432	6345	5719	7892	33699
1983-84	5070	2374	12847	6713	7752	7749	35792
1984-85	5367	2288	12872	6497	9333	7929	37789
1985-86	5036	2801	13950	6988	11276	8375	41438

ANNEXURE—18

Gross Domestic Capital Formation by Industry of Use
(at constant prices)

(Percentage Distribution)

Year	Agri- culture, & log- ging and fishing	Mining and quarry- ing	Manu- factur- ing, electri- city, gas and water supply	Regis- tered Manu- factur- ing	Trans- port, commu- nication and trade	Others	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Existing (1970-71) Series							
1950-51	22.3	0.7	15.4	11.6	21.9	39.7	100.0
1951-52	25.5	1.5	26.2	23.1	14.9	31.9	100.0
1952-53	33.1	0.9	25.6	20.9	6.8	33.6	100.0
1953-54	32.8	1.2	15.7	10.0	20.8	29.5	100.0
1954-55	23.8	1.3	16.6	7.5	18.4	39.9	100.0
1955-56	24.7	0.8	24.7	17.5	20.6	29.2	100.0
1956-57	19.9	0.2	31.4	22.4	17.5	31.0	100.0
1957-58	21.2	0.5	29.7	23.8	18.6	30.0	100.0
1958-59	24.1	0.7	19.3	10.8	22.7	33.2	100.0
1959-60	17.1	0.7	31.3	25.5	18.6	32.3	100.0
1960-61	17.4	1.5	30.5	23.5	18.3	32.3	100.0
1961-62	17.1	1.7	34.3	23.4	16.7	30.2	100.0
1962-63	16.7	1.8	34.7	22.2	18.7	28.1	100.0
1963-64	16.4	2.2	31.7	19.4	22.3	27.4	100.0
1964-65	17.8	2.7	33.5	22.1	18.7	27.3	100.0
1965-66	19.4	1.1	35.3	23.5	15.1	29.1	100.0
1966-67	15.2	1.8	38.7	26.6	16.4	27.9	100.0
1967-68	16.4	1.7	34.3	21.4	14.5	33.1	100.0
1968-69	19.3	1.4	30.8	16.5	15.0	33.5	100.0
1969-70	18.7	2.1	34.7	20.5	11.7	32.8	100.0
1970-71	19.0	1.3	36.6	19.8	19.7	23.4	100.0
1971-72	18.4	1.9	35.3	18.7	20.0	24.4	100.0
1972-73	21.4	1.6	32.3	14.6	17.9	26.8	100.0
1973-74	17.6	2.0	33.4	17.8	20.8	26.2	100.0
1974-75	15.8	2.6	41.6	26.9	19.0	21.0	100.0
1975-76	15.2	4.1	38.4	23.8	23.2	19.0	100.0
1976-77	20.2	4.8	30.7	14.9	20.4	23.9	100.0

(Contd.)

Annexure—18 (Concl'd.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1977-78	19.7	4.3	35.1	15.9	15.8	25.1	100.0
1978-79	20.2	2.6	37.6	21.1	17.9	21.7	100.0
1979-80	19.4	3.4	38.4	21.5	15.3	23.5	100.0
1980-81	19.3	3.9	35.9	19.4	17.5	23.4	100.0
1981-82	17.8	4.6	38.4	22.1	16.7	22.3	100.0
1982-83	17.0	7.1	37.4	20.4	17.0	21.5	100.0
1983-84	17.8	6.6	36.5	19.9	18.4	20.7	100.0
1984-85	17.7	8.6	35.0	19.8	18.5	20.0	100.0

ANNEXURE—19
Gross Domestic Fixed Capital Formation
(at constant prices)

Year	GFCF (Rupees, Crores)		Percentage Distribution		Index of growth		Total	
	Construc- tion	Machinery and equipment	Construc- tion	Machinery and equipment	Construc- tion	Machinery and equipment		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
I. Existing (1970-71) Series (At 1970-71 prices)								
1950-51	1630	854	2484	65.6	34.4	100.0	100.0	100.0
1951-52	1458	894	2352	62.0	38.0	89.4	104.7	94.7
1952-53	1321	797	2118	62.4	37.6	81.0	93.3	85.3
1953-54	1378	722	2100	65.6	34.4	84.5	84.5	84.5
1954-55	1526	724	2250	67.8	32.2	93.6	84.8	90.6
1955-56	1758	1126	2884	61.0	39.0	107.9	131.9	116.1
1956-57	2072	1490	3562	58.2	41.8	127.1	174.5	143.4
1957-58	1869	1906	3775	49.5	50.5	114.7	223.2	152.0
1958-59	2020	1224	3244	62.3	37.7	123.9	143.3	130.6
1959-60	2139	1354	3493	61.2	38.8	131.2	158.5	140.6
1960-61	2310	1513	3823	60.4	39.6	141.7	177.2	153.9

Annexure-19 (Contd.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1961-62	2396	1672	4068	58.9	41.1	147.0	195.8	163.8
1962-63	2451	1934	4385	55.9	44.1	150.4	226.5	176.5
1963-64	2745	2139	4884	56.2	43.8	168.4	250.5	196.6
1964-65	3012	2457	5469	55.1	44.9	184.8	287.7	220.2
1965-66	3245	2553	5798	56.0	44.0	199.1	298.9	233.4
1966-67	3480	2183	5663	61.5	38.5	213.5	255.6	228.0
1967-68	3771	2153	5924	63.7	36.3	231.3	252.1	238.5
1968-69	3826	2230	6056	63.2	36.8	234.7	261.1	243.8
1969-70	3915	2370	6285	62.3	37.7	240.2	277.5	253.0
1970-71	3959	2346	6305	62.8	37.2	242.9	274.7	253.8
1971-72	3975	2711	6686	59.5	40.5	243.9	317.4	269.2
1972-73	4072	2987	7059	57.7	42.3	249.8	349.8	284.2
1973-74	3703	3357	7060	52.5	47.5	227.2	393.1	284.2
1974-75	3570	3286	6856	52.1	47.9	219.0	384.8	276.0
1975-76	4145	3369	7514	55.2	44.8	254.3	394.5	302.5
1976-77	4667	3835	8502	54.9	45.1	286.3	449.1	342.3
1977-78	5243	4105	9348	56.1	43.9	321.7	480.7	376.3
1978-79	5001	4429	9430	53.0	47.0	306.8	518.6	377.6
1979-80	4621	4561	9182	50.3	49.7	283.5	534.1	369.6
1980-81	4832	4900	9732	49.7	50.3	296.4	573.8	391.8
1981-82	4828	5426	10254	47.1	52.9	296.2	635.4	412.8
1982-83	4800	6146	10946	43.9	56.1	294.5	719.7	440.7
1983-84	4862	6631	11493	42.3	57.7	298.3	776.5	462.7
1984-85	5022	6942	11964	42.0	58.0	308.1	812.9	481.6
1985-86	5232	7395	12627	41.4	58.6	321.0	865.9	508.3

(Contd.)

Annexure—19 (Contd.)

Year	GFCF (Rupees, Crores)			Percentage Distribution		Index of growth	
	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Construc- tion	Machinery and equipment	Total	Construc- tion	Machinery and equipment	Construc- tion	Machinery and equipment
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1980-81	13649	12627	26276	51.9	48.1	100.0	100.0
1981-82	13869	14210	28079	49.4	50.6	101.6	112.5
1982-83	13008	16288	29296	44.4	55.6	95.3	129.0
1983-84	12597	16645	29242	43.1	56.9	92.3	131.8
1984-85	12672	17519	30191	42.0	58.0	92.8	138.7
1985-86	13741	19471	33212	41.4	58.6	100.7	154.2
II. Revised (1980-81) (At 1980-81 prices)							
1980-81	13649	12627	26276	51.9	48.1	100.0	100.0
1981-82	13869	14210	28079	49.4	50.6	101.6	112.5
1982-83	13008	16288	29296	44.4	55.6	95.3	129.0
1983-84	12597	16645	29242	43.1	56.9	92.3	131.8
1984-85	12672	17519	30191	42.0	58.0	92.8	138.7
1985-86	13741	19471	33212	41.4	58.6	100.7	154.2

ANNEXURE—20
Gross Capital Formation by Assets—Household Sector
 (at current prices)
 (Rupees, Crores)

Year	Construction			Machinery & equipment	Change in stocks	Total							
	Kutchha	Pucca	Total										
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
1950-51	173	(1.8)	372	(3.9)	545	(5.7)	117	(1.2)	(-)	6	(-0.1)	636	(6.8)
1951-52	157	(1.6)	289	(2.9)	446	(4.5)	164	(1.6)	(-)	4	(neg.)	606	(6.1)
1952-53	141	(1.4)	225	(2.3)	366	(3.7)	138	(1.4)	25	(0.3)		529	(5.4)
1953-54	141	(1.3)	204	(2.0)	345	(3.3)	158	(1.5)	64	(0.6)		567	(5.4)
1954-55	137	(1.4)	239	(2.5)	376	(3.9)	134	(1.4)	(-)	3	(neg.)	507	(5.3)
1955-56	141	(1.4)	224	(2.2)	365	(3.6)	284	(2.7)	50	(0.5)		699	(6.8)
1956-57	182	(1.5)	360	(3.1)	542	(4.6)	280	(2.4)	62	(0.5)		884	(7.5)
1957-58	151	(1.2)	275	(2.3)	426	(3.5)	332	(2.8)	(-)	41	(-0.3)	717	(6.0)
1958-59	186	(1.4)	322	(2.4)	508	(3.8)	272	(2.0)	(-)	96	(-0.7)	684	(5.1)
1959-60	206	(1.5)	387	(2.7)	593	(4.2)	171	(1.2)	152	(1.1)		916	(6.5)
1960-61	215	(1.4)	345	(2.3)	560	(3.7)	215	(1.4)	131	(0.9)		906	(6.0)
1961-62	232	(1.4)	376	(2.4)	608	(3.8)	189	(1.2)	(-)	2	(neg.)	795	(5.0)

I. Revised (1970-71) Series

(Contd.)

Annexure—20 (Contd.)

Year	Construction			Machinery & Equipment			Change in stocks			Total		
	Kutcha		Total	Equipment		Total	stocks		Total			
	(2)	(3)		(4)	(5)		(6)	(7)			(8)	(9)
1962-63	217	(1.2)	319	(1.9)	536	(3.1)	415	(2.4)	122	(0.7)	1073	(6.2)
1963-64	218	(1.1)	263	(1.4)	481	(2.5)	458	(2.3)	47	(0.2)	986	(5.0)
1964-65	274	(1.2)	364	(1.6)	638	(2.8)	608	(2.6)	(-) 24	(-0.1)	1222	(5.3)
1965-66	319	(1.3)	550	(2.3)	869	(3.6)	819	(3.4)	(-) 173	(-0.7)	1515	(6.3)
1966-67	446	(1.6)	892	(3.2)	1338	(4.8)	753	(2.7)	475	(1.7)	2566	(9.2)
1967-68	589	(1.8)	1152	(3.6)	1741	(5.4)	793	(2.4)	33	(0.1)	2567	(7.9)
1968-69	616	(1.8)	1286	(3.9)	1902	(5.7)	840	(2.5)	(-) 126	(-0.4)	2616	(7.8)
1969-70	669	(1.8)	1385	(3.8)	2054	(5.6)	1198	(3.2)	304	(0.8)	3556	(9.6)
1970-71	655	(1.6)	1653	(4.1)	2308	(5.7)	943	(2.4)	250	(0.6)	3501	(8.7)
1971-72	722	(1.7)	1442	(3.3)	2164	(5.0)	1279	(2.9)	469	(1.1)	3912	(9.0)
1972-73	732	(1.5)	1406	(2.9)	2138	(4.4)	1417	(3.0)	(-) 35	(-0.1)	3520	(7.3)
1973-74	951	(1.6)	1212	(2.1)	2163	(3.7)	1796	(3.0)	951	(1.6)	4910	(8.3)
1974-75	1081	(1.6)	2032	(2.9)	3113	(4.5)	2411	(3.5)	639	(0.9)	6163	(8.9)
1975-76					4160	(5.6)	1657	(2.2)	717	(1.0)	6534	(8.8)
1976-77					4573	(5.7)	2512	(3.1)	760	(0.9)	7845	(9.8)
1977-78					5281	(5.9)	2490	(2.8)	841	(0.9)	8612	(9.6)
1978-79					5026	(5.1)	4244	(4.3)	1729	(1.8)	10998	(11.3)
1979-80					4581	(4.3)	4783	(4.4)	1821	(1.7)	11185	(10.4)

Annexure—20 (Concl.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1980-81					5681	(4.5)	5254	(4.1)	2680	(2.1)	13615	(10.7)
1981-82					6102	(4.1)	6183	(4.2)	1649	(1.1)	13934	(9.4)
1982-83					7424	(4.5)	4183	(2.5)	2343	(1.4)	13950	(8.4)
1983-84					8568	(4.4)	6363	(3.3)	3530	(1.8)	18461	(9.5)
1984-85					10321	(4.8)	6432	(3.0)	3232	(1.5)	19985	(9.3)
II. New (1980-81) Series												
1980-81					6241	(4.6)	4801	(3.5)	2196	(1.6)	13238	(9.7)
1981-82					7097	(4.5)	3932	(2.5)	3085	(1.9)	14114	(8.9)
1982-83					7510	(4.2)	2279	(1.3)	1359	(0.8)	11148	(6.3)
1983-84					7613	(3.7)	5089	(2.5)	5093	(2.5)	17795	(8.6)
1984-85					8583	(3.7)	4694	(2.0)	2947	(1.3)	16224	(7.1)
1985-86					10876	(4.2)	9144	(3.5)	5295	(2.0)	25315	(9.7)

Figures in brackets are percentages to GDP at market prices.

ANNEXURE—21
Gross Domestic Saving—By Sectors

Year	Public Sector		Private Corporate Sector		Household Sector					
	Amount (Rupees, Crores)	Ratio to GDP at market prices	Amount (Rupees, Crores)	Ratio to GDP at market prices	Amount (Rupees, Crores)	Ratio to GDP at market prices				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
I. Existing (1970-71) Series										
1950-51	168	17.2	1.8	89	9.1	0.9	718	73.7	7.5	
1951-52	252	25.1	2.5	132	13.1	1.3	621	61.8	6.2	
1952-53	145	18.0	1.5	60	7.4	0.6	601	74.6	6.2	
1953-54	127	13.8	1.2	86	9.3	0.8	709	76.9	6.8	
1954-55	151	14.3	1.6	114	10.8	1.2	789	74.9	8.1	
1955-56	172	12.0	1.7	130	9.1	1.2	1128	78.9	11.0	
1956-57	231	14.5	1.9	151	9.4	1.3	1217	76.1	10.3	
1957-58	245	17.9	2.0	117	8.5	1.0	1008	73.6	8.4	
1958-59	227	16.1	1.7	136	9.7	1.0	1046	74.2	7.8	
1959-60	236	13.4	1.7	180	10.2	1.3	1349	76.4	9.6	
1960-61	425	20.6	2.8	276	13.4	1.8	1362	66.0	9.1	
1961-62	494	23.6	3.1	315	15.1	2.0	1284	61.3	8.0	
1962-63	566	22.9	3.3	338	13.6	2.0	1572	63.5	9.2	

Overall Aspects of Savings: Measurement in Real Terms

1963-64	709	25.1	3.6	387	13.7	2.0	1730	61.2	8.8
1964-65	817	26.1	3.5	381	12.1	1.7	1937	61.8	8.4
1965-66	809	21.3	3.4	396	10.5	1.6	2586	68.2	10.7
1966-67	668	14.8	2.4	414	9.2	1.5	3432	76.0	12.4
1967-68	667	14.8	2.1	399	8.9	1.2	3431	76.3	10.6
1968-69	858	18.3	2.6	427	9.1	1.3	3412	72.6	10.2
1969-70	1033	17.1	2.8	536	8.9	1.5	4475	74.0	12.1
1970-71	1254	18.5	3.1	656	9.7	1.6	4873	71.8	12.1
1971-72	1278	17.1	3.0	754	10.0	1.7	5466	72.9	12.6
1972-73	1333	17.2	2.8	787	10.1	1.6	5649	72.7	11.8
1973-74	1807	15.9	3.1	1063	9.3	1.8	8522	74.8	14.5
1974-75	2676	21.1	3.8	1440	11.4	2.1	8537	67.5	12.3
1975-76	3339	22.5	4.5	1056	7.1	1.4	10452	70.4	14.1
1976-77	4185	23.2	5.2	1147	6.4	1.4	12698	70.4	15.8
1977-78	4168	20.6	4.6	1375	6.8	1.5	14686	72.6	16.3
1978-79	4781	19.8	4.9	1611	6.7	1.6	17747	73.5	18.2
1979-80	4967	20.1	4.6	2352	9.5	2.2	17378	70.4	16.2
1980-81	4603	15.7	3.6	2653	9.0	2.1	22119	75.3	17.4
1981-82	7229	21.6	4.9	2740	8.2	1.9	23489	70.2	15.9
1982-83	7841	21.0	4.7	3056	8.2	1.9	26472	70.8	16.0
1983-84	6663	15.5	3.4	3333	7.7	1.7	33087	76.8	17.0
1984-85	6423	13.1	3.0	3951	8.0	1.8	38716	78.9	18.1
1985-86	7481	13.5	3.1	4447	8.0	1.8	43501	78.5	17.9

(Contd.)

Annexure 21—(Contd.)

Year	Public Sector			Private Corporate Sector			Household Sector		
	Amount (Rupees, Crores)	Ratio to gross domes- tic saving	Ratio to GDP at market prices	Amount (Rupees, Crores)	Ratio to gross domes- tic saving	Ratio to GDP at market prices	Amount (Rupees, Crores)	Ratio to gross domes- tic saving	Ratio to GDP at market prices
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1980-81	4654	16.2	3.4	2284	7.9	1.9	21835	75.9	16.1
1981-82	7274	21.5	4.6	2496	7.4	1.6	23918	71.0	15.0
1982-83	7822	22.6	4.4	2908	8.4	1.6	23940	69.1	13.5
1983-84	6775	16.5	3.3	3172	7.7	1.5	31076	75.8	15.0
1984-85	6586	14.7	2.9	3991	8.9	1.7	34261	76.4	14.9
1985-86	8125	14.1	3.1	5065	8.8	1.9	44440	77.1	17.0

II. New (1980-81) Series

ANNEXURE—22

Estimates of Saving of Administrative Departments

(Rupees, Crores)

Year	Central Government	State Governments	Local bodies	Total (2)+(3)+ (4)	Consumption of fixed capital	Gross saving (5)+(6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
I. Existing (1970-71) Series						
1960-61	113	121	64	298	64	362
1961-62	236	49	81	366	60	426
1962-63	202	117	89	408	72	480
1963-64	242	177	94	513	73	586
1964-65	312	175	111	598	81	679
1965-66	376	97	69	542	83	625
1966-67	148	190	70	408	88	496
1967-68	59	217	84	360	98	458
1968-69	196	251	96	548	92	635
1969-70	338	221	67	626	99	725
1970-71	368	323	43	734	123	857
1971-72	218	484	40	742	122	864
1972-73	343	324	11	678	148	826
1973-74	397	533	31	961	165	1126
1974-75	671	850	31	1552	151	1703
1975-76	911	1259	101	2271	178	2449
1976-77	885	1459	240	2684	186	2770
1977-78	1120	1379	175	2674	190	2864
1978-79	1246	1580	199	3025	221	3246
1979-80	702	2026	312	3040	272	3312
1980-81	538	1618	353	2509	365	2874
1981-82	1103	2163	327	3593	597	4190
1982-83	530	2069	328	2927	733	3660
1983-84	(—) 743	1508	371	1136	863	1999
1984-85	(—)1856	973	400	(—) 483	865	382
II. New (1980-81) Series						
1980-81						12087
1981-82						14459
1982-83						16886
1983-84						19322
1984-85						22257

ANNEXURE—23

Estimates of Saving of Non-Departmental Enterprises

(Rupees, Crores)

Year	Net Saving			Consumption of fixed capital	Gross saving (4+5)
	Financial enterprises	Non- financial enterprises	Total (2+3)		
(1)	(2)	(3)	(4)	(5)	(6)
Existing (1970-71) Series					
1960-61	20	(-) 9	11	52	63
1961-62	21	(-) 24	(-) 3	71	68
1962-63	23	(-) 23	—	86	86
1963-64	31	(-) 5	26	97	123
1964-65	36	(-) 23	13	125	138
1965-66	66	(-) 16	50	134	184
1966-67	37	(-) 38	(-) 1	173	172
1967-68	54	(-) 59	(-) 5	214	209
1968-69	36	(-) 57	(-) 21	244	223
1969-70	53	(-) 34	19	290	309
1970-71	84	(-) 14	70	326	396
1971-72	93	(-) 73	20	394	414
1972-73	145	(-) 84	61	445	506
1973-74	204	(-) 84	120	561	681
1974-75	336	83	419	554	973
1975-76	327	(-)105	222	668	890
1976-77	503	98	601	814	1415
1977-78	561	(-)234	327	977	1304
1978-79	682	(-)240	442	1092	1534
1979-80	710	(-)361	349	1311	1655
1980-81	832	(-)716	116	1613	1729
1981-82	1237	(-)191	1046	1993	3039
1982-83	1474	86	1560	2621	4181
1983-84	1765	(-)289	1476	3189	4665
1984-85	2047	80	2128	3913	6041

ANNEXURE—24
**Saving and Capital Formation in Public
and Private Sectors**
(at current prices)

Year	Gross domestic Saving (Rupees, Crores)		Gross Domestic Capital Formation (Rupees, Crores)		Share of Public Sector in (percent)	
	Public sector	Private sector	Public sector	Private sector	Gross domestic saving	Gross domestic capital formation
(1)	(2)	(3)	(4)	(5)	(6)	(7)
I. Existing (1970-71) Series						
1950-51	168	807	260	870	17.2	23.0
1951-52	252	753	304	858	25.1	26.2
1952-53	145	661	257	602	18.0	29.9
1953-54	127	795	298	571	13.8	33.9
1954-55	151	903	437	651	14.3	40.2
1955-56	172	1258	498	918	12.0	35.2
1956-57	231	1368	666	1225	14.4	35.2
1957-58	245	1125	833	1107	17.9	42.9
1958-59	227	1182	815	922	16.1	46.9
1959-60	236	1529	901	1213	13.4	42.6
1960-61	425	1638	1141	1442	20.6	44.2
1961-62	494	1599	1147	1533	23.6	42.8
1962-63	566	1910	1445	1606	22.9	47.4
1963-64	709	2117	1681	1848	25.1	47.6
1964-65	817	2318	1948	2121	26.1	47.9
1965-66	809	2982	2215	2211	21.3	50.0
1966-67	668	3846	2135	3181	14.8	40.2
1967-68	667	3830	2332	3376	14.8	40.8
1968-69	858	3839	2168	3372	18.3	39.1
1969-70	1033	5011	2259	4217	17.1	34.9
1970-71	1254	5529	2772	4572	18.5	37.8
1971-72	1278	6220	3165	5246	17.0	37.6
1972-73	1533	6436	3606	4929	7.2	42.3
1973-74	1807	9585	4814	6539	15.9	42.4
1974-75	2676	9977	5665	8845	21.1	39.0
1975-76	8339	11508	7677	8742	22.5	46.8
1976-77	4185	13845	8513	9192	23.2	48.1

(Contd.)

Annexure—24 (Contd.)

Year	Gross Domestic Saving (Rupees, Crores)		Gross Domestic Capital Formation (Rupees, Crores)		Share of Public Sector in (percent)	
	Public sector	Private sector	Public sector	Private sector	Gross domestic saving	Gross domestic capital formation
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1977-78	4168	16062	7450	11171	20.6	40.0
1978-79	4781	19358	96501	13334	19.8	42.0
1979-80	4967	19730	11817	14326	20.1	45.2
1980-81	4603	24772	13967	17491	15.7	44.4
1981-82	7229	26229	17610	18519	21.6	48.6
1982-83	7842	29527	20148	20328	21.0	49.8
1983-84	6664	36420	21610	25645	15.5	45.7
1984-85	6423	42667	26022	27822	13.1	48.3
1985-86	7481	47950	28940	33178	13.5	46.1
II. New (1980-81) Series						
1980-81	4654	24119	14000	18929	16.2	42.5
1981-82	7254	26414	17656	23916	21.5	42.5
1982-83	7822	26848	20219	21344	22.6	48.6
1983-84	6775	34248	21713	26465	16.5	45.2
1984-85	6586	38252	26235	28060	14.7	48.3
1985-86	8125	49505	30553	37624	14.1	44.8
1985-87	7536	55877	34123	37734	11.9	47.5

ANNEXURE—25

Saving and Capital Formation in Private Sector
(at current prices)

(Rupees, Crores)

Year	Gross Domestic Saving				Gross Domestic Capital Formation			
	House- hold sector	Private corpo- rate sector	Total	Col. 2 as per- centage of Col. 4	House- hold sector	Private corpo- rate sector	Total	Col. 6 as per- centage of Col. 8
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

I. Existing (1970-71) Series

1950-51	718	89	807	89.0	656	214	870	75.4
1951-52	621	132	753	82.5	607	251	858	70.7
1952-53	601	60	661	90.9	529	73	602	87.7
1953-54	709	86	795	89.2	566	5	571	99.1
1954-55	789	114	903	87.4	508	144	652	77.9
1955-56	1128	130	1258	89.7	699	219	918	76.1
1956-57	1217	151	1368	89.0	884	341	1225	72.2
1957-58	1008	117	1125	89.6	717	390	1107	64.8
1958-59	1046	136	1182	88.5	684	238	922	74.2
1959-60	1349	180	1529	88.2	916	298	1214	75.5
1960-61	1362	276	1638	83.2	906	535	1441	62.9
1961-62	1284	315	1599	80.3	795	738	1533	51.9
1962-63	1572	338	1910	82.3	1073	533	1606	66.8
1963-64	1730	387	2117	81.7	987	861	1848	53.4
1964-65	1937	381	2318	83.6	1223	898	2121	57.7
1965-66	2586	396	2982	86.7	1515	696	2211	68.5
1966-67	3432	414	3846	89.2	2566	615	3181	80.7
1967-68	3431	399	3830	89.6	2567	809	3376	76.0
1968-69	3412	427	3839	88.9	2616	756	3372	77.6
1969-70	4475	536	5011	89.3	3556	661	4217	84.3
1970-71	4873	657	5530	88.1	3502	1030	4532	77.3
1971-72	5466	754	6220	87.9	3912	1287	5199	75.2
1972-73	5649	787	6436	87.8	3521	1331	4852	72.6
1973-74	8522	1063	9585	88.9	4910	1630	6540	75.1
1974-75	8537	1440	9977	85.6	6163	2707	8870	69.5
1975-76	10452	1056	11508	90.9	6534	2139	8673	75.3

(Contd.)

Annexure—25 (Contd.)

Year	Gross Domestic Saving				Gross Domestic Capital Formation			
	House- hold sector	Private corpo- rate sector	Total	Col. 2 as per- centage of Col. 4	House- hold sector	Private corpo- rate sector	Total	Col. 6 as per- centage of Col. 8
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1976-77	12698	1147	13845	91.7	7845	1291	9136	85.9
1977-78	14686	1375	16061	91.4	8612	2338	10950	78.6
1978-79	17747	1611	19358	91.7	10998	2245	13243	83.0
1979-80	17378	2352	19730	88.1	11185	3029	14214	78.7
1980-81	22119	2653	24772	89.3	13615	3764	17379	78.3
1981-82	23489	2740	26229	89.6	13934	4511	18445	75.5
1982-83	26472	3056	29528	89.7	13950	6196	20146	69.2
1983-84	33087	3333	36420	90.8	18461	6806	25267	73.1
1984-85	38716	3951	42667	90.7	19985	7504	27489	72.7

II. New (1980-81) Series

1980-81	21835	2284	24119	90.5	13238	5691	18929	69.9
1981-82	23918	2496	26414	90.6	14114	9802	23916	59.0
1982-83	23940	2908	26848	89.2	11148	10196	21344	52.3
1983-84	31076	3172	34248	90.7	17795	8670	26465	67.2
1984-85	34261	3991	38252	89.6	16224	11836	28060	57.8
1985-86	44440	5065	49505	89.8	25315	12309	37624	67.3
1986-87	50788	5089	55877	90.8	27400	10334	37734	72.6

SAVING PERFORMANCE AND PROSPECTS: A HISTORICAL PERSPECTIVE

Arvind Virmani

1. Introduction

THERE is an impression that the saving rate peaked sometime in the late seventies and has been declining since then.¹ Based on this impression, discussion has taken place on the need for and means of raising the saving ratio. It is necessary, however, to be clear about the factual position, before such discussion can be fruitful. The present paper starts by trying to clarify the factual position (section 2).

There is a fundamental difference between the behavioural and economic factors, which underlie private and public savings, and these must therefore be examined separately. The difference between household and corporate saving is in contrast not as significant as is commonly thought to be. The controlling shareholders in a corporation have considerable flexibility in deciding whether to save in the form of retained earnings or to give taxable dividends and to save these.

In section 3 the potential factors underlying the private saving rate out of private disposable income are examined briefly. The fact that public savings have become negative over the past few years has rightly caused grave concern. Section 4 presents an extensive analysis of public saving rates out of public disposable income. The different sub-categories of public saving, the sources of government consumption growth, and the behaviour of taxes and subsidies are covered. Section 5 summarises the conclusions.

2. Conventional Saving Ratios

Total Domestic Saving

This section examines the commonly used ratio of gross domestic saving to gross domestic product at factor cost. This ratio indeed reached its highest level of 28% in 1978. The picture given by this raw aggregated data can however be very misleading. There are likely to be random fluctuations in any economic variable, and the single year in which a 28% rate was recorded may be a statistical artifact.²

Table 7.1 shows gross and net ratios for private, public and total saving. On superficial observation, both total gross and total net saving rates show a peak in 1978 (0.28 and 0.23 respectively). If we plot this data, as in Figure 1, there is some evidence of plateauing of the total saving rate around 1977-78

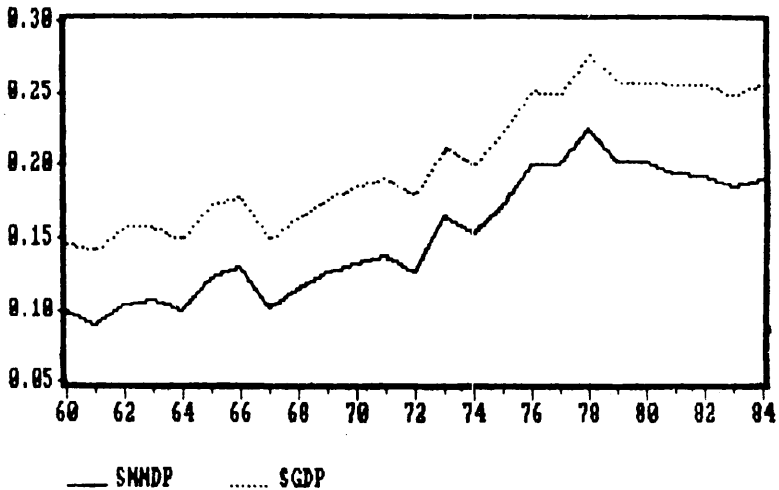


Figure 1. Gross and Net Domestic Saving Ratios

or 1978-79, but none of a systematic decline thereafter. This is confirmed by statistical analysis of trends. When the time trend is allowed to be different in two periods, the time trend term for the second period is statistically insignificant.³

TABLE 7.1. Domestic Saving Ratios: Net (Gross) Saving to NDP (GDP)

<i>Year</i>	<i>Total</i> <i>(SNNDP)</i>	<i>Private</i> <i>(SNPNDP)</i>	<i>Public</i> <i>(SNGNDP)</i>	<i>Total</i> <i>(SGDP)</i>	<i>Private</i> <i>(SPGDP)</i>	<i>Public</i> <i>(SGGDP)</i>
1960	9.92	7.60	2.31	14.63	11.61	3.02
1961	9.08	6.50	2.58	14.04	10.72	3.31
1962	10.36	7.62	2.74	15.63	12.06	3.57
1963	10.69	7.54	3.15	15.63	11.71	3.92
1964	10.05	7.02	3.03	14.75	10.91	3.85
1965	12.33	9.48	2.85	17.22	13.55	3.67
1966	13.01	11.32	1.69	17.75	15.12	2.63
1967	10.16	8.90	1.25	14.81	12.58	2.23
1968	11.45	9.64	1.81	16.38	13.57	2.81
1969	12.70	10.68	2.02	17.65	14.59	3.06
1970	13.23	10.90	2.33	18.46	15.05	3.41
1971	13.83	11.76	2.07	19.09	15.84	3.25
1972	12.56	10.74	1.82	17.95	14.87	3.08
1973	16.47	14.35	2.13	21.16	17.81	3.36
1974	15.26	11.96	3.30	19.98	15.75	4.22
1975	17.26	13.27	3.98	22.28	17.27	5.01
1976	20.13	15.39	4.74	25.16	19.32	5.84
1977	20.07	16.11	3.95	25.00	19.85	5.15
1978	22.58	18.32	4.25	27.67	22.19	5.48
1979	20.30	16.48	3.82	25.90	20.69	5.21
1980	20.17	17.68	2.49	25.87	21.82	4.05
1981	19.56	15.72	3.83	25.59	20.06	5.53
1982	19.26	15.92	3.34	25.60	20.23	5.37
1983	18.61	16.97	1.64	24.95	21.09	3.86
1984	19.20	18.26	0.94	25.72	22.35	3.37

Private Saving Ratio

It is more meaningful however to look separately at the private and public saving rates, because the factors influencing and motivating savings are quite different in the two cases. It is immediately apparent from Table 7.1 that there is not even a notional peak in either the gross or net private saving ratio. Only the public saving ratio shows an apparent peak, but that is in 1976-77 rather than in 1978-79, and we return to this subsequently. A plot of the private saving rate (Figure 2) suggests that this rate may have plateaued out around 1977-78 or 1978-79.

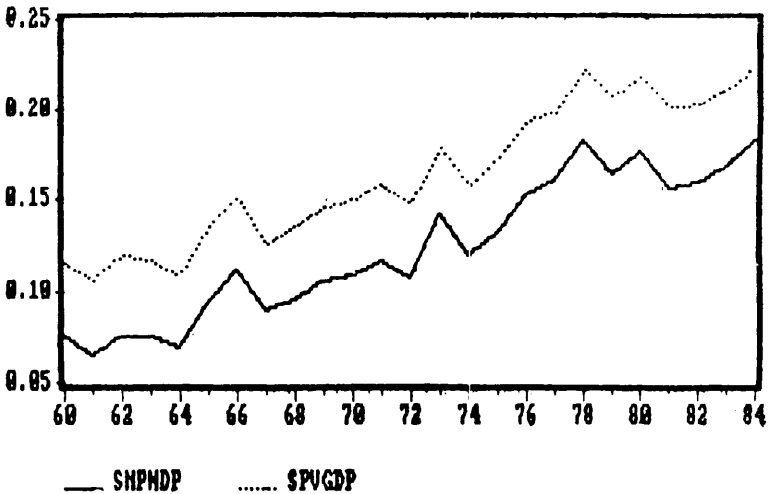


Figure 2. Gross and Net Private Saving Ratios

This visual observation needs however to be confirmed statistically. This is done by running a series of regressions, some of which are reported in Table 7.2. The third regression shows that there is no trend in the private saving ratio over the period 1978-79 to 1984-85.⁴ Comparing the first and second regressions we can see that the second has a slightly higher R-squared (adjusted) than the first. Thus there is some evidence of plateauing in the private saving ratio. Comparison of the

second and fourth regressions shows that the break occurs after 1977-78 rather than after 1978-79. A firmer conclusion of this phenomenon would have been possible if the National Accounts series had remained unchanged.⁵

TABLE 7.2. Private Saving Ratio

$$\text{SPGDP} = -9.7 + 0.005 \text{ YEAR}, \text{ DW} = 1.67, R^2 (\text{Adj.}) = 0.908$$

(-15) (15.4)

$$\text{SPGDP} = -9.3 + 9.7 \text{ D } 78\text{P} + 0.0048 \text{ Y77M} - 0.0001 \text{ Y78P},$$

(-9.9) (2.4) (10.1) (-0.5)

DW = 2.06, R² (Adj.) = 0.926.

$$\text{SPGDP} = -9.3 + 9.5 \text{ D78P} + 0.0048 \text{ Y77M}$$

(-10) (10.3) (10.3)

DW = 2.06, R² (Adj.) = 0.929.

$$\text{SPGDP} = -10.2 + 10.45 \text{ D79P} + 0.005 \text{ Y78M},$$

(-10.7) (10.9) (10.9)

DW = 1.9, R² (Adj.) = 0.91.

Note: (a) Numbers in brackets are *t* statistics. (b) DtP, *t* = 78 or 79 is a dummy variable which is 1 in all years starting at *t*, zero in all previous years. YtM (YtP) is equal to the year in year *t* and all preceding (succeeding) years, and 0 in all years after (before) *t*.

Private; New Series

The new series for the period 1980-1 to 1986-7 are too short to enable any definite conclusions about the current position (Table A3.1). Given that the available data points in the new series are only 7, no trend can be statistically confirmed. A small positive but statistically insignificant trend is observed for the available data.⁶ The private saving ratio has risen from about 0.18 during 1981-82 to 1984-85 to 0.21 in the next two years.

Public Saving Ratio

Though the evidence is not conclusive, this analysis suggests that the more important problem of domestic saving is the public saving performance. No clear trend is visible in the public saving ratio as plotted in Figure 3. Given the apparent peak in 1976-77, the possibility of a structural change around the period 1974-75 to 1976-77 was explored. The result of this analysis suggests that over the period 1960-61 to 1974-75 the public saving ratio fluctuated around 0.33, with no significant trend.⁷ There was a sharp increase in the ratio around 1975-76, and significant downtrend in the ratio thereafter. Over the period 1975-76 to 1984-85 the public saving ratio declined on average by 0.015 every year. The reasons for the structural break probably involve a mix of economic, social and political factors. One potential reason is the deteriorating performance of public enterprises, whose gross savings deteriorated sharply from Rs. 72 crore in 1974-75 to Rs. (-) 312 crore (dis-saving) in 1975-76.

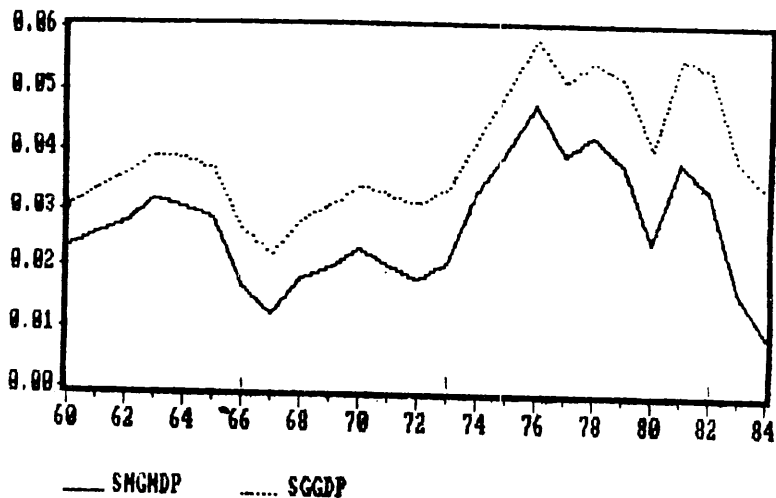


Figure 3. Gross and Net Public Saving Ratios

Public Saving; New Series

The downtrend in the public saving ratio is also confirmed by the latest data (NAS new series). Unlike the private saving ratio, the public saving ratio shows a statistically significant downtrend for the period 1980-81 to 1986-87.⁸ Though the number of data points is limited, one can place some faith in this analysis because it confirms the downtrend observed in the old series. Towards the end of this period there has also been a sharp deterioration in the saving performance of the government's administrative departments. This has probably added to the problem of the poor saving performance of public corporations. The causes and remedies are explored further in Section 4.

Summary

In conclusion, the gross domestic saving ratio which had grown over the sixties and most of the seventies, seemed to plateau out at the end of the seventies. This was primarily due to the levelling of the gross private saving ratio. Though there are some indications of revival of the uptrend in the private saving ratio in the recent past, the public saving performance has worsened. Though policy reform can be used to strengthen the private saving uptrend, there is an overwhelming need to improve the public saving performance. Otherwise, the declining rate of public savings which started in 1975-76, is likely to result in a decline in the total saving ratio.

3. Saving Rates and Behavioural Underpinnings

Net Private Saving Rate

Though the ratios examined above are commonly used because of their relatively easy availability, one must go beyond them if an explanation of saving performance is to be attempted. The private saving rate can be defined as the ratio of net private saving to net private disposable income. Net private saving is obtained by adding retained earnings of domestic corporations to net household saving. Net private disposable income is obtained by adding the same retained earnings to personal disposable income. The net private saving rate as

defined here is found to have virtually the same trend as that observed for the ratio considered in Section 2 (First equation of Table 7.3).

TABLE 7.3. Net Private Saving Rate

$\text{SNPYPD} = -10.3 + 10.5 \text{ D78P} + 0.0053 \text{ Y77M}$	
$(-9.5) \quad (9.6) \quad (9.6)$	
	DW = 2.10, R ² (Adj.) = 0.91
$\text{SNPYPD} = 0.318 - 1108/\text{YPD} - 0.357 \text{ GDP ag/GDP}$	DW = 0.2
$(4.06) \quad (-2.54) \quad (-1.78)$	(0.85)
	DW = 2.16, R ² (Adj.) = 0.84
$\text{SNPPDY} = 0.177 - 1770/\text{YPD} + 0.293 \text{ RETP/YPD,}$	AR = 0.34
$(3.80) \quad (-4.26) \quad (0.05)$	(0.79)
	DW = 2.06, R ² (Adj.) = 0.81

Note : Y77M(D78P) is equal to year (zero) from 1960-61 to 1977-78 and zero (one) thereafter. RETP = retained earnings of private corporations.

Saving from Agricultural Income

The almost steady increase in the saving rate over the sixties well into the late seventies, and its subsequent plateauing, requires some explanation.⁹ One of the explanations suggested by Raj (1962) and Chakravarty (1973) for the rising saving rate (S/Y) has been that the rate of saving out of agricultural income (Y_{ag}) is lower than for other income (Y_{nag}).¹⁰ The saving rate would therefore rise as the proportion of agricultural income in total income declines. Thus if,

$$S = A Y_{ag} + B Y_{nag} + K = BY + (A - B) Y_{ag} + K,$$

$$S/Y = B + K/Y + (A - B) Y_{ag}/Y = B + K/Y + C Y_{ag}/Y,$$

This hypothesis implies that the parameter $C(A)$ is negative and significantly different from zero (B).

This hypothesis is tested by introducing the ratio of real value-added in agriculture to total GDP at factor cost, and estimating by two-stage least squares (second equation in Table 7.3).¹¹ The constant term K and the marginal propensity to save are both significant at the 5% level. This shows an urban marginal propensity to save, of 0.31. The coefficient on the agricultural income term is positive but not significantly different from zero at the 5% level, though it is significant at the 10% level. This taken along with the fact that the adjusted R^2 for the trend equations is higher, leads to the ambiguous conclusion that the hypothesis is either *weakly* supported or weakly rejected.¹²

If the former is accepted, we can also conclude that the total MPS has risen from 14% to 20% as the share of agriculture has declined from 50% to 33%. The MPS would therefore continue to rise as the share of agriculture in GDP declines further.

Corporate Income

We also tested to see whether corporate retained earnings are treated differently from household income by private savers. The ratio of retained earnings to private disposable income was introduced into the basic equation. The coefficient on this term is insignificant (third equation of Table 7.3), indicating that there is no statistical difference between the general MPS and the MPS out of corporate income. This is consistent with our decision to look at private saving as a whole, rather than at household and corporate savings separately. Nevertheless, a brief review of the factual position regarding private corporate savings is given in Appendix 2.

4. Public Saving Rate

Public Income

Public enterprises and corporations earn income in a fashion very similar to private ones, even though the environment in which their managers operate may be quite different. The major source of government "income" is however not income in the conventional sense, but tax revenues.¹³ We can define govern-

TABLE 7.4. Public Saving Rate

$SNGYGD = 0.226 - 0.067 D66P + 30.6 D74P - 0.015 Y74P, AR = 0.366$
(9.4) (-2.33) (3.35) (-3.34) (1.3)
DW = 1.7, R ² (Adj.) = 0.66
$SNGADY = 0.153 - 0.042 D66P + 0.75 D74P + 159.9 D83P - 0.08 Y83P,$
(14.2) (-3.08) (6.50) (2.37) (-2.3)
DW = 2.0, R ² (Adj.) = 0.84
$SNGADY = 0.16 + 49.1 D75P - 0.025 Y75P, AR = 0.82$
(2.43) (1.79) (-1.79) (3.35)
DW = 1.3, R ² (Adj.) = 0.68
Period 1960 to 1971.
$SNGCYG = 7.866 - 0.004 YEAR$
(5.75) (-5.71)
DW = 1.59, R ² (Adj.) = 0.71
Period 1973 to 1984
$SNGCYG = -9.08 + 0.0046 YEAR$
(-2.35) (2.37)
DW = 1.59, R ² (Adj.) = 0.30
$SNGDEY = 3.947 - 0.021 DOILSHK - 0.002 YEAR$
(3.03) (-2.50) (-3.00)
DW = 1.81, R ² (Adj.) = 0.77
$SNGSCY = -11.64 + 0.006 YEAR, AR = 0.78$
(-2.69) (2.71) (5.00)
DW = 1.97, R ² (Adj.) = 0.88
$SNGGCY = 1.62 - 0.001 YEAR, AR = 0.30$
(1.94) (-1.96) (1.44)
DW = 2.05, R ² (Adj.) = 0.26

Note : For t=66, 74, 75 or 83, D_tP=0 (Y_tP=0) in years before t and is one (YEAR) from t onwards. DDILSHK=1 for 1983-84 and 1984-85, and zero in other years.

TABLE 7.5. Public Saving Rate out of Public Disposable Income (per cent)

<i>Year</i>	<i>Total (SNGYGD)</i>	<i>Admin (SNGADY)</i>	<i>Corpra (SNGCYG)</i>	<i>Dept (SNG- DEY)</i>	<i>Statuat (SNG- SCY)</i>	<i>General (SNG- GCY)</i>
1960	22.48	14.69	7.79	7.01	1.19	-0.41
1961	23.60	15.54	8.06	8.27	0.88	-1.09
1962	22.22	14.62	7.60	7.58	1.18	-1.16
1963	22.64	14.17	8.47	7.39	1.45	-0.37
1964	23.65	18.08	5.57	5.08	1.29	-0.80
1965	21.04	14.08	6.96	5.17	2.26	-0.47
1966	14.40	9.45	4.95	4.99	1.53	-1.58
1967	11.62	8.35	3.26	3.43	2.06	-2.22
1968	15.06	11.37	3.69	4.29	1.14	-1.74
1969	16.28	11.38	4.90	4.41	1.33	-0.84
1970	17.83	12.79	5.04	3.50	2.19	-0.64
1971	14.93	10.37	4.55	4.16	1.15	-0.75
1972	13.45	9.39	4.07	2.96	1.58	-0.47
1973	17.84	15.47	2.37	0.40	1.96	0.02
1974	24.77	18.54	6.23	0.97	4.37	0.89
1975	26.51	22.27	4.25	1.88	3.68	-1.32
1976	29.31	19.60	9.71	4.18	5.69	-0.16
1977	28.12	19.70	8.42	5.36	5.99	-2.93
1978	28.45	20.66	7.78	4.16	6.37	-2.74
1979	25.72	19.67	6.06	3.45	4.82	-2.21
1980	19.51	16.29	3.22	2.36	4.08	-3.21
1981	26.13	18.72	7.43	1.51	7.65	-1.73
1982	22.23	12.54	9.69	1.96	9.57	-1.84
1983	12.55	3.79	8.76	1.67	11.32	-4.23
1984	7.19	-4.29	11.47	2.18	11.45	-2.15

ment disposable income (YGD) as Net National Product at market price minus Private disposable income. The public saving rate as calculated using this concept of public income is presented as SNGYGD in Table 7.5. This rate is also disaggregated according to the source of saving (administration and defence, government/public corporations) to obtain ratios which give a breakdown by source of saving.

Public Saving Rate

The rate of total public saving out of public income as defined above is given in Table 7.5 (first column) along with the ratios relating to various sub-components of public saving. From 1960 to 1965 the public saving rate averaged 22.6%. In the aftermath of war and drought the ratio fell sharply by 7 percentage points in 1966 and by a few more points the following year. The sharp fall in 1966 was primarily due to the fall in the saving ratio for Administration and Defence by 5 percentage points (second column). Between 1966 and 1973 the rate of saving averaged 15.2%.

Somewhat surprisingly the saving rate increased by 7% points in 1974, following the oil shock of 1973. This was due to an increase in savings from Administration and Defence and from government statutory corporations. The saving rate has been on a downward trend thereafter, falling on average by 1.5% points a year (Table 7.4).¹⁴ This downtrend appears to have accelerated since about 1983, though this cannot be confirmed statistically, given that the old series ends in 1984.

Income Transfer through Taxation and National Saving

Based on the trend equations, the predicted marginal propensity to save out of government disposal income was about 14% in 1984-85. This was 3.4% points lower than the private MPS of 17.4% predicted by the trend analysis for private disposable income. This implies that a shift of income from private to public hands, as for example through higher taxation, would have resulted in a decline in national saving. In my judgement, however, though higher tax rates are likely to reduce total saving, a rise in the tax ratio through better enforcement is less likely to have this effect as it will tend to draw funds out

of the black economy.

Saving from Administration and Defence

Over the period 1960-61 to 1984-85 saving, from Administration and Defence averaged a little less than 70% of total public savings. There is however a sharp discontinuity in 1983 as the *share* of saving from this source fell to 30%, and became -60% the following year. The trends in the ratio of savings from this source are however fairly similar to that of the total saving rate (second equation of Table 7.4). An alternative equation (third) however performs statistically better, indicating that the downtrend in administrative saving started around 1983, instead of 1974-75 for the total, and has been extremely sharp. As savings of this segment is purely a residual after accounting for current expenses, we will return to this aspect, after looking at non-departmental savings.

Departmental Enterprises, Statutory and General Corporations

With the possible exception of departmental enterprises, the trends in public corporate saving rates have been fairly smooth. Total saving from this source declined from about 8% in 1960-61 to 2% in 1973-74. They then rose to 11% in 1984-85. The rate of decline over the first period of 0.39% points a year was somewhat less than the rate of increase of 0.46% points a year over the second period (Table 7.4). This positive trend in public corporate saving since 1974-75 was the net result of contradictory trends in the three components.

There was a negative trend in the saving ratio for departmental enterprises and general corporations, and a positive trend in the ratio for statutory corporations. The first two show a declining trend of 0.2% point and 0.1% point a year (respectively), over the period 1960-61 to 1984-85. Savings of departmental enterprises also showed an additional decline of 2% because of the oil shock. In contrast, the saving ratio for statutory corporations rose by an average of 0.6% points a year over the whole period. Of *greatest concern* in this context is that the share of saving contributed by general corporations over the period 1983-84 to 1984-85 became -30%. Strong measures need to be taken to eliminate public sector losses,

which are draining public savings.

Government Consumption

As noted earlier in this Section, savings in the administration and defence category are purely a residual after government expenditures on current consumption. This in turn consists of two major sub-categories—government purchases of goods and services, and the wage bill of government employees. The ratio of current consumption to income has ranged between 75.5% and 105%, with an average of 85% over the entire period. Of this, goods purchases have ranged from 33% to 44% of total consumption, with an average of 37% over the period.

The major changes in the ratio of government consumption to income almost exactly mirror (negative of) the major jumps in the total public saving rate. Thus both changed by 7% points between 1965-66 and 1966-67, by an equal and opposite amount between 1973-74 and 1974-75, and by 10% points between 1982-83 and 1983-84 (Table 7.6). It is therefore not surprising to find that the same basic trend equation provides the best fit in the two cases. This indicates an average increase in government consumption of 2.7% points a year starting in 1974-75 (Table 7.7). The implied decline in the savings from administration and defence of 2.7% a year, is almost the same as the 2.5% shown in the third equation in Table 7.4.

Thus a rise in the rate of government consumption is the most important source of the decline in public saving. Analysis of the two sub-categories shows that the ratio of wages and salaries to income grew at a somewhat faster rate than that of commodities to income. Thus after the 1973 oil shock, the former grew by 1.8% points a year while the latter grew by 1.1% points a year. Therefore, over this period the wage bill ratio contributed 60% of the increase in the saving ratio. If the post-1965 jump in the wage bill ratio is also accounted for, its contribution over the entire period is more than 60%.

The Wage Bill: Employment and Real Wages

There are three components to the wage bill: number of employees, real wage rate and rate of inflation.¹⁵ All three

TABLE 7.6 Government Consumption Expenses (Ratio to Income and Source)

<i>Year</i>	<i>Total (%)</i> <i>G CYG</i>	<i>Goods (%)</i> <i>G COMYG</i>	<i>Wages (%)</i> <i>G CWGYG</i>	<i>Labour (lakhs)</i> <i>G CL</i>	<i>Rate-Real (100s)</i> <i>G CWRK</i>	<i>Prices</i> <i>WPI</i>
1960	NA	26.44	NA	NA	NA	0.55
1961	78.36	25.60	52.76	NA	NA	0.55
1962	79.37	29.94	49.43	NA	NA	0.57
1963	78.86	34.80	44.05	NA	NA	0.61
1964	77.56	31.41	46.15	NA	NA	0.68
1965	81.56	33.61	47.96	NA	NA	0.73
1966	88.41	34.50	53.91	55.00	33.49	0.83
1967	91.07	33.45	57.62	51.50	37.03	0.92
1968	88.00	32.00	56.01	52.36	40.61	0.91
1969	86.18	31.60	54.58	53.21	42.90	0.95
1970	84.34	31.77	52.56	54.75	43.27	1.00
1971	87.06	35.19	51.88	56.07	44.75	1.06
1972	86.17	33.70	52.47	57.86	42.87	1.16
1973	84.19	30.22	53.96	60.41	38.74	1.40
1974	77.17	25.73	51.44	62.33	37.54	1.75
1975	78.13	28.39	49.73	66.44	40.69	1.73
1976	75.51	28.31	47.21	66.39	43.75	1.77
1977	81.23	29.33	51.90	67.69	44.03	1.86
1978	73.95	28.61	50.34	69.18	47.75	1.86
1979	83.81	31.72	52.09	70.71	44.53	2.18
1980	96.89	36.26	60.63	72.24	43.88	2.57
1981	86.03	33.19	52.84	73.55	45.35	2.81
1982	89.24	33.66	55.58	75.47	51.50	2.89
1983	99.88	36.94	62.94	78.06	53.11	3.16
1984	105.10	38.18	66.92	79.81	56.71	3.38

TABLE 7.7 Government Consumption: Employees' Wage Bill and Wage Rate

$$\text{GCYG} = 0.793 + 0.076 \text{ D66P} - 53.1 \text{ D74P} + 0.027 \text{ Y74P},$$

$$(42.8) \quad (3.34) \quad (-7.59) \quad (7.59)$$

$$\text{DW} = 2.0, \text{R}^2 (\text{adj.}) = 0.75$$

$$\text{GCOMYG} = 0.322 - 22.3 \text{ D74P} + 0.011 \text{ Y74P},$$

$$(35.9) \quad (-4.33) \quad (4.33)$$

$$\text{DW} = 2.0, \text{R}^2 (\text{adj.}) = 0.62$$

$$\text{GCWGYG} = 0.48 + 0.058 \text{ D66P} - 35.9 \text{ D75P} + 0.018 \text{ Y75P},$$

$$(36.3) \quad (3.48) \quad (-5.56) \quad (5.57)$$

$$\text{DW} = 1.8, \text{R}^2 (\text{adj.}) = 0.67$$

$$\text{LGCL} = -49.6 + 0.027 \text{ YEAR}, \quad \text{AR} = 0.26$$

$$(-25.2) \quad (27.29) \quad (1.93)$$

$$\text{DW} = 1.0, \text{R}^2 (\text{adj.}) = 0.99$$

$$\text{LGCWRK} = -28.8 + 0.017 \text{ YEAR}, \quad \text{AR} = 0.63$$

$$(-2.0) \quad (2.27) \quad (3.07)$$

$$\text{DW} = 1.2, \text{R}^2 (\text{adj.}) = 0.72$$

$$\text{LGCWRK} = 3.74 - 64.6 \text{ D74P} + 0.033 \text{ Y74P}, \quad \text{AR} = 0.46$$

$$(106) \quad (-4.76) \quad (4.76) \quad (2.82)$$

$$\text{DW} = 1.6, \text{R}^2 (\text{adj.}) = 0.81$$

Note : D74P=0 (Y74P=0) till 1973, and is one (YEAR) from 1974 onwards. L before a variable name denotes the Log of that variable.

Saving Performance and Prospects: A Historical Perspective 179

components show a clear and unambiguous uptrend over the period 1966-67 to 1984-85 (Table 7.6). The number of government employees increased at a compound annual growth rate of 2.7% over the period 1966 to 1984 (Table 7.7). This is much faster than the rate of growth of population, and indicates a ballooning of the size of government over this period. It seems to be difficult to justify such rates of increase over decades, by any criterion of social productivity of such employment. More likely, it represents the counterpart of the excessive attention that the government has paid to regulating economic activity. This trend needs to be reversed sharply, and existing manpower reorganised and used more effectively.

The real average wage rate has also grown at a fairly high compound average rate of 1.7% over the same period. Statistical analysis suggests that most of this increase is a post-oil-shock phenomenon. The real average wage rate was basically stable till 1973, and thereafter grew at the rate of 3.2% a year. There is some evidence suggesting that private organised sector real wage rates have been almost stationary over this period. If true, this shows an uncontrollable increase in real government wage rates. There can be two reasons for this. One is an increase in the entire real wage structure, and the other is an increase in grade inflation, which has changed the structure of grades towards higher levels. In either case, strict limits must be put on increases in the real wage bill of different departments, and procedures must be developed for eliminating unproductive programmes and redeploying higher level manpower more effectively.

Government Disposable Income: Taxes

The most important components of net disposable income of the government as defined above are taxes net of subsidies. The ratio of total direct plus indirect taxes to net national product at market price (NNPMP) is shown in Table 7.8 (TDINNP). This ratio has risen from 10% in 1960 to 18.5% in 1984-85 (its highest level), with a statistically significant trend increase of 0.3% points a year (Table 7.9). There is also evidence to show that the rate of increase was faster after the oil shock of 1973 (second equation).

The increase in the tax ratio has been due entirely to the increase in the ratio of indirect taxes to NNPMP (TINNP),

TABLE 7.8 Ratio of Taxes and Subsidies to Net National Product (per cent)

<i>Year</i>	<i>Total</i>	<i>Indirect</i>	<i>Direct</i>	<i>Sub & Subsdes</i>	<i>Trans</i>	<i>Transfer</i>
	(<i>TNPM</i>)	(<i>TINPM</i>)	(<i>TDNPM</i>)	(<i>SUTRNP</i>)	(<i>SUB-NPM</i>)	(<i>TRD-NPM</i>)
1960	10.27	7.32	2.96	1.82	0.65	1.17
1961	11.00	7.90	3.10	2.00	0.73	1.27
1962	12.34	8.77	3.57	2.09	0.90	1.20
1963	13.06	9.24	3.81	1.88	0.80	1.08
1964	12.37	8.86	3.50	1.71	0.67	1.04
1965	13.42	10.00	3.41	2.01	0.84	1.17
1966	13.16	9.97	3.20	2.78	1.58	1.19
1967	11.94	9.12	2.82	2.34	1.16	1.17
1968	12.52	9.61	2.90	2.28	0.90	1.38
1969	12.68	9.67	3.01	2.27	0.85	1.42
1970	13.12	10.23	2.89	2.42	0.89	1.53
1971	14.23	11.10	3.13	2.83	1.04	1.79
1972	14.79	11.52	3.27	3.33	1.23	2.10
1973	13.53	10.56	2.97	2.91	1.27	1.63
1974	14.40	11.41	2.99	3.54	1.80	1.75
1975	16.39	12.62	3.77	3.53	1.60	1.93
1976	16.83	13.15	3.68	3.90	1.85	2.05
1977	16.03	12.63	3.40	4.18	2.09	2.08
1978	17.19	13.86	3.33	4.58	2.40	2.18
1979	17.92	14.56	3.35	4.87	2.50	2.37
1980	16.98	13.99	2.99	4.74	2.37	2.37
1981	17.80	14.57	3.23	4.74	2.30	2.44
1982	18.18	15.02	3.16	5.11	2.49	2.62
1983	17.72	14.73	2.98	5.43	2.84	2.58
1984	18.47	15.54	2.93	6.54	3.64	2.90

which has also increased at a trend rate of 0.3% points a year. This was also at its peak level 15.5% in 1984-85. The direct tax ratio (TDNPM) had no significant trend over the period as a whole. The result was that the share of indirect taxes has increased from about 70% in 1960-61 to 84% in 1984-85.

TABLE 7.9. Trends in Tax and Subsidy Ratios (to NNP)

$$\begin{aligned} \text{TNPM} &= -5.99 + 0.003 \text{ YEAR}, & \text{AR} &= 0.39 \\ &(-8.5) \quad (8.7) & & (2.0) \\ & & \text{DW} &= 1.8, \quad \text{R}^2(\text{adj.}) = 0.90 \end{aligned}$$

$$\begin{aligned} \text{TNPM} &= -3.49 \text{ D74P} - 4.21 \text{ D75P} + 0.0018 \text{ Y74M} + 0.0022 \text{ Y75P} \\ &(-4.4) \quad (-3.17) \quad (4.55) \quad (3.30) \\ & \text{DW} = 1.9, \text{R}^2(\text{adj.}) = 0.93 \end{aligned}$$

$$\begin{aligned} \text{TINPM} &= -6.25 + 0.003 \text{ YEAR}, & \text{AR} &= 0.33 \\ &(-13.2) \quad (13.4) & & (1.6) \\ & \text{DW} = 1.9, \text{R}^2(\text{adj.}) = 0.94 \end{aligned}$$

$$\begin{aligned} \text{TDNPM} &= 1.07 \text{ D74P} + 1.73 \text{ D75P} - 0.0005 \text{ Y74M} - 0.0008 \text{ Y75P} \\ &(2.38) \quad (3.01) \quad (-2.31) \quad (-2.95) \\ & \text{DW} = 1.8, \text{R}^2(\text{adj.}) = 0.58, \quad \text{AR} = 0.43 \end{aligned}$$

Further analysis of the direct tax ratio shows that there is a small but significant declining trend in each of two sub-periods, with a sharp increase between the two (Table 7.9). The decline in the ratio in the period before the oil shock occurred despite the rise in income/wealth tax rates in the late sixties to the mid-seventies. The maximum marginal income tax rate was 95% in 1970-71, and 97.5% during 1971-72 to 1973-74. The effective marginal tax rate on income from certain assets (i.e., including wealth tax) was even higher than 100%.

Following the oil shock there was an increase in the tax ratio in 1975-76 to its peak of 3.8%. With the sharp increase in

inflation in 1973-74 and 1974-75, compensatory nominal income increase must have occurred over 1974-75 and 1975-76. The effect of tax collections during 1974-75 was moderated by the reduction of the highest marginal income tax rate to 80%. With nominal income adjustment largely completed by 1975-76, virtually all income tax payees were pushed into higher brackets by 1975-76, when there was a sharp increase in income tax collections.

Thereafter, the declining trend in the direct tax ratio accelerated somewhat, so that by 1983-84 the ratio was back to the level prevailing before this jump. The incredibly high maximum marginal tax rates of the early seventies provided an enormous incentive for tax evasion. These effects percolate slowly through the system, but are extremely persistent and very difficult to reverse. The only solution to the problem of declining direct tax ratio is a determined and *sustained attack on tax evasion and administrative corruption.*

Government Disposable Income: Subsidies and Transfers

The concept of disposable government income that we have used includes only *net* taxes (taxes minus subsidies). The ratio of net taxes to NNP has barely increased by 2%, on a fitted trend line basis (from 9.9% to 12.8%) over the 24-year period.¹⁶ Formally, therefore, a reduction in subsidies and transfers is an alternative to higher taxation for transferring income from the private to the public sector. From the perspective of raising public saving, however, subsidies can also be viewed as a type of public expenditure.

There has been a phenomenal increase in subsidies and direct transfers over the past two decades. The ratio of subsidies plus transfers to NNP has more than tripled from 1.8% in 1960 to 6.5% in 1984-85. This represented a trend increase of 0.2% points a year. This rate of increase is two-third the trend rate of increase of 0.3% points per year in the tax ratio, with the result that taxes net of subsidies have only grown by 0.1% point a year. In other words, subsidies as a proportion of tax revenue doubled from 17% in 1960-61 to 35% in 1984-85.

Indirect subsidies have increased faster than direct transfers,

with the effect that their share in total subsidies has gone up from 35% to 55%. The time has come to re-examine and refocus both subsidies and transfers. Subsidies going to the prospering middle class of 100 million people must be reduced, by eliminating most production *subsidies to industry*, by appropriate *pricing* of productive infrastructure and levy of reasonable *user charges* for social services. It must be ensured that the poor, constituting roughly 60% of the population, actually receive the benefits which are theoretically budgeted for them.

5. Conclusions

The most disturbing finding is the declining trend in the public saving rate since 1974 (post-oil-shock). This has been declining at a rate of 1.5% points a year. By 1984 the marginal propensity to save out of net public disposable income was lower than the marginal propensity to save out of net private disposable income by at least 3.4% points. This would imply that a transfer of income from private to public hands will reduce national savings. In my judgement, though higher nominal tax rates may do this, simplification and better enforcement of tax provisions will not have this effect. This is because it is likely to draw money out of the black economy.

Three main causes have been identified for this trend. One is the declining trend in the savings of general (i.e., non-statutory) corporations. Particularly disturbing in this context is the very sharp fall in the corporate contribution during 1983-84 and 1984-85 which averaged —30% of public saving. This again brings to the fore the urgent necessity of solving the problem of loss-incurring units.

The second reason is the phenomenal growth in government employment together with rising average real wages. Public employment grew at a compound annual rate of 2.7%, that is, much faster than the rate of population growth. Similarly, the average real wage rate grew at a compound annual rate of 1.7%, a rate which appears to be much higher than wage increases in the private corporate sector. A hard look must be taken at programmes, divisions and departments which are not providing commensurate benefits to the people. Zero-base budgeting may have to be combined with stricter limits on the total real wage bill. A measure of accountability and job flexibility must also

be introduced into public administration.

The third reason is the positive trend in government purchases of goods and service. The ratio of these to public income rose by 1.1% points a year from 1974-75, and was responsible for about 40% of the decline in the ratio of savings from administration and defence to income. The problem of procurement efficiency, of corruption, and of materials management and inventory control must be forcefully addressed. The efficiency of public goods provision by the government must also be examined. In this case, alternative measures to increase responsiveness include local public involvement and private provision of certain services.

NOTES

1. See e.g., Ghosh. A., "Supply Side Economics—Is India Ready for the Recipe?" *Economic and Political Weekly*, June 25, 1988.
2. We are all familiar with the data difficulties with the NAS estimates *vide* Raj Committee. In this section GDP is at factor cost, as this is more relevant for private saving than GDP at market price.
3. $SGDP = -15 + 12.3 D79P + 0.0077 Y78M + 0.0015 Y79P$
 $- (5) (1.3) \quad (5.1) \quad (0.3)$
 $DW = 2.29$ (after adjustment for serial correlation)
 $R^2 = 0.91$. For 1960-61 to 1978-79 $D79P = 0$, $Y79P = 0$, $Y78M = YEAR$, for 1979-80 to 1984-85 $D79P = 1$, $Y79P = YEAR$, $Y78M = 0$.
4. Though unreported, the same is true for the period 1979-80 to 1984-85.
5. An alternative suggestion that the period 1973-1978 witnessed a departure from the trend growth in private saving, is explored in Appendix 1.
6. This equation predicts a ratio of 19.4 in 1989-90 and 21.2 in 1994-95, the base and terminal years of the Eighth Plan.
7. $SGGDP = -0.055 + 3.53 D75P + 0.00004 Y74M - 0.0017 Y75P$
 $- (0.08) (2.39) \quad (0.12) \quad (-2.6)$
 $DW = 1.67$, $R^2 = 0.66$.
8. The trend rate of decline appears to have increased, though non-comparability of the series makes it difficult to say so with confidence.
9. According to the trend equation the predicted marginal propensity to save out of disposable income was 17.4 in 1984-85.

10. Raj, K.N., "The Marginal Rate of Savings in the Indian Economy," *Oxford Economic Papers*, Vol. 14, No. 1, 1962. Chakravarty, S., "Reflections on the Growth Process in the Indian Economy," Foundation Day Lecture at the Administrative Staff College of India, Hyderabad (December 1973). Reprinted in Wadhwa, Charan D. (ed.), *Some Problems of India's Economic Policy*, Tata McGraw Hill Publishing Co., Ltd., 2nd Edition, 1977.
11. OLS will yield biased estimates because savings itself affects the growth of agricultural value-added.
12. Krishnamurti *et al.* (1987) have concluded that it holds. Krishnamurthy, K., K.S. Krishnaswamy and P.D. Sharma, "Saving Behaviour in India: An Overview", in Brahmananda, P.R. and V.R. Panchamukhi (eds.), *The Development Process of the Indian Economy*, Himalaya Publishing House, 1987.
13. If it were not for the virtual uncontrollability of tax evasion, this is a variable over which the government would exercise considerable control.
14. Note that the basic picture is again similar to that of the ratio of gross public saving to GDP, which has a negative trend from 1975. The rate of decline was however much smaller because growing taxes shifted income from private to public.
15. The last is relevant because the adjustment of nominal government income to inflation may be different from that of the adjustment of nominal consumption.
16. This is consistent with national accounting practice.

APPENDIX 1

Private Saving: An Alternative View of Trends

Figure 2 suggests that the private saving ratio may have risen at a faster than average rate over the period 1973-74 to 1978-79. One must however be cautious in picking out sub-periods over which changes may have been faster or slower than average. Normally there should be some exogenous reason for doing so. It has been suggested that a special policy package (including Compulsory Deposit Scheme) during this period may be responsible. In this appendix, we merely carry out some statistical exercises. Subsequent analysis should directly test the effect analysis of these exogenous changes on saving ratios.

Table A1 shows the results of this exercise for the private saving ratio. In the first equation, both a constant dummy (DX) and a slope dummy (UEARX) for the years 1973-74 to 1978-79 are introduced into the constant trend growth equation. Both these are found to be statistically significant.¹ The negative sign on the constant implies that there was a significant decline in the saving rate in 1973-74. This was however more than made up for over the years 1973 to 1978, by a faster than average growth rate of this ratio. In 1979 the saving ratio fell back to its trend line.

Analysis in the text shows however that there was no growth in the private saving ratio after 1978. If we introduce the slope and constant dummy for 1973 to 1978 into the plateauing trend equation, the results are quite different. Neither is significant (second equation of Table A1), suggesting that the plateauing trend representation of the private saving ratio is a better one.²

TABLE A1. Private Saving Ratio: Alternative Trends

$$\text{SPVGDP} = -9.3 - 11 \text{ DX} + 0.005 \text{ YEAR} + 0.0056 \text{ YEAR X}$$

(15.3) (2.2) (15.4) (2.2)

DW = 2.15, R² (adj.) = 0.924.

$$\text{SPVGDP} = -8.0 - 4.5 \text{ DX} + 8.2 \text{ D78P} + 0.004 \text{ Y77M} + 0.0023 \text{ YEAR X}$$

(6.4) (0.93) (6.6) (6.5) (0.93)

DW = 2.3, R² (adj.) = 0.935.

Note: (a) Figures in parentheses are t statistics. (b) SPVGDP is the ratio of gross private saving to gross domestic product. Y77M is equal to the year during 1960 to 1977, and 0 from 1978 to 1984. D78P is zero in the first and one in the second period. YEAR X (DX) is equal to the YEAR (one) during 1973-74 to 1978-79 and zero in all other years.

Overall Aspects of Savings: Measurement in Real Terms 121

Annexure-7 (Concl.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)
1980-81	14079	44.7	3764	12.0	13615	43.3
1981-82	17784	49.1	4511	12.5	13934	38.4
1982-83	20330	50.2	6196	15.3	13950	34.5
1983-84	21988	46.5	6806	14.4	18461	39.1
1984-85	6355	49.0	7505	13.9	19985	37.1
1985-86	28697	46.6	8406	13.7	24413	39.7

II. Revised (1980-81) Series

1980-81	14000	42.5	5691	17.3	13238	40.2
1981-82	17656	42.5	9802	23.6	14114	34.0
1982-83	20219	48.6	10196	24.5	11148	26.8
1983-84	21713	45.1	8670	18.0	17795	36.9
1984-85	26235	48.3	11836	21.8	16224	29.9
1985-86	30553	44.8	12309	18.1	25315	37.1
1986-87	34123	47.5	10334	14.4	27400	38.1

@ The data are not adjusted for (i) errors & omissions and (ii) net purchase of second-hand physical assets.

APPENDIX 2

Corporate Income and Saving

In the body of the paper it has been argued that it is better to look at total private income and saving, rather than at household and corporate saving ratios separately. Nevertheless, when equity markets are imperfect, a case can be made for examining corporate savings separately. A thorough analysis requires modelling of dividend and investment policy of corporations. This is beyond the scope of the present paper, and only the basic factual position regarding corporate savings is examined.

We look first at the conventional corporate saving ratio obtained by dividing net private corporate saving by net national product at market prices (SNCNPM). There is a considerable amount of fluctuation in this ratio over the period 1960-61 to 1984-85 (Table A2.1). The low point was 0.25% in 1967-68, while the high point was 1.17% in 1974-75. The latter was almost reached again in 1979-80 (1.13%). There is however no clear trend in this ratio over this period, with the time trend variable being statistically insignificant (Table A2.2).

There is an impression that the size of the corporate sector has been expanding. If this is true, the fact that the corporate saving ratio has not been rising may be of concern. It is therefore necessary to look at the ratio of private corporate value-added to total value-added. There is a practical problem in obtaining a series for private corporate income. The NAS gives data for the factor income originating in the private organised sector. We assume that this approximates value-added in the private corporate sector.

The ratio of organised private sector value-added to NDP, YPOND_P, is given in Table A2.1. This has fluctuated between 12% and 15% over the period 1960-61 to 1984-85, with a statistically significant negative time trend over the period as a whole. A closer look at the series suggests that negative time trend prevailed till about the mid-seventies. Statistical analysis confirms that the decline took place till 1975, and that the ratio

TABLE A2.1. Corporate Savings, Value-Added and Profits

<i>Year</i>	<i>Saving/NNP (SNCNPM)</i>	<i>VA/NDP (YPONDP)</i>	<i>Save/Profit (SNCPRO)</i>	<i>Profit/NNP (PRONPM)</i>
1960	0.80	14.02	14.89	5.38
1961	0.88	14.26	15.82	5.54
1962	0.87	14.75	15.34	5.70
1963	0.81	14.78	14.31	5.69
1964	0.49	14.01	9.18	5.32
1965	0.44	14.67	8.50	5.21
1966	0.44	13.66	9.57	4.61
1967	0.25	12.05	7.15	3.49
1968	0.27	12.51	7.95	3.35
1969	0.43	12.81	10.66	3.99
1970	0.59	11.85	19.06	3.10
1971	0.70	12.63	20.50	3.43
1972	0.56	12.26	19.80	2.83
1973	0.87	11.07	28.91	2.99
1974	1.17	11.17	34.98	3.35
1975	0.50	11.01	19.52	2.54
1976	0.39	11.69	13.51	2.92
1977	0.50	11.53	19.17	2.63
1978	0.62	11.99	22.51	2.74
1979	1.14	12.16	38.34	2.96
1980	1.03	11.34	39.62	2.61
1981	0.78	11.62	25.73	3.05
1982	0.71	12.15	25.60	2.77
1983	0.56	11.37	23.67	2.37
1984	0.63	11.76	25.36	2.49

stabilised thereafter.³ Thus the facts are the opposite of the impression that the private corporate sector is responsible for an increasing share of economic activity. One possible reason for the confusion, is that the size of the total organised sector has been increasing because of the rapid growth of the public corporate sector.

From the behavioural perspective we should also look at the rate of corporate saving out of profits accruing to this sector. The profits and dividends accruing to the organised private sector is assumed to approximate the net of depreciation income of the private corporate sector. Given these assumptions, we can construct a series for the corporate saving rate (SNCPRO). The most important characteristic of this series is the extremely wide fluctuations to which it is subject, ranging in value from 7% to 40% (Table A2.1). A statistically significant positive trend of 0.09 per year is found in this ratio over the period 1960-61 to 1984-85 (fourth equation of Table A2.2). As the ratio of savings to NNP is stationary over the period, the ratio of profits to NNP must be declining over time. This is consistent with the decline in the ratio of private organised value-added to NNP.⁴

TABLE A2.2 Corporate Saving Trends

$SNCNPM = -0.15 + 0.00008 \text{ YEAR},$	$AR = 0.54$
(−0.57) (0.59)	(2.98)
$DW = 1.66, R^2(\text{adj.}) = 0.26$	
$RYPOND = 2.60 - 0.001 \text{ YEAR},$	$AR = 0.60$
(2.78) (−2.65)	(3.22)
$DW = 1.99, R^2(\text{adj.}) = 0.73$	
$RYPOND = 5.72 - 5.60 D75P - 0.003 Y74M$	
(8.8) (−8.62) (−8.60)	
$DW = 2.01, R^2(\text{adj.}) = 0.83$	
$SNCPRO = -17.8 + 0.009 \text{ YEAR},$	$AR = 0.53$
(−2.39) (2.41)	(2.9)
$DW = 1.51, R^2(\text{adj.}) = 0.58$	

TABLE A3.1 Private Saving Rate and Income (per cent)

<i>Year</i>	<i>Saving Rate (SNPYPD)</i>	<i>GDP AG¹TOT (GAGGDK)</i>	<i>Y Corp¹PV (RETYPD)</i>	<i>YPD/NNPMP (YPDNPM)</i>
1960	7.92	54.20	0.91	90.34
1961	6.79	52.82	1.00	89.79
1962	7.99	50.48	0.99	88.56
1963	7.96	49.34	0.92	87.17
1964	7.35	49.88	0.55	88.13
1965	9.90	45.56	0.50	87.61
1966	11.72	44.64	0.46	89.13
1967	9.17	47.22	0.26	89.97
1968	9.96	46.29	0.28	88.94
1969	11.09	46.25	0.48	88.56
1970	11.22	47.43	0.58	88.06
1971	12.19	46.47	0.80	87.44
1972	10.98	44.08	0.56	87.78
1973	14.63	45.15	0.90	89.11
1974	12.20	43.93	1.17	87.92
1975	13.64	45.11	0.51	86.57
1976	15.95	41.93	0.41	85.60
1977	16.48	43.30	0.51	87.39
1978	18.68	42.16	0.65	86.73
1979	16.58	38.65	1.25	86.98
1980	17.51	40.40	1.12	88.76
1981	15.80	39.87	0.86	87.12
1982	16.09	37.50	0.78	86.80
1983	16.99	38.59	0.61	88.41
1984	18.33	36.92	0.69	88.41

**TABLE A3.2 Gross and Net Saving Ratios To GDP & NNP
(New Series)**

<i>Year</i>	<i>Total SGDP</i>	<i>Private SPGDP</i>	<i>Public SGGDP</i>	<i>Total SNNPM</i>	<i>Private SNPNPM</i>	<i>Public SNGNPM</i>
1980	23.54	19.73	3.81	13.45	13.64	--0.19
1981	23.56	18.49	5.08	13.25	12.28	0.96
1982	21.83	16.90	4.92	11.11	10.58	0.53
1983	22.01	18.37	3.63	11.60	12.28	--0.67
1984	21.69	18.50	3.19	10.97	12.33	--1.36
1985	24.70	21.22	3.48	13.34	14.71	--1.37
1986	24.33	21.44	2.89	12.74	14.82	--2.08

TABLE A3.3 Private and Public Saving Rate (New Series)

<i>Year</i>	<i>Private SNPYPD</i>	<i>Public SNGYGD</i>	<i>Admin SNGADY</i>	<i>PUB Corp. SNGCYG</i>	<i>Dept. Ent. SNGDEY</i>	<i>YPVINNF YPDNPAT</i>
1980	14.92	--2.28	16.96	--19.2	--11.49	91.97
1981	13.65	9.61	19.56	--9.95	--9.63	89.98
1982	11.82	5.03	10.54	--5.51	--8.52	89.55
1983	13.52	--7.33	--0.71	--6.62	--9.44	90.89
1984	13.56	--15.04	--10.16	--4.88	--10.37	90.95
1985	16.38	--13.44	--10.14	--3.30	--7.50	89.79
1986	16.55	--19.98	NA	NA	NA	89.59

NOTES TO APPENDICES

1. Similar results are found for the ratio of household savings to GDP. There is no trend in the ratio of corporate saving to GDP.
2. The results for household saving are the same.
3. See third equation in Table A2.2. The adjusted R² for this equation is significantly higher than for the previous equation.
4. It has been suggested that corporate managers are showing personal expenses as business expenses. For the above results to hold, the switch to this practice must be greater in the organised than in the unorganised sector.

PUBLIC SECTOR IN NATIONAL MEASURES OF SAVINGS AND CAPITAL FORMATION

Uma Datta Roy Choudhury*
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1. Introduction

THE Central Statistical Organisation has recently brought out a New Series on National Accounts Statistics. The primary object of the revision is to adopt a more recent base for the constant price estimates. Thus for the constant price series the base has been shifted from 1970-71 to 1980-81. In the process, of course, the data base and the methodology employed in the estimation of the various aggregates have been comprehensively reviewed and all revisions considered necessary have been incorporated. However, so far as the public sector estimates are concerned, the basic source material has remained the same between the old estimates and the New Series though there has been some major changes in methodology in the form of:

- (i) introducing provision of consumption of fixed capital in the administrative departments for the first time, and
- (ii) estimating consumption of fixed capital in respect of departmental and non departmental commercial undertakings using the new method of estimation which in essence requires the derivation of the figures from independent estimates of gross fixed capital stock obtained

*I have benefited tremendously from discussions with Dr. Arun Ghosh, which have been immensely helpful in formulation of my ideas
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by the Perpetual Inventory Method, rather than on the basis of the depreciation provision as given in the accounts as hitherto.

This change in methodology and approach has resulted in a substantial revision of the estimates of net savings and net capital formation in the public sector. The two tables presented next (Tables 8.1 and 8.2) highlight the extent of the difference between the old and the new estimates of capital formation and savings. Thus in the New Series, net capital formation in the public sector is less by as much as 24 per cent in 1980-81 and by 21 per cent in 1984-85 as compared to the old series while for net savings the corresponding reductions are 110 per cent and 270 per cent in 1980-81 and 1984-85 respectively. Since in the public sector the revisions in the estimates are not due to use of any fresh data but are due to conceptual and methodological changes, it is important to examine carefully these changes in concepts and methods and their appropriateness in the context of measurement. It is also necessary to study the implications of these changes on the actual estimates. This paper seeks to bring out these implications, focusing on a few of the substantive issues.

2. Scope of Public Sector

The annual Reports on National Accounts brought out by the Central Statistical Organisation has a separate section giving the details of public sector transactions in the context of national accounts. Several aspects of the public sector transactions are covered in the annual Report—the more important of these are product originating and capital formation in the public sector and their sectoral breakdown, final consumption expenditure of government administrative departments, finances of capital formation in the public sector, separate estimates of savings generated in administrative departments, departmental and non-departmental commercial enterprises within the public sector, the complete institutionwise economic accounts of the public sector and purposewise classification of expenditures of government administrative departments.

Public sector, by definition, comprises government adminis-

TABLE 8.1 Composition of Net Domestic Capital Formation in Public Sector by Industry of Use, 1980-81 and 1984-85 (At Current Prices)
(Old and New Series)

Economic activity	1980-81			1984-85		
	NAS 1987	NAS 1988	Percentage difference	NAS 1987	NAS 1988	Percentage difference
	(2)	(3)	(4)	(5)	(6)	(7)
1. Agriculture etc.	1920	1573	-18.07	2694	2018	-25.09
1.1 Agriculture	1828	1502	-17.83	2515	1877	-25.37
1.2 Forestry & logging	92	71	-22.83	179	136	-24.02
1.3 Fishing	—	—	—	—	5	—
2. Mining & quarrying	775	816	5.29	1362	1968	44.49
3. Manufacturing	2262	2107	-17.76	3996	3430	-14.16
3.1 Registered	2562	2107	-17.76	3996	3430	-14.16
3.2 Unregistered	—	—	—	—	—	—
4. Electricity, Gas & Water supply	2611	1837	-29.64	4675	3199	-31.57
5. Construction	230	187	-18.70	120	67	-44.17
6. Trade, hotels and restaurant	-358	-319	10.89	1242	1243	0.08
7. Transport, storage and communication	1347	658	-51.15	2232	1257	-43.68
7.1 Railways	650	291	-55.23	851	371	-56.40

(Contd.)

Table 8.1 (Contd.)

Economic activity	1980-81		1984-85		Percentage difference	(7)
	NAS 1987	NAS 1988	NAS 1987	NAS 1988		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
7.2 Transport by other means	425	211	-50.35	661	385	-41.75
7.3 Storage						
7.4 Communication	272	156	-42.65	720	501	-30.42
8. Financing, insurance, real estate and business services	103	78	-24.27	203	218	7.39
8.1 Banking & insurance	103	78	-24.27	203	218	7.39
8.2 Real estate, ownership of dwellings & business services	—	—	—	—	—	—
9. Community, social & personal services	2798	2168	-22.52	4720	3447	-26.97
9.1 Public Admin. & Defence	2276	1922*	-15.55	3849	3136	-18.52
9.2 Other services	522	246	-52.87	871	311	-64.29
10. TOTAL	11988	9105	-24.04	21244	16847	-20.70

* Rs. 132 crore shown against real estate and business services (administrative departments) have been included under public administration and defence.

TABLE 8.2 Public Sector Net Saving by Type of Institution
(Old and New Series)

Institution type	(Rs. crore)					
	1980-81	1981-82	1982-83	1983-84	1984-85	
(1)	(2)	(3)	(4)	(5)	(6)	(6)
1. Administrative Departments and Departmental Enterprises						
Old series : total	2509	3593	2927	1136	— 483	— 483
New series : admn. dept.	1795	2842	1764	-- 122	—1893	—1893
: dept. enterprises	—1216	—1400	—1426	—1624	—1932	—1932
: total	579	1442	338	—1746	—3825	—3825
Difference (new—old)	—1930	—2151	—2589	—2882	—3342	—3342
2. Non-Departmental Enterprises						
Old series	116	1046	1560	1476	2128	2128
New series	— 820	— 46	504	484	1023	1023
Difference (new—old)	— 936	—1092	—1056	— 992	—1105	—1105
3. Public Sector : Total						
Old series	2625	4639	4487	2612	1645	1645
New series	— 241	1396	842	—1262	—2802	—2802
Difference (new—old)	—2866	—3243	—3645	—3874	—4447	—4447

trative departments, commercial undertakings run departmentally by the government and classified as departmental commercial undertakings (DCUS) and non-departmental commercial undertakings, i.e., government companies and statutory corporations (NDCUS). Government administrative departments include all Central, State and local government offices, district authorities and other bodies engaged in administration or defence of the country and maintenance of law and order. Departmental commercial undertakings are unincorporated enterprises owned and controlled by the public authorities. These undertakings have accounting data for production, costs, sales, income, etc., but not a full set of accounts. Non-departmental commercial undertakings are mainly owned/controlled by the government and have a full set of accounts.

3. Data Availability

For the public sector generally, the availability of basic data gives little cause for complaint though a great amount of reclassification of original data becomes necessary to bring them in line with national accounts concepts and to present the results in the desired format. For government administrative departments and DCUS the reclassification is of the details contained in the budget documents and annual accounts of Central and State governments, Union territories, local authorities and similar other bodies. In the case of non departmental enterprises the problem is less complicated as the data are obtained by analysing the annual profit and loss accounts and balance sheets besides other details available from their annual reports.

The purpose of this description is to stress the point that for government administrative departments, though the details of revenue and expenditure are readily available and form the basis of the estimates presented in National Accounts Statistics annually, the estimates depend very much on the criteria adopted for reclassification of different entries in the budget documents. Thus for compiling the economic accounts, various items of transactions, which appear in the budget documents and annual reports, are classified into different economic categories. In this process it is necessary to classify these transactions into

current and capital expenditures, segregate administrative services from entrepreneurial activities and separate the transactions relating to current consumption from financial transactions.

The accounts of the government that are normally available are kept on a very simple basis of cash accounting, which involves the recording of all actual receipts and disbursements of cash as and when and where they occur. At the same time, distinction is drawn between the items of revenue, capital, debt and remittances and all transactions are entered in the budget accounts accordingly. The revenue account broadly contains all items supposed to relate to current revenue transactions. The distinction drawn by the public authorities between revenue and capital transactions do not always tally with the distinction desirable from the point of view of national income accounting. The categorisation is influenced mainly by the nature of the sources of finance, and therefore, if some item of capital nature is financed out of current proceeds of taxation it is likely to be recorded under revenue account. For national accounts, all such entries need to be reclassified. To cite a few examples, building and construction activity, even when included in revenue account of the budget, are to be reclassified as capital expenditure. Similarly all outlay on civil works, debited to revenue account in budgets, are treated as capital expenditure. Following national income convention, all defence expenditure even when they are of capital nature, are treated as current expenditure, since capital assets required for defence purposes are assumed not to form part of the productive resources of the community. Of late, however, housing and border roads constructed out of "defence expenditure" are being treated as capital outlay.

4. Method of Estimation

Having completed the reclassification of the budgets of administrative departments and DCUS as well as analysis of the annual reports of NDCUS, the estimates of their contributions to gross domestic product, gross capital formation and savings originating are estimated. Thus for capital formation estimates, all the actual expenditures incurred under fixed capital formation, increase in stocks and purchase and sale of

second-hand assets are culled out from these sources to prepare the estimates.

For measurement of savings of the government administrative departments, the total current expenditures are deducted from total current receipts. The items of expenditure include (i) consumption expenditure, (ii) interest on public debt, (iii) subsidies and (iv) current transfers, while the receipts consist of (i) direct taxes (ii) indirect taxes, (iii) income from entrepreneurship and property and (iv) miscellaneous receipts. In the process, there is a difference between the "revenue surplus or deficit" of government and "government saving" as calculated for national income accounting purposes. The net savings of government companies and statutory corporations (NDCUS) are estimated using the results of the analysis of the annual accounts of these companies and corporations. The net saving is obtained as the aggregate of net transfers to balance sheet and net transfer to reserve.

Besides estimating domestic product, final current consumption expenditure, capital formation and savings, the detailed information available are utilised to prepare the economic accounts of the public sector separately for administrative departments, departmental and non-departmental enterprises further split into subsectors wherever possible. For the economic accounts, the results of the analysis of the budgets and annual reports are consolidated in a meaningful form, thus separating out all current expenditures from the capital ones, administrative services from entrepreneurial activities and transactions in commodities and services from financial transactions. For NDCUS the annual reports detail in the form of trading/contract/manufacturing account, profit and loss account, appropriation account, expenditure during construction account and the balance sheet are used to prepare the economic accounts. The Capital Finance Account within the system of economic accounts contains the relevant details of capital formation, its sources of finance, and changes in financial assets and liabilities. The primary source for this account is the balance sheet though the appropriation and profit and loss accounts also provide some details.

5. Changes in Method of Estimation

In the past, for public administration and defence, estimates of consumption of fixed capital were neither available nor attempted, it being argued that maintenance expenditure of capital owned by government administrative departments included in the budgets were sufficient to keep the capital intact and no independent provision of fixed capital consumption need be provided. Moreover, all expenditure on works (other than repairs and annual 'contingent replacements) were treated as part of gross capital formation. Since the budgets follow the principle of cash accounting, thus recording all actual receipts and disbursements of cash as and when they actually occur, this approach did not disturb the overall principles of budget data and their correspondence with the national income statistics and economic accounts. Because of this approach, for administrative departments of the government, gross capital formation and gross savings were treated as equivalent to the net figures. For fixed capital formation the estimate included new fixed capital formation plus major works and minor works (shown in the budgets as current expenditure). It is however to be noted that maintenance expenditure was not treated as capital expenditure, but as expenditure on commodities and services.

As has already been mentioned at the outset, the major change introduced in the New Series, in the case of government administrative departments has been the adoption of the principle that the concept of consumption of fixed capital is relevant for this sector as well. Since no data on consumption of fixed capital are available in the budgets, the introduction of this concept has necessitated the imputation of the value of consumption of fixed capital for government administrative departments. This has been done by adopting the Perpetual Inventory Method for assets owned by government administrative departments. The introduction of the provision of consumption of fixed capital for public administration and defence in the New Series has meant revision of the estimates of domestic product, capital formation and savings and has in the process disturbed the basic principle of the budgets. This adjustment therefore needs to be followed up with further adjustments required to construct a (limited) Production Account of government administrative departments. In other words, for government admini-

nistrative departments, the introduction of the imputed amount of consumption of fixed capital as an item of receipt in the Capital Finance Account and as an item of input in the Production Account can no longer leave undisturbed the total revenue and total expenditure as available from the budget documents. Thus the implications of the introduction of 'provision of consumption of fixed capital in the administrative departments for the first time' [page 38, paragraph 4.1 (i) of *New Series on National Accounts Statistics*, CSO, February 1988] are manifold and not limited to the three broad measures of domestic product, capital formation and savings. The construction of a Production Account for government administrative departments in this context, and the implications thereof, need to be recognised.

A conceptual issue which arises in this context, can be elaborated as follows. Since now depreciation provision is being "imputed" for buildings and other assets of public administration and defence, should not the maintenance expenditure (currently treated as final expenditure, i.e., services produced for own use) be treated as "intermediate expenditure" and not final expenditure? In the UN system of National Accounts (SNA), all government administrative expenditure is treated either as final consumption or capital formation. Government administration therefore does not have a production account similar to those for commodities/industries and as such does not have any intermediate expenditure which is used in the process of production. In the case of government administrative departments "other goods and services" are mainly produced for their own final consumption expenditure and the relevant Account in the UN SNA is framed accordingly. However the logic of the new methodology adopted by the CSO requires that a certain depreciation provision be "imputed" in respect of all capital assets of government administration; this "imputed" depreciation provision has to be added to the gross domestic product (on the assumption that these assets give a stream of income, by definition equated to the imputed depreciation provision); and the imputed depreciation provision being treated as the consumption of fixed capital would have to be a deduction from gross capital formation to derive net capital for-

mation. One could go a step further and argue that in principle, such imputed income on capital assets of government administrative departments should be computed by taking the prevailing market rates and not equated to imputed depreciation provision. This point is elaborated further subsequently using hypothetical illustration with figures.

Implicit in the above procedure is the construction of a hypothetical production account of government administration (similar to those for commodities/industries), whether or not such an account is formulated and separately delineated. It stands to reason that under such situation current repairs and maintenance expenditure, which is today treated as government final consumption expenditure, cannot any longer be so treated and has to be shown as "intermediate expenditure" used in the process of production (in the present instance, for maintenance of the capital assets). To this extent then, government final consumption expenditure should go down. The net product of government administration and defence will be increased (by the imputed income earned from the assets) and gross capital formation by government administrative departments will be measured as capital expenditure *plus* maintenance expenditure (which in the past was treated as adequate to keep intact the stock of capital assets of government administration). Net capital formation will then be obtained as gross capital formation *minus* the consumption of fixed capital (i.e., "imputed" value of depreciation provision).

6. Domestic Product

Considering each of the principal aggregates individually, domestic product would have to be inflated, at the minimum by the total amount shown under consumption of fixed capital if in principle it is accepted that an imputation in this respect is desirable and necessary. This is so because by definition value added by public administration and defence comprises only compensation of employees which are obtained by analysing the budget documents and annual accounts. Thus in the Production Account both gross input and gross output total must increase by the amount of imputed income from the assets of the government. In principle, such imputed income should be com-

puted by taking the prevailing market rates of rent for hiring similar assets and deducting from it the cost incurred by government on their maintenance (e.g., the cost of running the CPWD establishment for Central Government buildings, which of course figures in the Production Account of the Government sector separately under wages, etc.). There can no doubt be a case for deducting the consumption of fixed capital from the imputed income so computed in order to arrive at the net domestic product if it is felt that the expenditure on maintenance is not adequate for keeping the assets "intact". There may be practical problems (and also conceptual objections) in estimating national income from assets like public roads and bridges (the services of which are in the nature of public good) for which there is no rental market. But this cannot be said of assets for which there is a market especially when even the government goes to the market to meet its requirement which its existing assets cannot fulfil. In fact one can argue (as indeed has been argued by Rakshit) that GDP is understated if the imputed rent of assets owned by the government is not included in production account while the rent paid by government for assets hired by it goes into the national income estimates. One problem for which there should be proper consideration is that though maintenance of an asset can extend its life, it cannot obviate its obsolescence. For satisfactory and realistic measurement one has to address oneself to this problem also, which CSO does not.

The proper way to tackle this problem in estimation of GDP is to take the net imputed return on such assets (that is, those for which there is a market) and to deduct depreciation therefrom to arrive at the estimates of NDP. For assets like roads, bridges and dams, no imputation and addition to GDP seems needed or justified, since consumption of the imputed income from these assets can be treated as intermediate consumption for the economy as a whole.

The new series of national accounts seems to proceed on the assumption that "provision for consumption of fixed capital", which is nothing but depreciation itself, constitutes the imputed income from the assets in question. The logic underlying this assumption is not clear. How can depreciation provide a

measure of income generated by a given asset? As Kaldor pointed out in his celebrated Appendix on the Concept of Income in *Expenditure Tax*, in the absence of uncertainty, income can be viewed as a stream of interest on capital. But how can income be equated with capital consumption? If the income from assets were no different from their depreciation there could be no motivation for any capital formation at all. If income is to be imputed to government assets, its estimates should be based on rational principles.

As for depreciation, there can be no doubt that there is a case for providing for depreciation of assets of government administrative departments if it is felt that the expenditure on repair and maintenance is inadequate to keep the asset intact at the end of an accounting period. To quote the 1978 UN Manual on the SNA:

“Consumption of fixed capital may be defined in general terms as that part of gross product which is required to replace fixed capital used up in the process of production during the period of account. This flow is based on the concept of the expected economic life time of the individual assets; and is designed to cover the loss in value due to foreseen obsolescence and the normal amount of accidental damage which is not made good by repair, as well as normal wear and tear. Unforeseen obsolescence is treated as a capital loss at the time at which it actually occurs, rather than as fixed capital consumption. Charges for the depletion of exhaustible natural resources are not included in the consumption of fixed capital.

“In principle, the scope of the capital equipment for which consumption should be recorded is given by the definition of gross fixed capital formation. Because of practical difficulties, consumption of fixed capital is not, however, provided for in the case of assets of government services such as roads, dams, breakwaters or other forms of construction except structures. In these instances, it may be considered that outlays on repair and maintenance are sufficient to maintain the assets in their original condition. It should be noted that consumption of fixed capital is to be charged in

respect of all other fixed assets of the producers of government services, including for buildings.”

Recent thinking on the subject suggests that a prudent approach may be called for “where it is apparent that the necessary maintenance is not being done.” But in all such cases (that is, where a provision is thought necessary for depreciation over and above repair and maintenance), only the excess of depreciation over repair and maintenance should be deducted. The revised series does not seem to take this precaution. To the extent repair and maintenance has been allowed for in addition to depreciation there is clearly a double deduction.

It will thus be seen that the innovation in the new series of national accounts by way of charging depreciation in respect of government fixed assets has imparted a downward bias in the estimates of income generated in the public sector, by not taking the imputed income from assets which have a market on the basis of market rental and by providing for depreciation on a national basis even for assets like public roads and bridges, adding the same as imputed income and deducting the same from domestic product of government administrative departments (gross) derived. The impact which this bias can have on the estimates of the domestic product, capital formation and saving of government administrative departments has been illustrated with reference to the figures for a few selected years towards the end of the paper.

7. Capital Formation

Capital formation of public administration and defence covers (i) capital expenditure (including expenditures on major and minor works) on roads, bridges, vehicles, public buildings, (ii) additions to plants and machinery and (iii) fixed assets acquired/constructed in the defence department for civilian use only. These details of expenditures of capital nature need to be culled out from the budgets. Thus, for example, expenditures on works (particularly minor) are often included under current account in the budgets and for national accounts are reclassified to form a part of capital expenditure. The old estimates of gross and net capital formation were treated as equivalent as

maintenance expenditure (both major and minor) was netted out and included under final consumption expenditure of government administrative departments. For the New Series, on the other hand, the imputed value of consumption of fixed capital is being deducted from the old estimates of gross capital formation (which includes no maintenance expenditure) to obtain the new estimates of net capital formation. For a correct measure, revision in these estimates is called for. Since consumption of fixed capital is being imputed, first revised estimates of gross capital formation would have to be obtained as the *sum* of old estimates of capital expenditure and the maintenance expenditure (at least the major ones) recorded in the budget documents and already accounted for under current consumption. To impute and deduct the imputed value of total capital consumption expenditure without adjusting the figures of gross capital formation (old estimates) would imply over-compensating for capital consumption. Therefore for meaningful measures of gross and net capital formation in the case of government administrative departments, first the revision of the old estimates of gross capital formation will have to be carefully undertaken and net capital formation derived thereafter. A mere deduction of the estimates of consumption of fixed capital from the old figures of gross capital formation without adjusting these old figures for higher figures of depreciation (imputed) would not be enough. According to the past practice, all maintenance expenditures on buildings, construction and other items of capital nature incurred by administrative departments (including all expenditures on repairs and annual contingent replacements) were treated as current expenditure and included under final current consumption expenditure of the government. Since the details of such expenditures included in the budget documents and classified under current expenditures of government administrative departments are not readily available in the annual reports on National Accounts Statistics, it is not possible to make such adjustments outright. It is essential in this connection that:

(i) All such expenditures of maintenance nature are first culled out from the budget documents;

(ii) their treatment in the economic accounts identified, and to the extent that they should, by definition, be classified as

likely to merit being treated as if made out of depreciation provision, and those which are of the nature of routine maintenance expenditure segregated, the former being taken to form a part of gross capital formation, while the latter being taken to be *intermediate* expenditure (and not final government consumption expenditure);

(iii) the excess, if any, between the new estimates of consumption of fixed capital and maintenance expenditure identified as part of depreciation should then be added to the old estimates of gross capital formation and, finally,

(iv) net capital formation should be obtained by netting the new estimates of gross capital formation for consumption of fixed capital. In the process final current consumption expenditure of government administrative departments should be adjusted to be net of (a) intermediate expenditure as well as (b) that part of maintenance expenditure which has been defined to form part of gross capital formation but earlier treated as current consumption expenditure.

In other words, currently the New Series *under-estimates* Net Capital Formation of government administrative departments to the extent that there is excess accounting for capital consumption expenditure just as in the old estimates gross capital formation is not estimated at all as large maintenance expenditures are not taken as consumption of fixed capital but are treated as current final consumption expenditure.

8. Gross and Net Savings

For measurement of gross and net savings of government administrative departments the adjustments which are called for are even more complicated. For the old estimates, total current expenditures are deducted from total current receipts to obtain net savings. It is argued that repairs and maintenance expenditure undertaken for capital assets in government administrative departments is sufficient to maintain the capital services of the assets intact and no separate depreciation provision need therefore be provided. Also, since the budget accounts are maintained on a cash basis, recording transactions as and when they actually occur, providing for depreciation provision would require its meaningful treatment, departing

from the general principle of budget accounting and also revision of the figures of total revenue and total expenditure which are the controlling totals of the accounts. The estimates of gross savings were therefore not attempted in the old series. As has already been explicitly stated in the earlier section, the maintenance expenditure which was assumed to keep the capital intact and should normally be added to net savings to obtain corresponding gross saving was not added and these expenditures were treated as part of final current consumption expenditure of government.

The New Series of National Accounts does not apparently consider this aspect of the problem, i.e., the implications of imputation of consumption of fixed capital, especially with reference to the need to set up a separate enterprise 'Product Account' for government administration which will include an (imputed) income from the existing stock of capital. It continues to keep the old estimates of savings undisturbed and obtains the revised estimates of net saving as old estimates of savings *minus* estimated figures of consumption of fixed capital. In other words, total expenditure of government administrative departments is inflated by the amount of consumption of fixed capital with no corresponding adjustment to total revenue for this imputed item introduced as an item of government transaction. The adjustments in the old estimates of savings as well in the New Series have to be carefully carried out to obtain new estimates of gross and net savings if the estimates are to be meaningful and realistic and accounting balance maintained. The adjustments required would be obverse of these carried out with reference to capital formation/capital consumption.

9. Capital Consumption of Public Enterprises

In the case of Departmental and Non-departmental Commercial Undertakings, primary factor leading to the revision of the old estimates of net capital formation and net savings is replacement of the old estimates of consumption of fixed capital by the new ones. Arguing that the previous estimates of consumption of fixed capital for DCUS and NDCUS were based on provision for depreciation in the books of account of the enterprises and therefore require revision, current estimates.

of consumption of fixed capital are said to be more realistic. These are claimed to be based on the Perpetual Inventory Method which in principle assumes to have access to reliable estimates of capital expenditure and age structure of the assets in existence. In principle, this is correct. However, considering the wide-ranging structural differences between the whole gamut of public sector undertakings ranging from Railways and Communication which have been in existence over a century to the most recent technologically advanced sophisticated non-departmental enterprises (e.g., Electronics with high rate of obsolescence irrespective of age) to the sick industries taken over by the public sector from time to time, it is very difficult to appreciate how, reliable data on age structure of the assets in existence and their current replacement value could have been obtained and to what extent they are realistic in the Indian context. One knows, for example, that the Indian Airlines is operating planes which are more than 17 years old but in the CSO estimates the life of planes is assumed at 10 years. (The Boeing 737 which crashed at Allahabad is known to have been 17 years old.) In this context, the difference between normal expected useful age of assets and the economic age of assets (taking account of obsolescence) has also to be kept in mind. In the light of the points raised above, suffice it to say that indications suggest that the estimates of consumption of fixed capital are over-estimated by the use of the new method on the basis of limited available data, resulting in under-estimation of both net capital formation and net savings in the new series.

The likelihood of net savings having been under-estimated in the New Series of National Accounts Statistics is, to some extent, suggested by the level of the estimates themselves, which are presented in Table 8 3.

10. Revision of Estimates Essential: A Hypothetical Exercise

The discussion so far makes it amply clear that for the government administrative departments, to obtain a set of estimates of domestic product, capital formation and savings consistent with budgets as well as the "imputed" value of depreciation provision, it will be necessary to make several adjustments

TABLE 8.3 Public Sector Net Savings

(Rs. crore)

	1980- 81	1981- 82	1982- 83	1983- 84	1984- 85	1985- 86
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Administrative departments	1795	2842	1764	-122	-1893	-2423
Departmental enterprises	-1216	-1400	-1426	1624	-1932	-1791
Non-departmental enterprises	-320	-46	504	484	1023	1003
TOTAL	-241	1396	842	-1262	-2802	-3211

to the figures presented in the *New Series on National Accounts Statistics*. These adjustments mainly refer to (i) imputation of income on capital assets of government administrative departments and adjustment of domestic product accordingly, (ii) setting up of a "Production Account" for government administrative departments along the same lines as for enterprises with imputed income under (i) above as an output entry, (iii) identification of all maintenance expenditure from the budgets and classifying them into (a) those which are in the nature of routine maintenance and (b) those that are major maintenance expenditure and merit being treated as if made out of depreciation provision, (iv) treating [(iii) (a)] as "intermediate expenditure" in the new Production Account and [(iii) (b)] as part of gross capital formation and gross savings and lastly, (v) reducing final consumption expenditure of government administrative departments by the amount of total maintenance expenditure under (iii) above which now appear either in the Production Account or in the Capital Finance Account of government administrative departments.

Considering first the imputation of return to capital asset

of government administrative departments, these assets fall under a number of categories, viz., buildings, roads, bridges, dams, transport equipments, other machinery and equipments and the like. There is a clear distinction between the different categories. The administrative buildings and houses (let out on rent) are on two planes; roads, bridges and dams, etc are yet on a third plane. In so far as the latter are concerned, the benefits accruing from such assets accrue to the community, sometimes identifiable and sometimes not. This benefit would mean increase in income in different industries in the private sector, viz, farms, factories, trade and transport undertakings. When setting up a Production Account and "imputing" depreciation (as met out of income), this element—indeed, the entire imputed income—should be a deduction from the income generated in other sectors. The proportionality of the deductions between different sectors must remain conjectural and arbitrary.

In so far as buildings are concerned, houses let out by government administrative departments pose no problem, the incomes *ought* to be reflected in "income from property", and correct depreciation ought to be charged as a deduction on income generated. But government administrative buildings pose a different issue. Government is supposed to enjoy an income, and by definition, this income has been equated to depreciation provision. This is questionable as today, many government departments function from hired buildings where rent obviously is being paid at market rates. As such, should not the imputation of the rental income be at the same rate for equivalent space as paid by the government for buildings? Such an exercise has been undertaken (Table 3.4) taking the rate of return as 10 per cent which is considered to be most conservative market rate prevailing currently. From the accounting point of view this imputation would mean that the imputed income (less depreciation) must be added to total input of Production Account of government administration and also to output, i.e., government consumption as 'service produced for own use'. In other words, both domestic product and government consumption must change. An additional factor for which the latter must also be reviewed is the inclusion of

TABLE 8.4 Adjusted Estimates of Domestic Product, Capital Formation and Saving of Government Administrative Departments for Selected Years (current prices)
(Rs. crore)

Item	1980-81		1984-85		1985-86	
	(2)	(3)	(3)	(4)		
A. DOMESTIC PRODUCT						
1. Gross domestic product	: New Series	5794	10836	12359		
2. Imputed income*	: Adjusted	1490	2812	3321		
3. Gross domestic product	: New Series	7284	13648	15680		
4. Net domestic product	: Adjusted	5307	6763	7180		
5. Net domestic product	: New Series	6797	9575	10501		
B. CAPITAL FORMATION						
6. Gross capital formation	: New Series	3101	5328	6477		
7. Large maintenance expenditures	: Estimated	523	974	1170		
8. Gross capital formation	: Adjusted	3624	6302	7647		
9. Depreciation	: New Series	764	1578	1933		
10. Net capital formation	: New Series	2337	3750	4544		
11. Net capital formation	: Adjusted	2860	4724	5714		
C. SAVINGS						
12. Gross savings	: New Series	2559	-315	-490		
13. Large maintenance expenditures	: Estimated	523	974	1170		
14. Gross savings	: Adjusted	3082	659	680		
15. Depreciation	: New Series	764	1578	1933		
16. Net savings	: New Series	1795	-1893	-2423		
17. Net savings	: Adjusted	2318	-919	-1253		

*For conceptual basis, see section on "Revision of Estimates Essential: A Hypothetical Exercise" and Notes which follow.

imputed depreciation provision as final consumption in the New Series and the effect which the current exercise of imputed income (i.e., return to capital assets) will have on such a treatment.

As regards government capital assets in the form of roads, bridges, dams and other infrastructure, similar questions might be raised. In other words, government ownership of assets involves investment and hence a cost and therefore "imputation" of a rate of return (at 10 per cent or 12 per cent or whatever rate of discount is recommended) can be deemed justified. This imputed income should then also be entered in the Production Account of the government administration with the amount being treated as *cost* to the rest of the economy and not to the government. This *cost* to the rest of the economy will then need to be deducted as "intermediate consumption" from the income/value-added of the rest of the economy. In other words, this amount is *not* consumption of government but intermediate consumption of other economic activities according to the benefits that they derive (similar to the treatment of irrigation activity under other departmental enterprises). This is very complicated as roads, bridges and other infrastructure benefit not only economic activities like trade or transport but the entire economy. However, since depreciation provision for such items is being imputed, the two might be assumed equivalent and imputed income increased accordingly. This seems to have been done in the New Series of CSO but has not been incorporated here. The reasons for our reservations in adopting depreciation as equivalent to imputed income of the government administration has already been set out above. In view of this, and also paucity of data, it has been decided not to impute for such government investments till the complex theoretical and practical issues involved are resolved satisfactorily. Thus, the adjusted GDP in Table 8.4 possibly suffers from a downward bias.

It is unfortunate that consolidated (Centre, State, local government, etc.) figures of maintenance expenditure and its components, i.e., routine repairs and maintenance and major maintenance (which merit being treated as if met from depreciation provision) are not readily available and it is not

possible to rework the estimates of gross capital formation and gross savings and the corresponding net figures to demonstrate the extent of actual revision necessary. Preparing the revised estimates using the details from the budget documents is not a difficult proposition, though time consuming. It is also possible that these details are readily available in the overall summary background work sheets of public sector estimates of capital formation and final consumption expenditure prepared by the CSO and reclassification of the figures along the lines indicated above will give the results without much difficulty. For the current exercise, however, the examination of the Demands for Grants for a number of Central Government Ministries suggests that total maintenance expenditure is of the order of 6 per cent of government final consumption expenditure. Using this ratio, total amount of maintenance expenditure has been estimated and it has further been assumed that 2 per cent of this is in the nature of routine maintenance and should therefore be treated as intermediate consumption and the rest added to capital formation and saving to obtain gross figures before depreciation provision as estimated by CSO is deducted to obtain net estimates. Tables 8.4 and 8.5 give the results of the exercise for a few selected years.

11. Conclusion

Because of the comparatively comfortable position regarding the availability of data, measurement of macro-aggregates for the public sector has generally not been considered to be problematic. However, as is obvious from the above discussion, the problem is not as simple as is generally suggested by the data users and the estimators. It is essential that the conceptual problems that arise from the introduction of the new methodology are resolved, and consistent estimates of savings and capital formation for the public sector are prepared after resolution of the issues raised in the paper.

TABLE 8.5. Adjusted Production Account of Producers of Government Services, 1980-81, 1984-85 and 1985-86 (at current prices)

(Rs. crore)

<i>Item</i>	<i>1980-81</i>	<i>1984-85</i>	<i>1985-86</i>
(1)	(2)	(3)	(4)
1 1 Intermediate consumption	4673	8341	10543
1.1.1 Current maintenance expenditure	262	487	585
1.1.2 Goods and services used for consumption	4411	7854	9958
1.2 Compensation of employees	8037	14926	17270
1.2.1 Wages and salaries	7464	13649	15736
1.2.2 Pension	573	1277	1534
1.3 Return to capital (imputed)	1490	2812	3321
1.4 Depreciation	764	1578	1933
GROSS INPUT	14964	27657	33067
1.5 Output of goods and services	14964	27657	33067
1.5.1 Services produced for own use	12299	22891	27506
1.5.2 Non-commodity output	1490	2812	3321
1.5.3 Sale of goods and services	1175	1954	2240
	14964	27657	33067

- Imputed income on assets (see Notes).

NOTES ON TABLES 8.4 AND 8.5

The following gives the details of the exercise :

1. Net Fixed Capital Stock for administrative departments has been adjusted to exclude assets of roads and bridges.
2. The net fixed capital stock of roads and bridges has been estimated using the ratio worked out on the basis of details in "Estimates of Fixed Capital Stock in India" by Jagdish Kumar, R. P.

- Katyal and S.P. Sharma; *Journal of Income and Wealth*, Vol 9, No 1, January 1986.
3. Rate of return on capital, i.e., imputed income has been estimated at 10 per cent of value of assets.
 4. Maintenance expenditure (total) has been estimated at 6 per cent of government Final Consumption Expenditure on the basis of details in Demands for Grants for Selected Ministries of the Central Government.
 5. Out of maintenance expenditure estimated under (4) above, 33 per cent has been treated as routine current repairs and maintenance and the rest (66 per cent) as large maintenance expenditure which can be deemed to have been made out of depreciation provision.
 6. Gross domestic product of government administrative departments has been assumed to be the sum of (a) compensation of employees and (b) gross imputed income minus current repairs and maintenance.
 7. Gross domestic product at (6) above *minus* depreciation is net domestic product.
 8. Gross capital formation and gross savings are adjusted to include large maintenance expenditure.
 9. Final consumption expenditure is now defined to include both (a) services produced for own use and (b) imputed income on capital *net* of depreciation.
 10. Services produced for own use excludes total maintenance expenditure (both large maintenance expenditure and current repairs and maintenance).
 11. Current repairs and maintenance is defined as sale of goods and services and included in Production Accounts gross output.
 12. Gross input in Production Account excludes large maintenance expenditure which are now included under Gross Capital Formation. In other words, such expenditures are now transferred from Current Account to Capital Account.

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SAVING OF THE PRIVATE CORPORATE BUSINESS SECTOR—SOME METHODO- LOGICAL ISSUES

T. Rama Rao

THE main objective of the paper is to present some of the methodological issues involved in preparing the saving estimates of private corporate business sector. Private corporate business sector consists of non-government, non financial public and private limited companies and non-government financial companies excluding banking, insurance and chit fund companies. The companies with unlimited liability and those with limited by guarantee are not covered by this sector.

1. RBI studies on Company Finances

The RBI studies on company finances covering companies with liability limited by shares constitute the primary data source for preparation of estimates of income, expenditure, saving, investment, lending and borrowing of the private corporate business sector. The studies on non-government non-financial public limited and private limited companies and private financial and investment companies thus form the basis for building up the saving estimates. However, companies engaged in the activities of insurance, banking and all services like community, business, laundry, personal and other services are excluded from the purview of RBI studies.

2. Measurement of Saving

Saving is derived as balancing entry in income and expendi-

ture account of the corporate enterprises. Income consists of production and other income including non-operating surplus. Expenditure comprises intermediate consumption expenditure, wages and salaries (including bonus, provident fund and other welfare expenses), interest and provisions for taxes, depreciation and dividends. The difference between income and expenditure (including provisions) is shown as profits retained. The retained profit, however, includes non-operating surplus/deficit. Non-operating surplus/deficit arises on account of (i) sale of fixed assets and financial investment, (ii) revaluation/devaluation of foreign currencies, (iii) provisions written back which are no longer required, (iv) insurance claims realised, (v) income or expenditure relating to the previous years and such other items of non-current nature. In order to avoid capital gains (losses), saving is measured net of non-operating surplus or deficit.

The provisions made by companies for taxation, dividend, bad and doubtful debts, etc., are treated as items of expenditure. These provisions are earmarked to meet certain specified expenditures. In some years, provisions made may exceed the needs. In certain other years they may be found to be inadequate. The excess provisions are accounted as non-operating surplus in subsequent years.

Non-operating surplus/deficit and provisions made in excess of the requirements may have to be considered for assessing the resources available with the companies. Such flows are treated as current transfers and as such they are excluded from the measure of saving. They, therefore, stand on a different footing.

3. Global Estimates

RBI studies are based on certain selected companies. The coverage of these studies is adjusted in terms of paid-up capital (PUC) to derive the estimates for the entire private corporate business sector. This procedure of 'blowing up' is adopted in the absence of any other suitable criterion. In the past, the global level data used to be available on PUC only. In recent years, the Department of Company Affairs started collecting data on items like reserves, total assets, income, etc., besides PUC for their quinquennial census studies. The information on

these items is published in their *Directory of Joint Stock Companies*. It is found that the data on PUC are relatively more reliable. Moreover, the data for other items are not available for intercensal years. It may, however, be argued that PUC may not be an appropriate parameter for arriving at population estimates of various items from the sample figures. But the problem has eluded solution. For this reason, the blowing-up factors are worked out on the basis of PUC of all companies and PUC of the companies selected for the RBI studies. The global estimates are derived separately for non-government public and private limited companies and private financial and investment companies based on the RBI studies.

4. Deficiencies in Blowing-up Procedure

Some of the exercises carried out earlier suggest that PUC is reasonably correlated with balance sheet items. Such an association could not be established with saving. As per the study on finances of 1867 public limited companies, the retained profit of 1305 profit-making companies was reported at Rs. 1219 crore while it was substantially low at Rs. 663 crore for all 1867 companies in 1985-86. It may thus be that retained profit declines even when PUC increases. These figures might suggest that the blowing-up procedure may not strictly be applicable to derive saving of all public limited companies. At the same time, there are many profit-making loss incurring companies which are not covered by the study, for which some adjustment for undercoverage is required to be made.

In the case of public limited companies the coverage in terms of PUC is reasonably high and consequently the multiplier is low. It is not, however, the case with private limited companies. The study on private limited companies covers about 1050 companies only out of more than a lakh of such companies. As the coverage of the study is quite low in terms of paid-up capital, the 'blowing-up factor' is high. It may, however, be stated that the saving of all the private limited companies selected for the study may not exceed Rs. 50 crore. It may thus indicate that although the private limited companies are substantially large in number the variations in the multiplier

may not significantly influence the total saving of the entire sector.

RBI annual (regular) studies cover only operating companies. Non-operating companies comprise companies in the formative stage and others. Companies in the formative stage are those in the process of construction of a factory, erecting plant and machinery or having completed the capital works have not started commercial production at the end of the reference year. Such of these companies generally publish balance sheet account only. In case these companies prepare income and expenditure account, the entire expenditure gets capitalised and transferred to the respective balance sheet heads once these companies commence their business activity. For working out the blowing-up factors the PUC of these companies are also included in the total PUC of all companies.

RBI studies generally present data for three years. The details for any particular year may, therefore, be available from more than one study. As the composition of companies included in different studies varies, global estimates derived for the same year from different studies may yield different sets of estimates.

The firm figures on paid-up capital are made available by the Department of Company Affairs (DCA) based on their census study carried out once in five years. The provisional figures of PUC for intercensal years are worked out by DCA on the basis of details of registrations of new companies, liquidations, amalgamations and mergers of companies during different years. These provisional figures are revised according to the census study. Such revisions are found to be substantial in one of the recent years. Consequently, the saving estimates also underwent sharp upward revisions.

5. Timing Difference

Companies do not follow a uniform accounting year, their accounting dates being spread throughout the year from January to December. The accounts closed during any given period represent financial results of the working during different 12-month periods. For purposes of RBI studies, the reference year is April to March. That is, the results presented for 1987-88 relate to the combined data in respect of accounts of com-

panies closing their accounts at any time during April 1987 to March 1988. It is expected that all companies may adopt a uniform accounting year of April to March commencing 1988-89.

6. Accounting Practices

Companies are governed generally by legal provisions in presenting accounts in their annual reports. But some of the companies may adopt certain modified practices to meet their accounting needs. For example, some companies revalue their assets and some capitalise the interest on funds borrowed for investment purposes. In case of any restrictions imposed on such practices, the companies revert to the earlier practices and adjust their current accounts accordingly with retrospective effect. While making adjustments in balance sheet aggregates in all such cases, the flows are routed through income and expenditure accounts affecting the levels of retained profit. The RBI studies make certain adjustments based on available details so as to make the income and expenditure flows pertain to current production activity. The available details may not, however, be adequate to effect appropriate modifications in some cases.

In the case of amalgamations of companies, the details for the pre-amalgamation period are collected to construct the combined account of amalgamated units, eliminating inter-unit transactions to the extent possible. In case the closing dates of such accounts differ, profit and loss account is adjusted while combining the accounts of amalgamated companies.

Some companies follow written-down-value method (WDV) and some others the straight-line (SL) method in making provision for depreciation on their fixed assets. Companies following WDV method may provide extra-shift allowance while companies adopting SL method may not provide depreciation on the assets used in second and third shifts of production operations. Many companies in the recent years have started changing their methods. These changes may sometimes lead to shifts in depreciation provision and thus effect estimates of gross saving.

The depreciation accounting is hitherto governed by fiscal

regulations. As per the latest amendment to the Companies Act, the method of depreciation accounting in the books is delinked from the existing practice. The Amendment to the Companies Act prescribed a separate set of depreciation rates.

The CSO has adopted economic criterion for providing depreciation on fixed capital in its recent White Book on National Accounts Statistics which is different from accounting practices. It may, however, be stated that it is difficult to derive the current market value of fixed assets of companies based on which the depreciation provision is worked out. The value of fixed assets presented in the book of accounts is neither at original values nor at current values as companies revalue their fixed assets partly or fully at frequent intervals. In case the book values are revalued under the assumption that they are at acquisition costs, there is a possibility for revaluing the fixed assets which have already been revalued. This may lead to over-estimation of depreciation provision for the year. Revaluation of fixed assets including those due to fluctuations in foreign exchange rates may have to be taken into account for preparing depreciation estimate in National Accounts Statistics at current prices.

7. Branches of Foreign Companies

The recent RBI studies do not cover branches of foreign companies as the number of such branches eligible for the studies showed a sharp decline over the years. It is, however, necessary to measure the 'retained net income' of 'branches'. The 'retained net income' is defined as post-tax profit net of proprietor's withdrawals. The 'branches' are those companies which are incorporated outside India. In case these 'branches' are treated as a part of our private corporate business sector, their 'retained net income' has to be shown as our liability to the Rest of the World Sector.

In the case of foreign controlled rupee (FCR) companies, they are incorporated in India and their retained profit is net saving of these companies. RBI studies on public and private limited companies cover FCR companies. The studies on FCR companies are separately made to assess their financial performance by country of controlling interest.

8. Conclusion

Most of the above limitations will get gradually ironed out with the improvement in the coverage of RBI studies, adoption of uniform accounting year, standardisation of accounting practices and possible efforts initiated by DCA in streamlining the system of collection of PUC data to result in reduction in the magnitude of revisions. It is hoped to effect considerable improvement in the saving estimates of this sector once the above measures are implemented.

SAVINGS BEHAVIOUR OF HOUSEHOLDS: TRENDS AND PATTERN*

Uma Datta Roy Choudhury

1. Introduction

DATA on household savings in India are available for sufficiently long period to justify analysis of the data to understand the savings behaviour of the households. Recent revisions in the estimates of national income and related macro-aggregates have made this even more relevant because in the New Series, the share of the household sector in total savings increases substantially (jumping to 98% in 1980-81 from 73.3% in 1975-76 and 75% in 1979-80 and rising further to 108.77% in 1984-85 and 113.68% in 1986-87). This rise in share has at the same time, been accompanied with a change in the pattern of saving within the household sector. According to the *New Series on National Accounts Statistics with 1980-81 as base year* (February 1988): "The methodology adopted for the compilation of the estimates of saving of various institutional sectors in the New Series is broadly the same as in the 1970-71 series except for a small methodological change in the Private Corporate Sector" (paragraph 3.17, page 33). These structural changes can thus be assumed to be the result of shifts in the savings behaviour of the household sector and not the effect of methodological changes and therefore calls for a deeper investigation.

2. Trend in Household Savings

The comparable data on net savings of the household sector

*Revised in the light of discussions at the Seminar.

are available from 1950-51 onwards with a break-up between financial savings and savings in physical assets. From 1970-71 onwards household financial savings gross of liabilities separately for each instrument are also available. It might, first of all, be desirable to present the details of the shift in the share of the households sector in the total saving of the economy before proceeding with more detailed analysis (Table 10.1).

An examination of the trend presented in Table 10.1 makes it clear that expansion of household financial saving since 1950-51 has been comparatively much more than that of household savings in the form of physical assets. This is not unexpected in a situation of economic growth and development. Thus, in an expanding economy, household savings behaviour over time is expected to be influenced by the growth in the level of income. This is likely to affect both the average and marginal propensities to save. However, the rise in the level of household saving is likely to be accompanied with a shift between financial and non-financial savings depending on the nature of employment, rate of inflation, rate of return of physical capital and expansion of facilities in the form of growth of financial institutions (e.g., banking facilities in rural areas). For example, increase in regular employment in organised sectors is likely to increase contractual savings in the form of pensions and insurance funds, while in an inflationary situation households might tend to invest proportionately more in physical rather than financial asset except for contractual saving where very little choice is left to the contributor once a commitment has been made.

Table 10.1 brings out this situation clearly where the proportion of household savings in physical assets which was as much as 87% of total household saving in 1950-51 has been reduced to only 38% in 1986-87. However, the proportion has remained around half of the total practically for three decades beginning 1955-56. The sharp rise in financial saving has been drastic to the extent that the share has become more than 100%, compensating for the dis-saving in both public and private corporate sectors. This pattern suggests a more careful investigation into the shifts, particularly so in the more recent years, i.e., since 1980-81 when household saving shows a sudden shift between 1979-80 and the subsequent period.

TABLE 10.1 Share of Household Sector in Total Saving
(Selected Years)

Year	(Per cent)			
	Share of net household saving in total domestic saving	Share of household financial saving (net) in total domestic financial saving	Share of household saving in physical assets in total household saving (net)	Share of household financial saving in total household saving (net)
(1)	(2)	(3)	(4)	(5)
1950-51	74.35	27.07	87.19	12.81
1955-56	83.20	72.22	47.49	52.51
1960-61	67.90	51.70	49.39	50.61
1965-66	73.03	60.80	42.70	57.30
1970-71	77.51	57.17	61.26	38.74
1975-76	73.33	57.51	50.78	49.22
1979-80	74.83	57.30	54.85	45.15
1980-81	97.94	96.16	47.40	52.60
1985-86	106.12	111.08	42.22	57.78
1986-87	113.68	124.17	38.20	61.80

- Notes: 1. Data for 1979-80 have been presented to enable a comparison between two consecutive years, one from the old series (1979-80), the other from the New Series (1980-81); also for the year 1986-87, it being the most recent year for which estimates are available.
2. The household savings pattern for 1955-56 presents a picture which is very different from that of the rest of the years from 1950-51 to 1960-61 or even thereafter. It has not been possible so far to identify the factors leading to such a behaviour of household saving in 1955-56.

TABLE 10.2 Rate of Household Savings in Selected Years
Since 1950-51 (at current prices)

Year	Household saving as percentage of personal disposable income			
	Total household savings	Household financial saving		Saving in physical assets
		Net	Gross of liabilities	
(1)	(2)	(3)	(4)	(5)
1950-51	5.71	0.73	N.A.	4.98
1955-56	9.15	4.81	N.A.	4.35
1960-61	7.08	3.58	N.A.	3.50
1965-66	9.45	5.41	N.A.	4.03
1970-71	10.70	4.15	6.14	6.56
1975-76	13.20	6.50	8.31	6.70
1979-80	15.53	7.01	10.68	8.52
1980-81	14.48	7.61	10.73	6.86
1985-86	15.86	9.17	12.11	9.17
1986-87	16.23	10.03	N.A.	6.20

3. Shifts in Household Savings

To examine this shift in household savings in favour of financial assets from a different angle, the rates of household savings are presented next with the level of personal disposable income as the base against which household savings is compared.

There is a clear indication of rate of household saving showing a consistent increase along with a shift towards financial savings in preference to savings in physical assets. Two independent approaches can be followed to understand this pattern further. One would be a disaggregation of household financial saving to study the preference of the households between different instruments as also the role of contractual saving as well as expansion of financial institutions in influencing the pattern and growth of household financial savings. Alternatively, different meaningful functional forms can be studied to understand the pattern of household savings behaviour and also to examine whether such analysis can lead to conclusions regarding the savings potential of the households. The analysis of the instrument-wise pattern of household financial savings and the trend thereof is difficult because of not only absence of detailed data but also because of the highly heterogeneous nature of the household sector (comprising not only individuals but also unincorporated enterprises) which results in different motivations and preferences within the sector for different forms of savings. Government policies like enforcement of various compulsory deposit schemes introduced from time to time has also an effect on individual household's savings in financial assets and has to be accorded due recognition in drawing conclusions regarding changes in pattern of savings.

4. Savings Function and Household Savings Potential

In view of the complex nature of the problem, in this paper attention has been given only to the question of determining satisfactory savings functions which would possibly explain the long-term savings behaviour and savings potentials of the households. For the exercise it has been assumed that under Indian conditions, current year's income is the most important factor influencing the level of household savings and therefore a direct functional form between current year's income and

current year's savings may be the answer. The functional relationship can be either a simple direct form where both the variables change proportionately or of a slightly more complicated nature where savings rise at a faster rate than income when income increases. Thus a logarithmic linear relation which, to some extent, takes account of the higher rate of savings as income increases may be one of the simplest functional forms just as functional forms like $S/Y=f(Y)$ or $S/Y=f(\log Y)$ may also be meaningful in this context, as such functions take account of wider fluctuations in savings as income increases.

Taking all factors into account, the functional forms which have been used in the current exercise are:

- i. $S_t = a + b Y_t$, where S_t and Y_t are household saving and personal disposable income at time t .
- ii. $S_t = a + b Y_t c Y_t^2$
- iii. $\log S_t = a + b Y_t$
- iv. $\log S_t = a + b \log Y$
- v. $S_t/Y_t = a + b Y_t$ and
- vi. $S_t/Y_t = a + b \log Y_t$

All these are simple linear forms and least square regression method can be applied. Time series data covering the period 1960-61 to 1986-87 have been used on the assumption that the New Series of household savings is comparable with the old series and can be spliced to study household savings behaviour. The functions have been fitted on both total household savings (S^h_t) and household financial savings (net) (S^h_f, t) while a limited series of gross financial savings of the household (S^h_g, t) covering the period 1970-71 to 1985-86 has also been used in an effort to understand the household savings behaviour better as net savings in financial assets (i.e., household saving in individual financial instruments net of liabilities incurred by the sector) tend to underestimate the size of financial savings of the households. The period covered, in this case, however, had to be limited because of the absence of similar data for the earlier period.

Finally, use of any long period data for study of trends requires that the effect of price changes over the period is taken

care of and the series are adjusted accordingly prior to their use for estimating functional relations. Deflation of both household financial savings and personal disposable income pose conceptual as well as measurement problems as none of these aggregates can be meaningfully factorised into quantity and price counterparts. At the aggregate level one could argue on the basis of definitional identity of savings and capital formation and use the deflator accordingly. This principle however cannot be followed for household savings and particularly so for household financial savings. In the case of personal disposable income the deflation problem is equally complicated as the only implicit price deflator available is for total domestic product which justifiably cannot be used to deflate personal disposable income. Considering such conceptual and measurement problems of real domestic saving, the Working Group on Savings had come to the conclusion that the study of trends in this case can be undertaken with both saving and income measured at current prices and may be said to be appropriate (page 45 of the Report). For the current exercise, therefore, to begin with, no attempt has been made to deflate the series of personal disposable income and household savings before fitting the data on the alternative functional forms.

The following gives the results of fitting the savings functions. The estimated standard errors of the coefficients are given in parentheses below the corresponding coefficients as also the statistical measures of r^2 (the square of coefficient of multiple correlation) and 'dw', the Durbin-Watson statistics for serial correlation (Table 10.3).

At the first examination, all the functions indicate good fit in view of the values of the standard errors of the coefficients and the levels of r^2 . The dw statistics however give a value higher than 2.0 only in the case of simple linear relation for household financial saving gross of liabilities. In the rest of the cases the results suggest the existence of certain positive serial correlation.

It might be worthwhile to examine next as to whether the sharp rise in the level of household saving—particularly financial savings—from 1980-81 onwards has in any way influenced the result of the savings functions. The simplest way to examine this is to fit a selected few savings functions on the data upto

TABLE 10.3 Household Savings as a Function of Personal Disposable Income
(at current prices)

Function		r^2	dw
(1)		(2)	(3)
<i>Total Household Savings, 1960-61 to 1986-87</i>			
I	$S_{ht} = -1270.8360 + 0.1540 Y_{dt}$ (491.4713) (0.00508)	0.9735	0.8487
II	$S_{ht} = -595.0094 + 0.1314 Y_{dt} + 0.00000010367 (Y_{dt})^2$ (750.3967) (0.0197) (0.00000008751)	0.9750	0.8256
III	$\text{Log } S_{ht} = -7.4576 + 0.00001611 Y_{dt}$ (0.1586) (0.00000164)	0.7942	0.1211
IV	$\text{Log } S_{ht} = -5.2423 + 1.2829 \text{ Log } Y_{dt}$ (0.405) (0.03735)	0.9792	0.7731
V	$S_{ht}/Y_{dt} = 0.09288 + 0.00060034 Y_{dt}$ (0.00747) (0.000000077)	0.4363	0.4593
VI	$S_{ht}/Y_{dt} = -0.2106 + 0.03035 \text{ Log } Y_{dt}$ (0.0455) (0.004198)	0.6765	0.7970

Figures in parentheses indicate Standard Error. (Contd.)

TABLE 10.3 (Contd)

Function		(at current prices)		
		r^a	d	dw
(1)	(2)	(3)	(3)	(3)
Household Financial Savings (Gross) 1970-71 to 1985-86				
I.	$S_g^{h_f, t} = -2546.226 + 0.1324 Y_t^d$ (434.0070) (0.003946)	0.9877	2.1601	2.1601
II.	$S_g^{h_f, t} = 1968.065 + 0.1189 Y_t^d$ (970.0570) (0.02048)	0.9881	2.235	2.235
III.	$\text{Log } S_g^{h_f, t} = 7.6192 + 0.0000137 Y_t^d$ (0.1461) (0.00000013)	0.8841	0.5891	0.5891
IV.	$\text{Log } S_g^{h_f, t} = -6.4205 + 1.3581 \text{ log } Y_t^d$ (0.7236) (0.0639)	0.9699	1.8396	1.8396
V.	$S_g^{h_f, t}/Y_t^d = 0.0659 + 0.00000031 Y_t^d$ (0.6958) (0.000000063)	0.6384	1.3203	1.3203
VI.	$S_g^{h_f, t}/Y_t^d = -0.2670 + 0.0321 \text{ Log } Y_t^d$ (0.0568) (0.00501)	0.7454	1.8301	1.8301

Figures in parentheses indicate Standard Error.

TABLE 10.3 (Concl.)

		(at current prices)			
Function		r^2	dy		
(1)		(2)	(3)	(3)	
<i>Household Financial Savings (Net) 1960-61 to 1986-87</i>					
I.	$S_{hf,t}$	$= -1611.060$ (258.0231)	$+ 0.09895$ (0.002668)	Y_t^d	0.9821 1.5689
II.	$S_{hf,t}$	$= -629.5557$ (307.9262)	$+ 0.0661$ (0.0080)	Y_t^d $+0.00000015 (Y_t^d)^2$ (0.000000036)	0.9897 2.5794
III.	$\text{Log } S_{hf,t}$	$= 6.6119$ (0.1441)	$+ 0.000018$ (0.00000149)	Y_t^d	0.8541 0.2817
IV.	$\text{Log } S_{hf,t}$	$= -7.01513$ (0.4676)	$+ 1.3815 \text{ Log } Y_t^d$ (0.0431)		0.9762 1.3994
V.	$S_{hf,t}/Y_t^d$	$= 0.03766$ (0.00339)	$+ 0.0000003$ (0.000000035)	Y_t^d	0.7510 1.2384
VI.	$S_{hf,t}/Y_t^d$	$= -0.1840$ (0.02446)	$+ 0.02255 \text{ Log } Y_t^d$ (0.002254)		0.8002 1.5374

Figures in parentheses indicate Standard Error.

1979-80 only. The results are in Table 10.4.

The values of dw statistics improve substantially in the new exercise, thus showing a reasonably good fit for log-linear function in the case of total household saving. These results however also increase substantially the values of marginal propensity to save (MPS) and income elasticity of savings. It might therefore be worthwhile to present next the values of propensities to save to bring forward the wide diversity in the savings behaviour of the households over different periods (Table 10.5).

TABLE 10.4 Saving Functions using Data from old series only
(at current prices)

Function		r^2	dw
(1)		(2)	(3)
<i>Total Household Saving, 1960-61 to 1979-80</i>			
I	$Sh_t = -2061.845 + 0.18099 Yd_t$ (361.0534) (0.00797)	0.9663	1.3243
II	$\log Sh_t = -7.2737 + 1.4827 \log Yd_t$ (0.43132) (0.04142)	0.9860	2.1230
<i>Household financial savings (net) 1960-61 to 1979-80</i>			
I	$Sh_{f,t} = -1039.3110 + 0.08537 Yd_t$ (252.1449) (0.00556)	0.9290	1.4367
II	$\log Sh_{f,t} = -7.2632 + 1.4059 \log Yd_t$ (0.8827) (0.08477)	0.9386	1.7670

Figures in parentheses indicate Standard Error.

A few points which become clear from the results are that household savings pattern has changed substantially between the two decades ending 1979-80 and the subsequent period. Whereas in the earlier period household saving in physical assets had a dominant role in controlling the over-all trend; in the more recent years, household financial saving has a more pronounced contribution in the total. According to these results both the MPS and the income elasticity of household saving give a sufficiently encouraging picture and household financial saving can be expected to register a gradually increasing trend with improvement in both the level and the rate.

The study should however close with a note of caution because of the unusually high level of household financial saving in the New Series of National Accounts which obviously

TABLE 10.5 Marginal and Average Propensities to Save for Household Sector (at current prices)

<i>Type of savings measurement</i>	<i>Period covered</i>	<i>Marginal propensity to save</i>	<i>Average propensity to save</i>	<i>Income elasticity of saving</i>
(1)	(2)	(3)	(4)	(5)
Total household saving	1960-61 to 1986-87	0.1540	0.1176	1.2829
	1960-61 to 1979-80	0.1809	0.1098	1.4826
	1980-81 to 1986-87	0.1518	0.1398	1.0858
Household financial saving (net)	1960-61 to 1986-87	0.0990	0.0598	1.3815
	1960-61 to 1979-80	0.0853	0.0503	1.4058
	1980-81 to 1986-87	0.1375	0.0869	1.5828
Household financial saving (gross)	1970-71 to 1985-86	0.1324	0.0959	1.3581
	1970-71 to 1979-80	0.1403	0.0850	1.5780
	1980-81 to 1985-86	0.1500	0.1141	1.3149

influences the results—particularly the levels of MPS and income elasticity of saving and therefore questioning the realistic nature of the results. It is also important to remember that the whole exercise is undertaken with current price data and it is possible that similar exercise with time series data of real income and savings at constant price will present an entirely changed picture, particularly in periods of high inflation. The exercise in this case, however, would call for reliable and relevant price data to obtain constant price estimates of personal disposable income and household savings.

5. Permanent Income Hypothesis and Household Savings

Before extending the exercise to deflation of income and savings series and studying the behaviour thereafter, the current price series has been used to examine the household savings behaviour with reference to permanent or 'normal' income. In the process the short-run and long-run MPS have also been determined. To put it differently, it is now being proposed that current year's saving of the household is influenced not by the current year's income alone but also by the expected average income, i.e., saving is a function of a composite 'permanent' component of income which is independent of short-term fluctuations and also of a 'transitory' component. Such an analysis however, is possible only if satisfactory measures of 'permanent' or 'normal' and 'transitory' levels of income can be determined for time series analysis. Two alternative measures have been used for the present exercise. First, 'normal' or permanent income has been defined as the weighted average of past and current income with weights declining progressively and transitory income measured as the difference between 'normal' and current measured income. Thus, in this case, the savings function will take the form

$$S_t = a + b \sum_{i=0}^{\infty} \lambda^i Y_{t-i} + U_t \quad 0 < \lambda < 1$$

where U_t is the random disturbance.

This equation can conveniently be reduced to

$$S_t = \alpha + \beta Y_t + \gamma S_{t-1} + W_t$$

where $\alpha = a(1-\lambda)$, $\beta = b$, $\gamma = \lambda$ and $W_t = U_t - \lambda U_{t-1}$

Alternatively, permanent income can be defined as the average of past two years' measured income and the savings function in this case would take the form

$$S_t = \alpha + \beta Y_t + \lambda Y_{t-1}$$

Both these equations have the added advantage that the results can be used to determine short-run and long-run MPS as well as MPS out of permanent income and transitory income.

Apart from the theoretical justification of taking savings with a lag as compared to the income series, in India, there is practical justification for allowing for such a lag. The agricultural year in India runs from July to June, but the income is shown as accruing in the fiscal year (April-March). Moreover,

it is well known that as far as foodgrains are concerned, the Kharif crop of one year is consumed over the following year. Hence, for purpose of studying the functional relationship between income and savings, it would be desirable to regress savings with a lag of one year, on the income series.

The results of such an exercise, with total and financial household savings (net of liabilities) covering the period 1960-61 to 1986-87 and with household financial saving (gross of liabilities) for the period 1970-71 to 1985-86 as functions of personal disposable income, are presented in Table 10.6. The results show reasonably good fit in all the cases and suggest that 'normal' level of income rather than the current level of income is perhaps a more important factor influencing the current level of household savings—as judged by the values of the coefficients and their significance. Thus in Table 10.6 the coefficients for the lagged variable generally carry higher value in all the cases. In the case of household financial savings (measured gross

TABLE 10.6 Two Forms of Lagged Saving Function
(at current prices)

Function		r^2	dw
(1)		(2)	(3)
<i>Total Household Saving, 1960-61 to 1985-87</i>			
I	$Sh_t = -761.8715 + 0.0794 Yd_t + 0.5736 Sh_{t-1}$ (471.4553) (0.0237) (0.1786)	0.9810	2.0843
II	$Sh_t = -1294.218 + 0.1160 Yd_t + 0.0431 Yd_{t-1}$ (531.2428) (0.0802) (0.0906)	0.9727	0.9386
<i>Household Financial Savings (Net of Liabilities), 1960-61 to 1986-87</i>			
I	$Sh_{f,t} = -1156.231 + 0.0680 Yd_t + 0.5740 Sh_{f,t-1}$ (389.055) (0.0176) (0.2073)	0.9843	2.5934
II	$Sh_{f,t} = -1715.527 + 0.00521 Yd_t + 0.1067 Yd_{t-1}$ (243.5623) (0.0368) (0.0416)	0.9861	1.6824
<i>Household Financial Savings (Gross of Liabilities), 1970-71 to 1985-86</i>			
I	$S_g^{hf,t} = -1971.532 + 0.1038 Yd_t + 0.2484 Sh_{t-1}$ (812.1192) (0.0304) (0.2594)	0.9875	2.6192
II	$S_g^{hf,t} = -2590.920 + 0.0603 Yd_t + 0.0821 Yd_{t-1}$ (398.3181) (0.0371) (0.0421)	0.9904	2.1146

Figures in parentheses indicate Standard Error

of liabilities), however, permanent income defined as two years' average income appears to be a more important deciding factor. Thus, whereas study of consumer behaviour of the households suggests that transitory income is primarily taken in by current consumption (Roy Choudhury, *et al.*, 1968) in the case of household savings, as expected, MPS out of permanent income or

TABLE 10.7 Alternative Measures of MPS (at current prices)

Type of savings measurement and period	APS	Simple MPS	Short-run MPS	Long-run MPS	MPS out of	
					Perma- nent income	Transitory income
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total household saving 1960-61 to 1986-87	0.1176	0.1540	0.0794	0.1863	0.1591	0.0730
Household financial saving (net) 1960-61 to 1986-87	0.0598	0.0990	0.0680	0.1087	0.1119	—
Household financial saving (gross) 1970-71 to 1985-86	0.0959	0.1324	0.1038	0.1381	0.1423	—

the 'normal' income appear to be a more important factor than MPS out of transitory income. In other words, level of household saving is determined by the trends and levels of 'normal' income rather than the current income. In this situation current income will determine current consumption only (Roy Choudhury *et. at.* 1968).

To complete the picture, short-run and long-run MPS and MPS out of 'permanent' and 'transitory' income are presented next in Table 10.7. It can be seen that, as expected, MPS out of permanent income or, alternatively, the long-run MPS has a value higher than the simple MPS or the APS and also that 'transitory' income has very little influence on household savings; also that the potentiality of savings is not particularly high in either of the cases, remaining within the range of 0.15 and 0.20 for the period of study.

6. Savings Function with Household Savings at Constant Prices

The extension of the exercise to deflated series of income and savings is a problematic and tricky one. At one level, it can be argued that monetary savings is a function of monetary income, both measured at current prices. At another level, it can be countered that savings is a residual after consumption (in real terms) is deducted from the measure of real income, in which case both the income and savings series need to be deflated by the same price series—either the over-all national income deflator or the consumption goods (and services) deflator. This raises awkward issues in regard to the *ex-post* equality of savings and investment, which implies that the deflator for savings should be the same as the deflator for investment. And yet, *ex-ante*, savings may be stated to be a function of income, the interest rate and the expectation of capital gains from savings. If that hypothesis is accepted, the deflator for savings should be a combination of real income and the real interest rate.

Unfortunately, there is little empirical evidence on the functional relationship between savings and the rate of interest; the Keynesian approach would in any case discount the importance of the interest rate and focus on income as the determinant of saving. In the result, for deriving the functional relationship between disposable income and financial savings, perhaps it may be desirable to deflate the savings series also by the consumption goods (and services) price index. In other words, the hypothesis here is that, *ex-ante*, it is real income (and real consumption) that determine savings, and therefore, the marginal propensity to save—which would be based on changes in real income and changes in consumption in real terms—would be best expressed if both the savings and the income series are deflated by the index of consumer goods prices. An alternative formulation based on classical theory would be to take savings as a function of the *real* interest rate, in which event, the need to use the income series as the independent variable would disappear. However, in India, the empirical evidence available—when for many years, the real rate of interest has been increasing as a result of deficit finance, and presumably because of a marked shift in the distribution of income as a result of inflationary deficit financing by the government—appears to disprove the classical

economic postulate of savings as function of the rate of interest.

All things considered, therefore, it is felt that savings are perhaps best deflated by the index of prices of consumption goods and services. Alternatively, the savings series can be deflated on the basis of the deflator for investment. To satisfy the purists, first the *ex-post* savings—investment equality in real terms is taken as the desirable approach and the constant price series obtained accordingly. Thus, for the results presented at constant prices, implicit price indices of private final consumption expenditure and domestic capital formation have been used to deflate respectively personal disposable income and household savings. The savings functions already discussed above are then fitted to the data thus derived and the results of the exercise are in Table 10.8 (while Table 10.9 compares APS, MPS, etc. at current and constant prices). The point which comes out very clearly is that the MPS by any of the alternative measures do not rise in value when the effect of price rise is eliminated though the income elasticities of savings increase somewhat and the possibilities of serial correlation existing in:

TABLE 10.8 Household Saving as Function of Personal Disposable Income (at constant prices)

<i>Function</i>	r^2	dw
(1)	(2)	(3)
<i>Total household saving 1960-61 to 1986-87</i>		
I. $S^{h_t} = -2324.411 + 0.1573 Y^{d_t}$ (1278.078) (0.0140)	0.8353	1.1624
II. $\text{Log } S^{h_t} = -6.504 + 1.3925 \log Y^{d_t}$ (1.4268) (0.1261)	0.8298	0.9623
<i>Household financial savings (net of liabilities) 1960-61 to 1986-87</i>		
I. $S^{h_f, t} = -3595.497 + 0.1107 Y^{d_t}$ (503.5400) (0.0055)	0.9419	1.9174
II. $\text{Log } S^{h_f, t} = -10.6953 + 1.6991 \log Y^{d_t}$ (1.1631) (0.1028)	0.9161	1.5251
<i>Household financial savings (gross of liabilities) 1970-71 to 1985-86</i>		
I. $S_g^{h_f, t} = -4104.50 + 0.1423 Y^{d_t}$ (1204.070) (0.0117)	0.9139	1.6966
II. $\text{Log } S_g^{h_f, t} = -8.3420 + 1.5234 \log Y^{d_t}$ (1.7629) (0.1534)	0.8757	1.6631

Figures in parentheses indicate Standard Error.

savings functions is reduced substantially. The range of MPS values gets much more restricted and a level of more than 15 per cent of marginal rate of saving appears to be an unlikely proposition. In other words, inflation does affect household saving marginally by increasing somewhat the MPS, though the shift is of very small order.

7. Conclusion

To conclude, one can say that whether studied at current or at constant prices, there does not appear to exist much scope for

TABLE 10.9 Measures of Propensities to Save by Households

Type of savings measurement and period covered	At current prices			At constant prices		
	APS	MPS	Income elasti- city of saving	APS	MPS	Income elasti- city of saving
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total household savings 1960-61 to 1986-87	0.1176	0.1540	1.2829	0.1259	0.1573	1.3925
Household financial saving (net) 1960-61 to 1986-87	0.0598	0.0990	1.3815	0.0640	0.1107	1.6991
Household financial saving (gross) 1970-71 to 1985-86	0.0959	0.1324	1.3581	0.0990	0.1423	1.5234

optimism regarding large potentiality of household savings in the future. Also, inflation does not appear to be an influencing factor and it is seen to have neither discouraged the households from maintaining the past levels of savings nor increasing these levels. Putting it differently, rise in prices which has been somewhat high in the recent past has not decelerated the growth of household savings. The fact that household saving is determined more by the levels of 'normal' income rather than current income may be the factor responsible for such a behaviour. However, till the study has been extended to cover *ex-ante* calculation also, it is not possible to come to any

positive conclusion. This hopefully will form the next part of the study on household savings to be undertaken in the near future.

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RURAL HOUSEHOLD SAVING AND INVESTMENT BEHAVIOUR, 1970-71 AND 1981-82

I. Z. Bhatta and Prem Vashishtha

IN this paper some broad results relating to the saving and investment behaviour of different categories of rural households from National Council of Applied Economic Research's (NCAER's) longitudinal study (1970-71--1981-82) are presented.¹ In particular, we focus on (i) the association between shifts in the pattern of investment and sources of income and (ii) the role of inter-group mobility (in terms of land ownership and income) in determining saving behaviour. The NCAER longitudinal study provides data on household income, savings and consumption from surveys carried out in 1970-71 and 1981-82. Two sets of comparative data are available from these surveys:

- All-India sample of households².
- Panel of households (the panel of households in 1981-82 consisted of 72 per cent of the 1970-71 sample).³

All-India data are used to observe the change between two points of time as they are representative of the relevant phenomena at the national level.⁴ Panel data are utilised to derive insights into the processes leading to this change. The two sets of data combined in this manner complete the picture. While panel data are most valuable as a means for understanding the dynamics of change, these have limitations if generalised inferences are to be drawn about the entire population at two points of time.

1. Saving and the Classificatory Variables

Saving is defined as the difference of investment and liabilities. The net addition to stock of assets during the reference period is taken to be the investment. Capital gains, capital transfers and farm inventories are excluded from investment.⁵ Expenditure on consumer durables as well as net purchase of gold and jewellery is also excluded. Saving and investment are in gross terms. No deduction for capital consumption is made. Saving in financial assets net of liabilities is referred to as net financial saving.

Categories of households are defined in terms of land ownership and not by dominant source of income, so that those marginal farmers whose dominant source of income is wage earning are included among farmers and not wage earners.⁶ The definitions of marginal, small, medium and large farmers follow the accepted convention. The landless are divided into two groups, *viz.*, the agricultural wage earners and others, the former including those whose dominant source of income is agricultural wage. In the panel data, which follow the same set of households over the period, the 1970-71 grouping of households in a category of households is retained in 1981-82, regardless of where a household, according to its land ownership status in 1981-82, would belong.

2. All India Saving and Investment Rates, 1970-71 and 1981-82

Table 11.1 shows that the saving rate of rural households which was 3.60% in 1970-71 increased to 10.26% in 1981-82. The corresponding increase in the rate of investment was from 9.44% to 13.03%.

Marked Rise in Financial Saving

Increase in the saving and investment rates in 1981-82 was principally due to the rise in the rate of financial saving from -4.40% to 2.97%. This radical change came about as a result of both a rise in the rate of gross financial saving and a decline in the liabilities-to-gross financial saving ratio from 1: 0.246 to 1: 2.07.

In 1970-71 all categories of households, barring large landowners, had negative financial saving, *i.e.*, their liabilities exceeded their gross financial savings. In 1981-82, only landless

TABLE 11.1 Saving Rate by the Landowning Category: All India

(As p.c. of household income at current prices)

Landowning Category	Physical		Total (1+2)	Financial (net of liabilities) (4)	Total Saving (3+4)	Gross Financial Saving (6)	Total Investment (3+6)
	Farm (1)	Non-Farm (2)					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1970-71							
1. Landowners	7.02	2.35	9.37	- 4.81	4.56	1.47	10.84
1.1 Marginal	1.50	1.74	3.24	- 4.54	-1.30	2.20	5.44
1.2 Small	5.69	2.09	7.78	- 3.28	4.50	1.20	8.98
1.3 Medium	12.59	2.67	15.26	-11.95	3.31	1.24	16.50
1.4 Large	12.00	4.07	16.07	4.94	21.01	1.53	17.60
2. Landless	0.98	2.05	3.03	- 2.91	0.12	1.33	4.36
2.1 Agr. wage earners	0.77	0.28	1.05	- 4.43	-3.38	0.86	1.91
2.2 Others	1.16	3.62	4.78	- 1.55	3.23	1.74	6.52
ALL HOUSEHOLDS	5.72	2.28	8.00	- 4.40	3.60	1.44	9.44

(Contd.)

TABLE 11.1 (Contd.)

Landowning Category	Physical		Total (1+2)	Financial (net of liabilities)	Total Saving (3+4)	Gross Financial Saving	Total Investment (3+6)
	Farm	Non-Farm					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
			1981-82				
1. Landowners	6.38	1.90	8.28	2.89	11.17	6.00	14.28
1.1 Marginal	3.98	0.99	4.97	1.66	6.63	3.84	8.81
1.2 Small	6.31	1.89	8.20	3.40	11.60	6.74	14.94
1.3 Medium	7.32	2.36	9.68	3.39	13.08	7.20	16.88
1.4 Large	15.79	4.85	20.64	2.94	23.58	6.25	26.89
2. Landless	0.69	2.18	2.87	3.33	6.20	4.63	7.50
2.1 Agr. wage earners	0.76	0.72	1.48	— 4.19	-2.71	-0.85	0.63
2.2 Others	0.66	2.92	3.58	7.14	10.72	7.42	11.00
ALL HOUSEHOLDS	5.33	1.95	7.28	2.97	10.26	5.75	13.03

agricultural wage earners revealed negative financial saving. In consequence, while the rural household sector exhibited negative financial saving in 1970-71, it revealed positive financial saving in 1981-82. This reduction of liabilities of the rural household sector as a whole was apparently due to the reduction of liabilities to 'arhatias' and indigenous moneylenders in mandi towns. This can be attributed to the rapid spread of bank branches in rural areas, on the one hand, and the expansion of FCI operations backed by price support policy, on the other.

Physical Saving Rate

The physical saving rate between 1970-71 and 1981-82 declined by 9.1%—from 8.0% to 7.28%. Farm and non-farm components also show a decline over time, the former falling by 9.32% and the latter by 14.5%.

Using the deflator for gross capital formation in agriculture, the gross capital formation (GCF) in the rural household sector is estimated for 1981-82. It reveals a 17% increase in GCF, in real terms, between 1970-71 and 1981-82. The increase in the farm component is 20% and in the non-farm component 10%.⁷ However, the per household GCF in real terms declines by 11.1%; 9% in the farm and 16.4% in the non-farm component.

It is of interest to look at the change in the composition of real GCF in the household farm sector between 1970-71 and 1981-82. From Table 11.2 one observes a decline in real investment in land and land improvement and farm machinery, stability in irrigation and a large increase in livestock and allied activities. The steep fall in real investment in land and land improvement can be explained only in terms of substantial disinvestment in land arising out of land being acquired for non-agricultural purposes by Government, purchase by urban households or business enterprises for farming, factory units or residential purposes. However, the most striking feature of the change in the composition of real investment over the decade is the heavy tilt in favour of livestock and allied activities and the decline in farm machinery.

Along with a shift in real investment in favour of livestock and allied activities, there is also a moderate increase in invest-

ment in non-farm activities of the household sector, real investment in the latter increasing over the decade by 10% (Table 11.3). An important fact about the non-farm activities is

TABLE 11.2 Gross Fixed Capital Formation in the Household Farm Sector by Different Components, 1970-71 and 1981-82, All-India Sample

(Amount in Rs. crore at 1970-71 prices)

Farm assets	1970-71		1981-82		Change (%)
	Rs.	Distribution (%)	Rs.	Distribution (%)	
(1)	(2)	(3)	(4)	(5)	(6)
1. Farm machinery	233	22.3	176	14.0	-23.6
2. Irrigation	299	28.5	296	23.6	- 1.0
3. Land and Land improvement	254	24.2	73	5.9	-70.9
4. Livestock	244	23.3	566	45.0	132.0
5. Other allied activities	18	1.7	145	11.5	705.6
TOTAL	1048	100.0	1257	100.0	19.8

TABLE 11.3 Gross Capital Formation in Non-Farm Assets by Major Components, 1970-71 and 1981-82, All-India Sample

(Amount in Rs. crore at 1970-71 prices)

Non-Farm assets	1970-71		1981-82		Change (%)
	Rs.	Distribution (%)	Rs.	Distribution (%)	
(1)	(2)	(3)	(4)	(5)	(6)
1. Non-Farm business	62	14.8	112	24.3	80.6
2. House property	356	85.2	348	76.7	- 2.3
TOTAL	418	100.0	460	100.0	10.0

that a significant increase in investment occurs in non-farm business component, which goes up by 80.6%, and not in house property which, in fact, decreases by 2.3%.

At this point, one might just mention that it is these shifts in the composition of household investment that explain the marked increase in the share of income from livestock and allied activities in household income from 4.0% to 7.6%, and of non-farm income in household income from 23% to 33%.⁸

Narrowing Gap between Saving and Investment Rates

It is seen that the gap between the investment rate, which continues to be higher, and the saving rate narrows down considerably between 1970-71 and 1981-82. A steeper rise in the saving rate compared to the investment rate signifies a progressively greater reliance of the rural household sector on internal finance made possible by the increase in the rate of gross financial saving, on the one hand, and a substantial reduction in liabilities to the rest of the economy, on the other.

3. Changes in the Saving/Investment Behaviour of Different Categories of Households

Some of the salient features of the saving and investment pattern of various landowning categories for all-India sample are⁹:

The rate of physical saving has increased much faster for the marginal landowners (52.6 per cent) than for small (5.5 per cent) and large ones (28.4 per cent). The physical saving rate for the medium landowners declined by 36.6 per cent. In fact, the physical saving rate for the combined group of medium and large landowners showed a decline of 22.1 per cent.

The share of marginal landowners in both saving and investment has increased and that of medium and large landowners decreased significantly. The marginal landowners who had negative share (-6.4 per cent) in total saving in 1970-71 increased their share to 14.6 per cent in 1981-82. In contrast to this, the combined share of medium and large landowners in saving declined sharply from 66.6 per cent to 30.7 per cent.

In 1970-71 net financial saving in all categories, except large landowners, was negative. In 1981-82 the situation reverses, with only agricultural wage earners exhibiting negative net financial savings. Increase in net financial savings, resulting from a significant decline in liabilities, is a phenomenon common to all the household categories. What makes the saving behaviour of marginal and small landowners different from that of the medium and large ones is that while the former increase savings in both physical and financial assets, the latter increase financial savings by diverting their investible surplus from physical savings.¹⁰

In order to understand the process of change in the saving behaviour of individual categories of rural households we return to the panel data. Before proceeding further, it would be desirable to present several related sets of data on panel households: The first on changes in income levels and landownership (Table 11.4), the second on inter-group mobility of households (Table 11.5) and the third on the movement of households in a category of household between per capita income deciles (Table 11.6).

The main findings based on panel data can be summarised as below:

Growth in real capita income has been much larger for the landless and the marginal landowners than for either small, medium or large landowners.

There has been diminution in the size of the land owned in the small, medium and large categories and a substantial increase (31%) in that of the marginal category. To be marked particularly, of course, is the acquisition of land both by landless agricultural wage earners and other landless households.

There is movement in and out of all household categories. The movement in terms of landownership is both upward and downward, so also is the movement in terms of household per capita income levels.¹¹

These features of the changing pattern of income and landownership status of different categories of rural households have considerable policy implications, but with those we are not

TABLE 11.4 Change in Per Capita Income and Land Size by the Landowning Category: Panel Households

Landowning Category	Income		% Change	Land owned		% Change
	Per Capita at			Per household		
	1970-71	1981-82 ¹		1970-71	1981-82	
1. Landowners	1149.30	1201.68	4.56	2.53	2.20	-13.04
1.1 Marginal	888.56	1021.55	14.97	0.55	0.72	30.91
1.2 Small	1076.31	1161.10	7.88	2.10	1.97	-6.19
1.3 Medium	1524.11	1459.95	-4.22	5.95	4.80	-1.93
1.4 Large	2144.77	1954.51	-8.87	15.49	10.78	-30.41
2. Landless	824.19	996.07	20.85	0.00	0.31	*
2.1 Agri. wage earners	719.30	879.49	22.27	0.00	0.34	*
2.2 Others	958.33	1120.69	16.94	0.00	0.28	*
ALL HOUSEHOLDS	1058.19	1142.29	7.95	1.74	1.61	-7.47

1. Household level index is used to convert 1970-71 income to 1981-82 prices. For details, see NCAER (1986).

2. 1970-71 Landowning Categories are retained in 1981-82.

3. There is increase in land size owned from zero base.

TABLE 11.5 Mobility as Measured through Change in Land-size Category : Panel Households

Sl. No.	Landowning Category (1970-71)	Direction of Change ¹			
		Increasing	Stationary	Decreasing	All
	(1)	(2)	(3)	(4)	(5)
<i>% Distribution of weighted Households : Row-wise</i>					
1.	<i>Landowners</i>	14.21	27.36	58.43	100
	1.1 Marginal	22.71	58.48	18.82	100
	1.2 Small	10.18	62.08	27.74	100
	1.3 Medium	07.91	49.08	43.01	100
	1.4 Large	00.00	47.60	52.40	100
2.	<i>Landless</i>	28.59	71.41	00.00	100
	2.1 Agr. wage earners	27.36	72.64	00.00	100
	2.2 Others	30.14	69.86	00.00	100
<i>No. of Sample Households</i>					
1.	<i>Landowners</i>	373	1433	731	2537
	1.1 Marginal	174	356	94	624
	1.2 Small	140	622	257	1019
	1.3 Medium	59	338	248	645
	1.4 Large	0	117	132	249
2.	<i>Landless</i>	192	410	0	602
	2.1 Agr. wage earners	91	227	0	318
	2.2 Others	101	183	0	284
	ALL	565	1843	731	3139

1. Movement of households between the two landless categories is treated as 'stationary'.

TABLE 11.6 Per Capita Income Change as Measured Through Inter-Decile Mobility Within Each Landowning Category: Panel Households

Sl. Landowning No. Category (1970-71)	% Distribution of weighted Households			Number of Sample Households				
	Direction of Movement			Direction of Movement				
	Up	Stationary	Down	Up	Stationary	Down	All	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>Landowners</i>								
1. Marginal	43.8	13.9	42.3	100.0	296	91	237	624
2. Small	41.0	10.5	48.5	100.0	402	164	453	1019
3. Medium	31.9	20.3	47.8	100.0	177	159	309	645
4. Large	23.0	27.4	49.6	100.0	47	92	110	249
<i>Landless</i>								
5. Agr. wage earners	50.5	8.0	41.5	100.0	161	39	118	318
6. Others	41.1	17.8	41.1	100.0	134	43	107	284
ALL HOUSEHOLDS	37.6	23.3	39.1	100.0	1217	588	1334	3139

concerned here. We are interested, however, in understanding the saving behaviour of these categories of households. We begin by making a distinction between the saving behaviour of a category of household over time and at a point of time. For instance, the proper reflection of the change in the saving behaviour of marginal landowners over time would be the observed difference in the saving behaviour of the same group of households, originally defined as marginal landowners, between two separated points in time, t_0 and t_1 . On the other hand, the saving behaviour of marginal landowners in t_0 and t_1 simply reveals the difference in the saving behaviour of those who in t_0 and t_1 qualify to be classified as marginal landowners. That many of those included among marginal landowners in t_1 were not marginal landowners in t_0 or the year before, is not relevant. In fact, the saving behaviour of marginal landowners in t_1 is a composite of the overtime changes in the behaviour of those who were marginal landowners in t_0 as well as those who were not, including those who were landless and those who were small landowners. The former might be on a rising saving path and the latter, if they were small landowners, on a declining one. The combination in which these two sets of households enter the marginal landowners category would determine whether and to what extent the saving behaviour of this category of households in t_1 would be different from its behaviour, if the households constituting it had been followed through to t_1 as in the panel data. The difference would then reflect the effect of inter-group mobility. It could be positive or negative, depending on whether the effect of the mobility, on balance, is upward or downward.

The dynamics of determination of the rate and structure of savings as well as the share of various landowning categories in savings is explained in terms of the following factors¹²:

- The level and change in per capita income of different categories;
- relative change in land productivity of different landowning categories, subsequently having differential effect on their income;¹³ and
- loss of land by some household categories and gain by others in the process of inter-group mobility.

It is observed from the all-India sample that (a) the marginal and small landowners together contributed more than one hundred per cent and middle and the large together made negative contribution to increase in farm investment. Of this increase in farm investment the main contribution came through increase in livestock, particularly by the marginal landowners¹⁴; (b) although net financial savings increased for all categories except the landless agricultural wage earners, a significant contribution to the increase in net financial savings came from the medium and large landowners (28.6 per cent) in spite of much less increase in per capita income of these groups than that of the marginal landowners (Tables 11.1 and 11.7).

An explanation of these two observations is offered. Although the proportion of marginal landowners who moved up and those who moved down the income ladder in the panel is almost equal (Table 11.6), the observed significant rise in the per capita income of this group of landowners is due to the fact that the rise in income of those on the upward movement has more than compensated for the fall in income of their counterparts on the path of downward movement. The nature of inter-group mobility and the corresponding change in the pattern of per capita income would account for the increase in saving rate as well the share in saving of the marginal landowners. Since marginal landowners invest more in farm assets, given the current state and diffusion of technology, a relatively larger rise in the level of per capita income and also the share in total income of the marginal landowners steps up investment in farm assets (mainly livestock), thus affecting the structure of savings in favour of physical assets. However, the rise in income of large landowners has raised the financial, more than the physical, component of saving. A comparison of the panel and all-India results supports this view. Although the saving rate of large landowners is not different for the two years of panel, the structure of saving is (Table 11.8). The structure of saving has changed in favour of the financial component to a larger extent in the all-India sample than in the panel. This situation indicates that the households moving into the large landowner category may be on the rising saving path. As argued earlier, such households divert their investible surplus to financial instruments which may support the observation of change in

TABLE 11.7 Change in Per Capita Income and Land Size By the Landowning Category: All India

Landowning Category	Income		% Change	Land owned		% Change
	Per Capita at 1981-82 ¹ Prices			Per household (hectare)		
	1970-71	1981-82		1970-71	1981-82	
	(1)	(2)	(3)	(4)	(5)	(6)
1. Landowners	1144.74	1210.68	5.76	2.59	2.15	-17.00
1.1 Marginal	837.59	1042.53	24.47	0.53	0.51	- 3.77
1.2 Small	1090.41	1148.62	5.34	2.07	1.94	- 6.28
1.3 Medium	1491.39	1552.12	4.07	6.21	5.92	- 4.67
1.4 Large	2152.78	2343.66	8.87	15.57	14.15	- 9.12
2. Landless	813.46	1038.49	27.66	0.00	0.00	
2.1 Agri. wage earners	702.80	717.97	2.16	0.00	0.00	
2.2 Others	955.10	1340.97	40.40	0.00	0.00	
ALL HOUSEHOLDS	1051.73	1174.32	11.66	1.76	1.60	- 9.10

1. Household Level Index is used to convert 1970-71 income to 1981-82 prices. For details, see NCAER (1986).

TABLE 11.8 Saving Rate by the Landowning Category: Panel Households
(% of household income at current prices)

Landowning Category (1970-71)	Physical		Total (1+2)	Financial (net of liabilities)	Total Saving (3+4)	Gross Financial Saving	Total Investment (3+6)
	Farm	Non-Farm					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	1970-71 ¹						
1. Landowners	7.21	2.50	9.71	-2.94	6.77	1.58	11.29
1.1 Marginal	3.05	1.93	4.99	-4.08	0.91	2.39	7.37
1.2 Small	5.71	2.17	7.80	-3.85	4.04	1.00	8.89
1.3 Medium	13.15	3.05	16.19	-3.39	12.81	1.89	18.08
1.4 Large	10.90	4.02	14.92	4.31	19.22	1.53	16.45
2. Landless	0.74	1.93	2.67	-2.38	0.29	1.83	4.49
2.1 Agr. wage earners	0.79	0.28	1.06	-3.97	-2.92	1.08	2.15
2.2 Others	0.69	3.33	4.02	-1.01	3.01	2.47	6.49
ALL HOUSEHOLDS	5.81	2.80	8.19	-2.82	5.37	1.63	9.02

(Contd.)

TABLE 11.8 (Contd.)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>1981-82 (Follow-Through)²</i>							
1. <i>Landowners</i>	6.63	2.18	8.81	0.83	9.64	5.48	14.29
1.1 Marginal	3.30	1.48	4.78	0.79	5.57	4.04	8.83
1.2 Small	5.39	1.99	7.38	0.12	7.50	4.83	12.21
1.3 Medium	9.54	3.71	13.26	2.77	16.03	8.33	21.59
1.4 Large	18.16	1.88	20.04	0.02	20.06	7.10	27)14
2. <i>Landless</i>	2.50	2.38	4.88	0.50	5.38	3.83	8.71
2.1 Agr. wage earners	1.32	1.73	3.05	-1.33	1.72	1.27	4.32
2.2 Others	3.48	2.93	6.42	2.03	8.44	5.97	12.38
ALL HOUSEHOLDS	5.59	2.23	7.82	0.74	8.56	5.06	12.88

1. Grouping is based on 1970-71 landowning status.
2. 1970-71 landowning status is retained in 1981-82.

the structure of saving in favour of the financial component.

The category of the landless offers an interesting case. While for the category of 'other' landless the per capita income as well as the saving rate has increased very significantly, there has been little change (2.2 per cent) in the per capita income of landless agricultural wage earners. The saving rate of agricultural wage earners remains negative in both the years in all-India sample. The fact that, in the 'follow through' situation of panel data, agricultural wage earners show positive saving and also an increase of 21 per cent in their per capita income, shows that those who were agricultural wage earners in 1970-71 improved their income and saving position considerably, and some of them moved into other categories of higher land and income status. However, those who moved into this category experienced falling income and reduced savings. Thus, on balance, the position of agricultural wage earners with regard to saving and income reflects little improvement in the all-India sample.

4. Concluding Observations

What has been done in this brief paper is to set out the changes in the saving and investment patterns of different categories of rural households. It was observed in the all-India sample that (i) the saving rate for rural households increased significantly from 3.6 per cent in 1970-71 to 10.26 per cent in 1981-82; (ii) the financial component of their savings has risen faster than the physical component; (iii) shifts in income sources are closely associated with shifts in investment. In particular, the role of investment in livestock and non-farm business has been very significant in raising the share of income from these sources; (iv) all categories of households, except landless agricultural wage earners, had positive net financial savings in 1981-82. In contrast to this, in 1970-71 all categories, except large landowners, had negative net financial savings; and (v) saving rate has risen fast particularly for the marginal landowners who have made significant contribution to the growth in farm investment.

We have used panel data to explain the dynamics of the above patterns. It has been argued that the changing investment pattern in the rural economy is influencing the pattern of

income growth in different categories of households, and that the inter-group mobility of households has played a part in raising the saving rate among rural households.

NOTES

1. The six household categories are defined as below:

<i>Landowners</i>	$L0 > 0$
Marginal	$0 < L0 < 1.0$
Small	$1.0 \leq L0 < 4.0$
Medium	$4.0 \leq L0 < 10.0$
Large	$L0 \geq 10.0$
<i>Landless</i>	$L0 = 0$
Agr. wage earners	$L0 = 0$ and more than 50% of household income is from agricultural wages.
Others	$L0 = 0$ excluding agricultural wage earners.

where $L0$ is land owned in hectares inclusive of orchards.

2. The size of all-India samples of 1970-71 and 1981-82 is 4363 and 4947 respectively. For details of sample design of 1970-71 study, see NCAER(1975) and for 1981-82 NCAER (1987). The main contents of 1981-82 sample design have appeared in Vashishtha (1988) also.
3. The panel data consist of 3139 households. The panel households satisfy at least one of the following two conditions: (i) Head of household was alive in 1981-82 with or without split in the household; and (ii) if the head of household in 1970-71 was no more alive in 1981-82, the household had remained intact.
4. See Annexure.
5. Investment in livestock is included as part of farm investment and is defined as the construction and new addition to cattle sheds (including those for poultry etc.) and the value of net birth (birth minus death) of livestock (poultry). Non-farm inventory is taken as part of investment in non-farm business assets.
6. An income source is called 'dominant' if it accounts for more than half the household income. The households which earn more than 50 per cent of their income from agricultural wages are included

in the category of landless agricultural wage earners.

7. The non-farm component is deflated at the same rate, i.e., at the rate for agriculture. The deflator for non-farm GCF may be different and possibly lower. The deflator for private gross domestic fixed capital formation in agriculture is 2.654 for the year 1981-82 (NAS old Series with 1970-71 as base).
8. The major contributor to increase in non-farm income is wage and salary and not the non-farm business component of household income.
9. See Table 11 .1. These findings are discussed in detail in Vashishtha (1988).
10. The physical saving rate has significantly declined and the net financial rate has increased for the medium landowners. In the case of large landowners physical saving rate has declined significantly in spite of a substantial rise in their gross financial savings. The large landowners seem to finance their physical investment through borrowings from institutional sources and divert their own savings to financial instruments, mainly bank deposits.
11. There are sufficient number of observations in each cell in Table 11.6 which shows per capita income change as measured through inter-decile movement. This is true of Table 11.5 also showing inter-group mobility, the only exception being two cells representing change in the landsize category of large landowners in the upward direction and that of landless in the downward direction. For further details on this aspect, see Annexure.
12. Here the emphasis is on factors which are mainly of economic nature. We are aware that social and demographic factors also play important part in inter-group mobility. Although a quantitative analysis of the relative importance of economic factors on the one hand and social and demographic on the other is essential, only the former is taken up in this paper.
13. The changes in land productivity for various landowning categories are documented in Vashistha (1988, Table 9). It is shown there that the land productivity for the marginal landowners increased by 26 per cent as compared to 13.3 per cent increase for the landowners of all categories combined. The increase in land productivity was 2.2 per cent for the small category and 8.4 per cent for the combined group of medium and the large landowners. The corresponding changes in per capita income for different landowning categories show the same pattern.
14. For details on this aspect, see Vashistha (1988).

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ANNEXURE*

In this note we address ourselves to the following questions: (i) Is the all-India sample of 1981-82 representative of 1981-82 population? and (ii) Is the sample size of 3139 households in the panel adequate to allow inferences about the phenomenon of inter-group mobility?

As the details of the design of our 1970-71 and 1981-82 studies are given elsewhere (reference note 2), these will not be repeated here. We intend to focus only on the questions raised above.

A sample is deemed to be representative if it is capable of providing unbiased estimate(s) of characteristics of the population from which it is drawn. We show below that this is true of our 1981-82 all-India sample.

- a The set of villages included in the two samples of 1970-71 and 1981-82 is exactly the same. Since the villages were selected on the basis of probability sampling in 1968-69, and the change in the number of villages has been negligible over the period 1968-69—1981-82, the probabilistic nature of village selection in 1981-82 sample is maintained.
- b. A fresh listing of all households in the sample villages was done in 1981-82 to estimate the population in that year. The listed households in each village were divided into two strata. One consisted of those households which were the same, according to certain criteria, as were included in the sample of households in 1970-71, and the other included the rest of the households. The first stratum was selected with probability 1. From the second stratum a random sample of households was selected. These two samples were then pooled to give unbiased estimates for population characteristics.**

* Authors are grateful to Mr. I. Natrajan for constructive suggestions.

** For example, suppose a sample village is selected with probability P_i and N_i households were listed in this village. Let n_{1i} be the

- c. It is clear from (b) above that the all-India 1981-82 sample does not seek 'replacement' of the non-panel component of 1970-71 sample. In fact, the former is based on a new selection, altogether assigning new weights to households. Thus, the 1981-82 all-India sample is fully representative and ensures unbiased estimates of 1981-82 population.

We maintain that both the all-India and the panel sample sizes are adequate to analyse the income and saving behaviour of different socio-economic groups. Whether or not a sample is adequate is to be judged by

- (i) the standard error of the estimate of population parameter(s); and
- (ii) the number of sample observations in various cells representing cross-classification of different socio-economic groups.

The standard error of mean household income does not

number of households selected with probability 1. The second stratum would then consist of $N_i - n_{1i}$ households. Let n_{2i} be the number of households selected at random from this stratum. The total sample size for the village would be $n_{1i} + n_{2i}$. For any characteristic Y an unbiased estimate for this village is given by

$$y_i = \sum_1^{n_{1i}} y_{1j} + \frac{N_i - n_{1i}}{n_{2i}} \cdot \sum_1^{n_{2i}} y_{2j}$$

$$\text{Then } y = \frac{1}{v} \sum_1^v \frac{y_i}{p_i}$$

gives an unbiased estimate for the entire population, where v is the number of sample villages.

Implicit in this procedure there will be a new set of weights for estimating the 1981-82 population values.

$1/vp_i$ will be the weights for the households selected with probability 1 in village i and $\frac{N_i - n_{1i}}{n_{2i}} \cdot \frac{1}{vp_i}$ will be the weights for sample households selected from the second stratum in village i .

exceed 6 per cent in either of the two surveys. The margin of error in a sample household survey is consistent with the conventionally acceptable level of efficiency in estimates. In this context, we would like to emphasise that this level of efficiency is achieved with our sample size because of two specific features of the sampling procedure: (a) listing of all households in a selected village and their stratification into three income groups and (b) over-sampling of medium and high-income group households because of their relatively small proportion in the total population and greater variability in income. On account of these two features it is possible to obtain a high degree of efficiency with a relatively small sample. Without them the sample size would have to be significantly larger to achieve the same degree of efficiency.

Question (ii) arises with reference to inferences drawn with respect to inter-group mobility in terms of per capita income and household ownership of land. To begin with, it is emphasised that the inferences in the paper are drawn in the form of three broad categories of change, namely, increase, stationary and decline. These inferences indicate the direction of change, but do not specify its extent. This is how it is in Table 11.6 in the paper. In the case of mobility in land ownership, inferences based on Table 11.5 are also in the same form, the contents of which are derived from Table A.1, the latter containing more details on inter-group mobility than the former. This is done to bring the format of Table 11.5 in conformity with that of Table 11.6.

The observations in Table 11.5 show 'nil' in two cells, representing the phenomenon of change in landsize category, upward direction for the large landowners and downward for the landless. Since the large landowners cannot move to a higher category and the latter to a lower category of landsize, these cases of zero observations can be ignored from the point of view of adequacy of number of sample observations. If we do so, the minimum observation in any cell in Table 11.5 is 59 and in Table 11.6, 39.

It may be emphasised that although our inference on inter-group mobility is based on Table 11.5, this phenomenon can be studied from Table A.1 without any serious reservations regard-

TABLE A.1 Inter-Group Mobility for Landowning Categories: Panel Households

Sl. No.	Landowning category (1970-71)	1981-82					Total ¹	% of total households	
		Landowners		Landless		Total			
		Marginal	Small	Medium	Large				Agricultural wage earners
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)		
% Distribution of weighted Households: Row-wise									
<i>Landowners</i>									
1.	Marginal	58.48	21.06	01.65	00.00	11.78	07.04	100	25.86
2.	Small	22.46	62.08	09.57	00.61	01.77	03.51	100	30.97
3.	Medium	10.31	29.37	49.08	07.91	02.21	01.11	100	9.30
4.	Large	03.64	09.81	37.45	47.60	00.12	01.39	100	2.53
<i>Landless</i>									
5.	Agricultural wages	18.58	07.61	01.15	00.02	54.55	18.09	100	17.43
6.	Other landless	19.17	08.98	01.97	00.02	15.80	54.06	100	13.90
	% of total households	29.04	30.23	9.38	2.14	15.51	13.72	100	100.00

1. Sum of row elements is 100.

(Contd.)

TABLE A.1 (Contd.)

Sl. Landowning No. category (1970-71)	1981-82						
	Landowners			Landless			Total
	Marginal	Small	Medium	Large	Agricultural wage earners	Other landless	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
	<i>Number of Sample Households</i>						
<i>Landowners</i>	584	1021	566	190	71	105	2537
1. Marginal	356	160	14	0	41	53	624
2. Small	201	622	126	14	19	37	1019
3. Medium	25	202	338	59	10	11	645
4. Large	2	37	88	117	1	4	249
<i>Landless</i>	122	58	10	2	198	212	602
5. Agricultural wages	56	28	6	1	164	63	318
6. Others	66	30	4	1	34	149	284
ALL HOUSEHOLDS	706	1079	576	192	269	317	3139

ing the adequacy of sample observations in different cells. Barring a few cells, showing an extreme degree of movement, such as marginal landowners moving to the category of large, and the movement of either of the landless category of households to medium and large category or *vice-versa*, all other cells have adequate number of observations. We may not place much confidence in inferences about the nature of movements of such extreme nature. These cases do not necessarily invalidate the inference from panel data that there is considerable inter-group movement of various categories of households.

SAVINGS POTENTIAL AND MOBILISATION STRATEGY: METHOD, ESTIMATES AND POLICY ISSUES

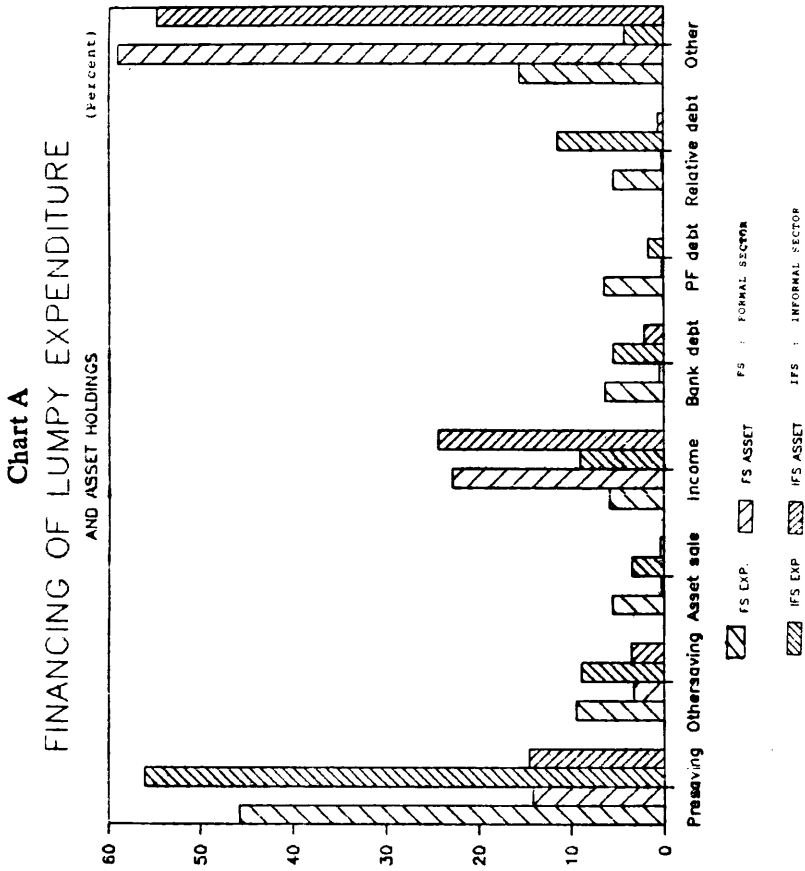
Vinay D. Lall

1. Saving Estimates

Methodology

The conventional methodology to estimate saving takes into account total household income and normal monthly household expenditure but in the absence of adequate data on lumpy expenditures incurred by the household periodically, these are not considered. One of the more recent SDS studies¹ has built an extensive data base on lumpy expenditures and developed relevant norms related to both household income and expenditure. These norms are incorporated into the normal household expenditure to work out a more realistic definition of the saving equation.

A five-year cut-off period is taken for lumpy expenditures though no specific time period is sacrosanct. The time period should, however, not be too long or too short. The lumpy expenditures are then added to the normal monthly expenditures on a *pro-rata* basis to obtain a comprehensive definition of monthly expenditure. However, only debt-financed lumpy expenditure is included as only such expenditure creates a liability that has a direct and immediate negative effect on the saving capacity (See Chart A). Possibly, the first claim on future income may be of the repayment of such debt, particularly if it was taken from indigenous money-lenders and



employment-linked sources where repayment of the debt is made at the source of income generation. Other sources of financing lumpy expenditure include personal saving and sale of assets, but they do not entail a claim on future income, though they may reduce the availability of a cushion to finance lumpy expenditures or part of normal household expenditures.

The saving rate is thus computed as follows:

$$SR_n = \frac{Y - C_n}{Y} \times 100$$

$$SR_c = \frac{Y - (C_n + LC_p)}{Y} \times 100$$

Lumpy Expenditure Norms

Lumpy expenditure norms are recommended for 13 selected towns, 5 income groups and 4 age-groups. An all-India norm is also recommended, separately for the formal and the informal sector households. The norms are measured in terms of household income (LE_i) and household expenditure (LE_e). At the all-India level, LE_i is 1.4 per cent and 0.8 per cent for the formal and the informal sectors, respectively, and LE_e is 1.6 per cent and 0.9 per cent. Disaggregated level norms are presented in Table 12.1.

In view of the low LE_i , and LE_e , the prospects of financing such expenditures by purpose-specific saving schemes seem to be very bright. Furthermore, if the pressure of the social environment can be reduced by education, promotion activities and success story demonstration cases, the quantum of lumpy expenditures and, therefore, the lumpy expenditure norm, can be reasonably reduced. Such preparatory measures will be useful to develop the inclination to save, which can be nurtured into a saving habit, with the availability of target-group-specific saving instruments. If such a system is developed, it is estimated that an additional one per cent to two per cent of normal monthly income can be channelled into the saving system and even if one-half of this amount is placed in financial saving instruments and the other half is used subsequently to finance lumpy expenditures or kept as physical saving, the mobilisation programme can be considered to be successful. It may be added

TABLE 12.1 Lumpy Expenditure Norms

	LE_i		LE_e	
	Formal Sector	Informal Sector	Formal Sector	Informal Sector
	(1)	(2)	(3)	(4)
I. Town				
1. Delhi	2.0	0.7	2.1	0.8
2. Madras	2.6	1.7	3.2	2.2
3. Bangalore	2.3	0.7	2.9	0.9
4. Kanpur	1.0	N	1.4	N
5. Nagpur	3.7	0.6	4.1	0.7
6. Jaipur	0.9	1.3	1.1	1.3
7. Patna	0.6	2.0	1.0	2.1
8. Gwalior	0.4	—	0.3	—
9. Trivandrum	0.9	N	1.1	—
10. Ghaziabad	0.7	0.9	0.5	1.1
11. Bhubaneshwar	0.8	—	1.0	—
12. Sonapat	1.9	0.5	1.8	0.6
13. Srirampur	2.1	3.7	2.6	4.3
II. Income Group				
(Rs. p.m.)				
1. Upto 350	—	—	—	—
2. 351—600	4.0	0.5	4.4	0.6
3. 601—1,000	0.9	1.1	1.0	1.2
4. 1,001—1,500	1.3	0.7	1.4	0.8
5. Above 1,500	1.6	0.8	1.9	1.0
III. Age Group (Years)				
1. Upto 25	1.1	0.6	0.9	0.7
2. 25—40	1.4	1.0	1.6	1.1
3. 41—55	1.5	0.4	1.8	0.5
4. Above 55	2.2	—	2.8	—
TOTAL	1.4	0.8	1.6	0.9

Note : LE_i : Lumpy expenditure financed by debt as per cent of household income.

LE_e : Lumpy expenditure financed by debt as per cent of household budget.

that the saving finally used to finance lumpy expenditure of a final consumption type would, nevertheless, remain in the effective possession of the financial system for the period of the saving programme; this too is a useful contribution.

There is some discrepancy between the estimate of saving made directly from primary data on saving actually made by the SDS households and that computed on the basis of the saving equation, $Y - C$. This is because the aggregation of the saving data represents gross saving, including saving made during the year out of dis-saving from earlier saving schemes, which is a common practice, used by income tax assesses in particular, to finance a saving programme to obtain fiscal rebate under section 80C of the Income-tax Act, 1961. Furthermore, new saving can take place in a deficit budget, if it is debt finance or made under some statutory provision. A saving mobilisation strategy must be designed only on a proper assessment of "true" saving potential.

CSO and SDS Estimates

The CSO new series have estimated gross saving rate for 1985-86 at 22.0 per cent and net saving rate at 13.3 per cent. The total gross and net saving are Rs. 57,630 crore and Rs. 31,190 crore. Household financial saving (Rs. 19,125 crore) constituted 33.2 per cent and 61.3 per cent of the gross and net savings, respectively. The CSO data do not provide any break-up on rural and urban saving. Assuming that rural savings constitutes 30.0 per cent to 35.0 per cent of total saving, as per informal 'guesstimates' made by people working on household saving and also the appropriate share of rural income in national income, urban saving can be assumed to be Rs. 13,000 crore and rural saving Rs. 6,125 crore.

In view of the large share of urban saving in national saving, it is necessary, in the perspective of developing target-group-specific saving instruments and policies, to disaggregate urban saving into its two major segments: formal sector and informal sector household saving. SDS estimates of potential urban saving are available at various disaggregated levels, for urban formal sector households and urban informal sector households and further, in each case, for selected income and age-groups of head of households.

The SDS estimates of saving rates for 1986-87 are 18.8 per cent in terms of actual saving (which includes saving financed from dis-saving) and 11.5 per cent and 10.2 per cent in terms of estimated SR_n and SR_c . The CSO saving rates are higher than the SDS saving rate because they are not wholly made from current income but appear to be made also from past income, including a process of "dis-saving" both of financial and physical assets to finance "new" saving. This seems to be done largely to benefit from saving-linked fiscal incentives. The SDS estimates are a modest attempt to reduce the effect of the "dis-saving" process to finance "new" saving, by adjusting for lumpy expenditure as a proxy, as the SDS data have shown that more than two-third of lumpy expenditure is financed by a process of dis-saving. It would be desirable to extend the analysis to estimate the real effect of dis-saving to finance "fresh" saving, examine the reason for this process and evaluate further the motivative role of tax-related incentives (Section 80C and 80L reliefs, in particular).

The SDS proposes to undertake such an exercise in the near future and CSO could also possibly attempt to do a similar exercise so as to derive a proxy for working out the "additionality" in the annual saving estimates.

The most preferred SDS estimate of urban saving is Rs. 15,696 crore: Rs. 11,844 crore urban formal sector saving and Rs. 3,852 crore urban informal sector saving. These estimates are derived from the SDS estimated saving rates and assumed proportions of the households that participate in the saving programme. Thus, it is assumed, on the basis of SDS and other studies, that 40.0 per cent to 50.0 per cent of the urban population includes informal sector households and further that around one-third of urban population constitute the saving community. A saving rate of 20-25 per cent is assumed for formal sector households. and 15=20 per cent for the informal sector households.

The SDS estimate of urban saving at Rs. 15,696 crore is about 20 per cent higher than the estimated urban saving based on the CSO data. One strong reason for the differential may be that the saving of the urban informal sector (24.5 per cent of total urban saving) do not appear to be fully reflected in the estimated CSO saving data. We feel that the urban saving

mobilised by existing saving instruments and the formal institutional system succeeds in reaching only around 5.0 per cent of potential urban informal sector saving.

The SDS estimated total national saving at Rs. 23,427 crore, assuming that one-third of national saving accrues in the rural sector, one-third in urban informal sector and one-half in urban formal sector.

2. The Issues

There is increasing feeling among researchers and policy-makers that the most effective strategy to solve the problem of resource crunch would be greater mobilisation of household savings. A good idea about the saving behaviour of the household sector is no doubt crucial. What is, however, more important is to assess the saving behaviour at several disaggregated levels, such as, of rural households and, within the urban households, of urban formal households and urban informal households. It will be extremely useful to have an idea of the saving behaviour at the local level—State, town, district, etc., and also by distinct categories of households, classified in terms of income and age of the head of household, size of household, and type of household (nuclear or joint).

Collection or estimation of such disaggregated level data and analysis of saving behaviour have not been attempted inspite of almost four decades of planning and a large institutional infrastructure developed over the years to estimate national income, monitor financial flows and work out intricate forecasts and plans on salient aspects of the economy. This absence of disaggregated level data and analysis on saving behaviour is probably the basic reason for designing across-the-board saving instruments and assuming, quite simplistically, that the available saving instruments cover all the potential saving in the economy. My informal discussions with bankers, planners and financial experts have usually led to the conclusion that all that is possible to mobilise from the household sector is already being done through the network of commercial banks, cooperative banks, post offices, LIC schemes, UTI schemes, etc. A few questions that remain unanswered are:

- (i) What is the share of saving already mobilised from different types of households: rural, urban formal, urban informal, salary earners, self-employed, business group, young and middle aged and old people?
- (ii) Do we have any idea of the potential saving of different segments of the household sector?
- (iii) What is the proportion of mobilised saving financed from 'dis-saving' from early saving efforts and "reallocation" of past saving so as to have an idea of the "additionality" in the national saving efforts?
- (iv) Is the method of estimation of saving comprehensive or, can further refinements be incorporated in the methodology?

An idea of the saving behaviour is a prerequisite for designing target-group-specific saving instruments and policies and an assessment of the potential saving is crucial to work out the economics of a cost-effective saving collection and servicing delivery system. My view is that these issues are not given the attention they deserve at the time of structuring saving instruments and determining the strategy to promote and market the saving instruments and work out the operational cost in terms of the rate of interest on the saving deposit, building a collection and servicing institutional infrastructure (including manpower planning), fixing rate of commission to brokers, incorporating fiscal and other incentives (for example, multiple interest rate), planning investment outlets for the mobilised saving, etc.

It will be useful if the Seminar examines some of these issues, which I feel are essential to develop the perspective for examining the critical issue: "Can more saving be mobilised from the household sector and if so, at what cost?"

In this paper a few issues are raised, more with the purpose of sharing some of the recent empirical evidence generated by the Society for Development Studies (SDS) rather than providing final answers to the issues raised.

3. Saving Behaviour and Plans

Composition

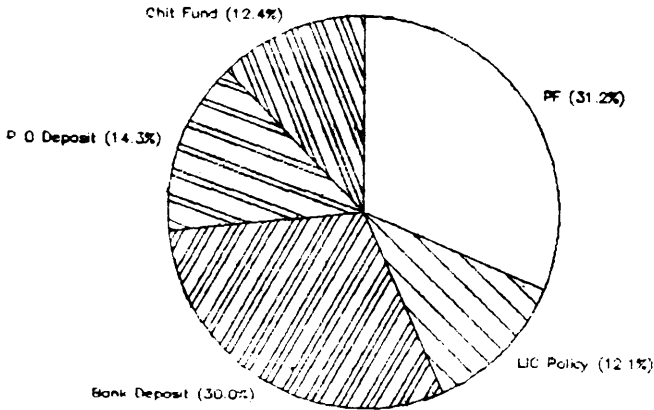
The SDS data on saving behaviour of 2087 urban house-

holds show that an average household participates in 2.2 saving schemes in the formal sector and 1.2 schemes in the informal sector. The average amount of monthly saving is estimated at Rs. 443 and Rs. 133, respectively. This gives a saving rate (SR_n) of 21.0 per cent and 12.1 per cent in the two sectors, with the overall saving rate being 19.0 per cent. The formal sector household savings are basically of a statutory nature, largely in the employees provident fund, which accounts for 6.4 per cent of households, while this saving instrument accounts for only 12.7 per cent of the households in the informal sector. The informal sector households are keen to participate in a provident-fund type of saving scheme, mainly because of the matching contribution made by the employer and safety of the accumulated saving. Chart B presents the composition of household saving.

It is interesting to find that a large part of the saving of informal sector household is in commercial banks and post office, mainly because other schemes are not easily available. The data, however, do not suggest that the commercial banks and office saving schemes tap all or even a large part of the possible saving in the informal sector, a view sometimes put forth by bankers. The main reason to suspect that the saving potential of the informal sector is not being tapped adequately by the organised sector institutions is the large average amount of saving placed with informal chit funds by households in both the formal and the informal sectors. Households who participate in the chit fund type schemes save, on the average, as much as Rs. 367 and Rs. 168 per month, which are considerably higher amounts than the average monthly saving in any other saving scheme, including the provident fund.

The informal sector household participates to a very small extent in the saving schemes of the LIC in the form of life insurance policy, mainly because promoting such activities among informal sector households is not only more arduous work for the LIC and its agents, but greater risks are involved and policies are generally of low values. The economies of raising the rate of commission on policies of people working and living in the informal sector and belonging to other low-income groups must be explored, as one of the promotional measures to mobilise large saving from this segment of society.

CHART B - COMPOSITION OF HOUSEHOLD SAVINGS
FORMAL SECTOR



COMPOSITION OF HOUSEHOLD SAVINGS
INFORMAL SECTOR

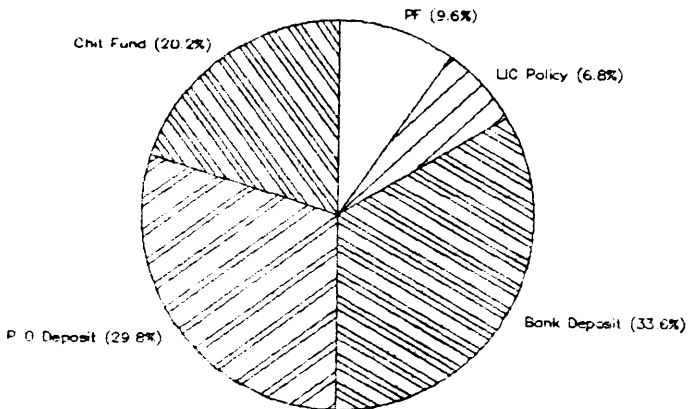


CHART B

A special bonus may be given to the LIC agent who attains pre-stipulated target of business from informal sector households.

Level and Potential

The analysis of the present saving efforts and discussions with the saving community clearly revealed that not only is the level of the saving efforts creditable but that a quantum jump in the amount of saving is possible, if more flexible saving schemes are promoted and marketed through conveniently located collection depots. The wide gap between the amount of average saving actually made at the household level in informal saving schemes like the chit fund and in the saving schemes of organised sector saving institutions, both by formal and informal sector households, suggests that if the attractive features of the informal saving schemes are examined and incorporated into the saving instruments marketed by the formal sector institutions, there exists a good potential for improvement in mobilisation of saving. This was also a recommendation of a group of experts from developing and developed countries who examined the issues at an International Workshop on Mobilisation of Informal Sector Saving which was organised by the SDS in December, 1986.

The SDS data on household sector saving behaviour reveal that the level of annual saving is considerable: 57.3 per cent of formal sector households actually save more than Rs. 1,000 per annum. Taking the SDS sample as a whole, the monthly saving exceeds Rs. 80 for three-fourth of them, Rs. 200 for two-fifth and Rs. 300 for one-fourth of the households. A monthly deposit saving scheme is preferred, mainly because income accrues in the formal sector on a monthly basis and what is more important, 86.4 per cent of the households save in provident fund where saving is made at monthly intervals. The informal sector households who save in schemes of commercial banks and post offices, have to also save largely on monthly basis. They would, however, prefer to save at shorter intervals, linked to their pattern of income accrual. In the absence of such saving schemes, a part of the potential saving seems to get dissipated as informal sector households find it difficult to keep possible saving in cash within the household

for two to three weeks. The NHB network will have to take steps to provide more frequent level saving schemes, if it wants to reach the saving of low-income and informal sector households. The success of the informal chit fund saving schemes in mobilising larger average monthly amounts of saving is due to the facility available to the households to make small amount saving deposits at short intervals, often on more than one occasion within a month.

The monthly saving data show that high saving pockets are largely in the southern parts of the country due to the well-developed informal chit fund system. These schemes are operated without any paper work (except for the record maintained by the organiser), a good deal of persuasion and dynamism which has initiated and nurtured a good saving habit among the people. While some chit funds are specific-purpose schemes to acquire certain assets and to make certain anticipated lumpy expenditures, a large number of them operate as purely general-purpose saving schemes. The lesson from the success of the chit fund schemes is that they develop a saving habit gradually, are easily accessible, generate confidence on safety of the accumulated saving and fit their activities into the saving capacity, behaviour and plans of the target group.

Home-loan-linked Saving

As the objective of the SDS study was to recommend a saving mobilisation strategy for the new housing finance system, an attempt was made to examine the saving plans of the community in respect of general-purpose saving schemes and housing-linked saving schemes. More than three-fourth of the formal sector households and two-third of the informal sector households expressed keenness to make additional saving, over and above what they actually save at present, with a home loan institution. Such additional saving, linked to a home-loan scheme, are estimated at Rs. 283 and Rs. 122 per household per month in the formal and the informal sectors, respectively. These estimates are based on the assumption that the current level of income remains unchanged.

The saving community in the formal sector has a relatively medium-term saving period in mind: 53.7 per cent expressed the intention to save for upto 5 years. What is more important

is that a sizeable proportion has a long-term saving plan: 22.7 per cent have a 5 to 10 years plan, 10.0 per cent have 10 to 15 years plan and 13.7 per cent have a plan exceeding 15 years. Even more important is the long-term saving programme of informal sector households, with only 45.8 per cent having a saving plan of upto 5 years. The longer saving plan of informal sector households is based on their view that small amount saving will require a longer period to accumulate a reasonably large amount for a future home loan. This inherent intelligence of the so-called low-income and/or semi-literate/illiterate informal sector individual, is a welcome sign for a saving mobilisation programme.

The saving community, which desires a future home loan, is not interested in earning a high rate of interest. In the formal sector, 35.0 per cent of households will be satisfied with a rate of interest of upto 5.0 per cent and another 51.5 per cent desire a rate of interest in the 5.0 per cent to 10.0 per cent range. The informal sector households are even less inclined to earn a high rate of return on their saving and place a higher priority on security of the saving deposit, easy accessibility to the accumulated saving in time of need, simple procedures and collection system and, what is most important, a home loan within the stipulated period, which will be adequate to purchase a house.

4. Saving Mobilisation Strategy

Principles

A saving mobilisation strategy is recommended on the basis of SDS data on saving plans, saving capacity and saving requirements. The saving schemes must keep in view the nature of income flows, the irregular and seasonal nature in the case of low-income and informal sector households, pattern of household expenditure, including lumpy expenditures, requisite flexibility in the saving instrument in terms of deposit amount, collection interval, saving period, rate of interest and incentives. As fiscal incentives, a major saving stimulant, are restricted to income tax assesseees, it is recommended that an incentive, which bestows a similar benefit of higher gross return on saving, is provided to non-income tax assesseees, by raising the

rate of interest and/or rebate or commission on purchase of a saving instrument. To prevent misuse of the facility of direct higher income, the saving instrument must be endorsed with the words "non-income tax assessee".

It is recommended that the fiscal incentive presently given to repayment of home loan from housing finance institutions be extended to financing a housing programme from own saving. To encourage household saving, it seems logical to grant fiscal and other incentives at a higher rate to household saving-financed housing activity.

Instruments

A few saving instruments are recommended which are as follows:

a. Conventional schemes

- (i) Fixed monthly saving schemes (FMS Scheme)
- (ii) Home loan-linked saving scheme (HLLS Scheme)
- (iii) Graduated saving scheme (GS Scheme)

b. New Schemes

- (i) Housing bearer bond scheme (HOBB Scheme)
- (ii) Housing lottery scheme (HOUSLOT Scheme)
- (iii) Bharat Awaas Patra (BAP)
- (iv) Materials-linked saving scheme (MLS Scheme)
- (v) Purpose-Specific saving scheme (PUSS Scheme)
- (vi) Youth saving scheme (YOS Scheme)
- (vii) Indexed saving scheme (INDSAVE Scheme)

Contractual saving schemes have attracted much attention in recent years, mainly because the participant is entitled to a loan at a multiple amount of the accumulated saving and the rate of interest on the loan, as on the accumulated saving, is considerably lower than the market rate. The operational problems, however, need to be carefully examined. A solvency problem might arise if the loan commitment has to be met from outside the saving fund generated by the contractual programme as the outside funds are likely to be mobilised only at a rate of interest that is higher than will be earned on the loan. A liquidity problem may arise even earlier. If the scheme adopts a practice of queuing to solve the problem of resource

crunch in the contractual saving fund, the credibility of the scheme will erode over time. Delay in providing the loan may also raise the cost of the end-use product and make it unaffordable. An attempt to provide the multiple loan through recourse to re-financing facility from the National Housing Bank may reduce the length of the 'queue' but the economics of obtaining the re-financing facility have to be carefully worked out.

c. Delivery System and Action Plan

The success of target-group-specific saving schemes will depend to a considerable extent on the development of a diversified grass-root level, cost-effective delivery system, which is built on the principle that the convenience of the customer is most important. An attempt should be made to also ensure that complaints, if any, from the saving community are immediately examined and, where possible, resolved. When it is not possible to accept the complaint, a serious attempt should be made to explain the institution's problem to the target community and win/maintain its confidence in the system. The saving habit, irrespective of the amount of saving, should be gradually built up and all possible adjustments in saving schemes, collection method, etc., must be done to accommodate all segments of the saving community. While it is desirable to limit the creation of local level branch offices, it will be desirable to set up saving collection and servicing depots at the decentralised level, which must be managed by local people and groups who can be given on-the-job training. The NHB can play an important role in this direction.

In this perspective, an 8-point saving mobilisation action plan is proposed, as follows :

1. Identify the "saving zone" in the target saving community;
2. Catch the target saving community when liquidity is expected to be high;
3. Design target-group-specific saving schemes that fit into the needs, capacity, expectations and requirements;
4. Incorporate a good element of flexibility in all aspects of the working of the saving instrument;
5. Develop a simple system of collection and servicing of

the saving instrument;

6. Design and implement a rigorous campaign to motivate saving on a continuing basis and particularly during likely high income periods;
7. Develop a flexible withdrawal mechanism to instil and maintain the confidence of the saving community, and
8. Provide special incentives for each target group, including non-income tax assesseees, informal sector households, and under-privileged categories of households, as identified in the National Housing Policy.

NOTES

1. This paper is based on a recent SDS study "Saving Mobilisation for Housing : Methods, Norms and Policies" prepared for the Ministry of Urban Development, Government of India. Primary data on household incomes, household budget, lumpy expenditures, asset holdings, saving behaviour and saving plans were generated from 2087 households in 13 towns covering urban formal and informal sector households.
2. Average monthly saving per household, in terms of saving actually made, is estimated at Rs 327 for urban India and Rs 443 and Rs 133 for its formal and informal sectors, respectively. In terms of SR_c the estimated monthly saving are Rs 177, Rs 205 and Rs 131, respectively.

RAPPORTEURS' REPORT

B.C. Purohit, Rita Pandey, Tapas Sen and
V.B. Tulasidhar

1. Trends and Implications

THE discussions on the four papers by Krishnamurty and Sharma, Panikar, Shetty and Ghosh started off with the comments of R.P. Katyal on the comparability and magnitude of the old series of savings estimates and the recently published revised one. He stated that while gross savings estimates are more or less comparable both in terms of methodology and magnitude, the ones of net savings (net of capital consumption allowances) were not. The difference could be largely attributed to the estimates of the same for departmental undertakings in the public sector (particularly Railways and Electricity).

B.S. Minhas disputed the contention that the new series on gross savings, if not the net, did not give rise to any anomaly. He pointed out that disaggregated data showed substantial shifts. Also, changes in output and savings were not in the same direction. Prem Vashistha, in the same vein, pointed out the need for a careful analysis of household data and the fact that while net savings of households are not changing much, the gross savings are changing, which implies that household liabilities may be changing. N.A. Mujumdar hypothesised that the divergence between the aggregate savings rate and the overall growth rate in India can at least be partially explained by households saving in the form of physical assets which are not fungible. Arun Ghosh however did not accept the view that financial savings held any advantage over physical savings. The Chairman of the session, Sukhamoy Chakravarty, also did not

want too much importance to be attached to financial savings in preference to physical savings.

Vikas Chitre pointed out that actually physical savings as a proportion to total household savings has not declined as suggested by Ghosh, but has remained constant.

Shankar Acharya said that increased share of financial savings in household savings, apart from the fungibility it allows, has another dimension. It can also promote 'saving culture' which can raise aggregate household savings.

Another issue which generated lively discussion was the treatment of remittances from abroad. The issue was brought up by Mujumdar while expressing the fear that it may be difficult to maintain the household savings rate at its earlier level, let alone raise it, in view of falling remittances from abroad. This sparked off a debate on whether these should be considered in savings estimates and if so, how. Uma Datta Roy Choudhury felt that to the extent these remittances are converted into physical assets, they should be considered. Shankar Acharya pointed out that depending on whether the remittances are treated as transfers or net factor incomes, they can affect the aggregate savings rate of the economy. Arun Ghosh insisted on keeping remittances out of domestic savings estimates, though he did not object to including them in national savings estimates. S. Chakravarty supported this point of view. Deepak Nayyar recalled some exercises he had himself carried out and said that even when remittances were the maximum, their inclusion or exclusion did not affect the aggregate savings estimates very much.

Regarding the hypothesis of Ghosh that inequalities in income distribution might have caused savings rate to fall, Isher Ahluwalia pointed out that the evidence adduced by Ghosh is not enough to support this hypothesis as the income inequalities refer to the seventies and eighties. Further, as Minhas pointed out, the inequalities refer to the household sector whereas the fall in savings rate refers to the economy as a whole.

The issue of the reliability of savings estimates *vis-a-vis* other macro-economic aggregates also came up for discussion. While Vaidyanathan and Shankar Acharya were sceptical about the superiority of savings estimates, Ghosh reiterated that they

are indeed more dependable as their calculation involves the least amount of assumptions and approximations and they are not just residually estimated.

The issue of relatively faster rise in capital goods prices and construction price index also came up for discussion. Rakesh Mohan suggested that this fact may partly explain the poor performance of the public sector regarding savings. Vaidyanathan stressed the need for judging nominal savings with reference to capital goods prices, as Shetty has attempted in his paper. S. Chakravarty agreed that the real counterpart of the nominal savings must not be lost sight of, but felt that Shetty's paper was too aggregative and the problem too intractable to be solved by merely deflating the nominal savings.

During the discussions, two suggestions that were made are: (i) CSO should make available to researchers the detailed methodology of depreciation calculations of different assets (e.g., the assumed life of each type of assets); and (ii) CSO, in tandem with other organisations, should conduct direct surveys and use more of data from such surveys to firm up its estimates.

2. Savings: Methodological Issues

The second session discussed two papers by Vaidyanathan and the National Income Division of CSO respectively, though specific issues were raised with respect to the first only. The Chairman of this session was B.S. Minhas.

The discussions on Vaidyanathan's paper centred around the reason for the relatively steep rise in the capital goods prices. While Uma Datta Roy Choudhury felt that the rise in construction price index was at the back of this phenomenon, Isher Ahluwalia attributed it to the earlier phase of protection in the Indian industrial economy. Minhas hypothesised that black economy transactions in the form of over-invoicing may have caused it.

3. Savings—Sectoral Trends: Household Sector

The third session was to take up two papers for discussion—those by Bhatti and Vashishtha and by Uma Datta Roy Choudhury, but the latter could be taken up for discussion only in the fourth session due to shortage of time.

The discussion of the paper by Bhatta and Vashishtha mainly was concerned with the representativeness of the sample. Minhas asserted that the size of the sample did not allow too much classification as individual cells then had too few observations to draw any conclusion regarding the sample. Also, the substitution of a sizeable portion of the total sample at the second point of time due to missing respondents in the All-India sample made the representativeness of the sample doubtful. Nor could the 'panel' data be used for the same purposes as by their nature they were not representative at either of the two points of time. These points were repeated and elaborated during the discussion by many of the participants. Sundaram added the observation that over a substantial period of time, the same households change their characteristics substantially, giving rise to comparability problems.

Vaidyanathan observed that major structural changes in households were implied by the data, if they could be relied upon. Subject to the same caveat, Ghosh pointed out an interesting implication drawn from the data reported in the paper—marginal and small farmers were more productive than medium and large farmers.

Regarding the representativeness of the sample, Vashishtha said that despite substitution of part of the sample in the second period, representativeness was maintained by careful substitution. He also said that the panel data were not used to draw conclusions regarding the population at the two points of time, as was believed by some participants and hence the points about their representativeness were not well taken. He also refuted the assertion by Minhas that the number of observations in any cell or in aggregate was negligible.

The discussions on the second day began with the paper by Roy Choudhury, carried over from the previous day. Initiating the discussion, the Chairman as well as Vashishtha wanted to know whether any adjustments were made in the analysis in view of the recent revisions in methodology. Chitre felt that the established relationships had some amount of spurious correlation due to the exclusion of price effects which had considerable influence on the savings behaviour of households. He also suggested that the estimated functions failed to capture other important determinants of savings. Even the sole explana-

tory variable used—income—was improperly specified as the relevance of permanent/lagged income was not tested at all. He also said that since no account was taken of the qualitative change in the the savings data, it would have been better to use gross savings rather than net savings.

Sastry believed the explanatory powers of the estimated regressions to be misleading as both savings and income series have a strong trend component, Shovan Ray suggested the use of a dummy variable to take account of the qualitative change in data series. Vaidyanathan advocated the use of a relative price variable rather than deflation of the series to take into account effects of price changes.

Mujumdar stressed the link between government policies and household savings citing irrigation and resultant formation of household assets as an example, and wanted this to be captured in the estimated functions. He also believed that the inventory component of the household savings is not fully understood by researchers.

Roy Choudhury clarified that inclusion of a price variable does not improve the results much; nor is the inclusion of lagged income likely to improve them, she asserted. She clarified that net savings were preferred to gross savings due to the fact that the household sector includes unorganised enterprises and this could create problems in interpreting the results.

4. Savings—Sectoral Trends: Public Sector/Private Sector

This session included papers by Bagchi and Roy Choudhury as well as Rama Rao. The Chairman of this session was Raja Chelliah.

There were no direct comments on the first paper, though there were reflections and loud thinking on related issues. Katyal clarified that CSO has followed SNA in the estimation of consumption of fixed capital (CFC) in the new series. Accordingly, CFC on government assets has been calculated in respect of dams, buildings, etc. However, in the case of roads and canals consumption of fixed capital as per SNA has not been provided as expenditure on current repairs and maintenance are supposed to be sufficient to maintain the assets. Such an assumption could not be made in respect of dams and other fixed assets and it was felt that consumption of fixed capital for

dams, etc., needs to be provided. It was further clarified that budget documents do not provide details regarding the break-up of repairs and maintenance into current repairs and renewals and replacements. However, the expenditure on renewals and replacements including the repairs and maintenance is assumed to be meant only for the maintenance of roads and canals.

Ghosh wanted all government assets to be depreciated and estimates of value-added, savings etc., adjusted accordingly. He also felt that the present system of accounting did not consider obsolescence properly.

Chelliah said that savings estimates of CSO did not reflect the actual resources position as its depreciation estimates were normative though many public enterprises did not actually have the resources to allow so much depreciation.

The major comment on Rama Rao's paper was regarding the blowing up of the sample data for the population, i.e., of all companies. Paid-up capital, it was pointed out, is not necessarily the best basis for this operation. However, it was agreed that pending availability of other key data on the whole corporate sector, the present practice has to continue. Also, given the almost comprehensive coverage of the sample, questions regarding blowing up were not of great import. Minhas suggested that instead of using a single blow-up factor for all groups, companies could be stratified and blow-up factors for each stratum could then be used. Even with the use of paid-up capital, this is certain to improve population estimates, he said.

Sastry raised doubts on the depreciation and savings data. The former influenced the latter, but was not the actual depreciation; it was what suited individual companies from the accounting point of view. He also said that frequent revaluations of assets created doubts regarding the same. The author replied that revaluations were adjusted for, and in any case, the CSO re-estimated the depreciation and as a result, savings, using their own methodology. The question of tax provision as an approximation of tax liability also came up during the discussion. Inaccuracies may result due to the use of the former instead of the latter in the company accounts, it was pointed out.

Chelliah pointed out the fact that the corporate sector was growing relatively slowly and their savings performance, even considering their share in the economy, was quite indifferent. He wondered as to the reasons for this.

Bagchi cited tax factors as possible reasons. He also put forward the speculation that companies are being bled by controlling interests for personal gains, thus inflating corporate spending and depressing savings.

Rama Rao pointed out that the performance of foreign capital companies and joint-sector companies was much better. This raises a question as to what is wrong with domestic companies only.

Sastry believed that the answer lies in cheap and easy institutional credit which killed the incentive to save and use self-generated funds for expansion.

5. Saving Instruments

This session which discussed the paper by Lall was chaired by Raja Chelliah.

Initiating the discussion, Surjit Bhalla was hopeful that designing appropriate savings instruments might indeed help to raise the savings rate, if it could reduce transaction costs and improve the rate of return.

Some reservations were expressed about generalisations from a very limited sample like the one involved. Ghosh felt that proliferation of savings instruments would only cause shuffling of the savings rather than an increase in it. Mujumdar, however, contested this view and felt that a target-group approach may well bring out additional savings. He also said that the whole gamut of tax concessions distorted the rate of return on various savings instruments in favour of the upper income groups and this needed to be corrected.

Shetty feared that a multiplicity of savings instruments would raise the costs of savings mobilisation. Chitre pointed out that unless rates of return on financial assets were somehow indexed for inflation, physical assets would continue to get preference over financial assets.

The author added that rate of return was shown to be a less than crucial determinant of savings in their study of the infor-

mal sector. The type of instrument available was the most important determinant.

6. Summing Up

This session was devoted to the discussion of overall issues that emerged out of the deliberations during the seminar. Malcolm Adisheshaiah chaired this concluding session.

Raja Chelliah started the discussion with a brief statement about the rationale of the seminar. Referring to the World Development Report brought out by the World Bank, he said that while India still has an aggregate savings rate higher than most of the developing countries, all developing countries growing at least at the average (all-countries) rate had savings rates above 25 per cent, higher than the rate obtaining in India currently. This fact perhaps suggests the need to raise the savings rate of India substantially to increase its rate of growth. For this purpose, an analysis of underlying trends and issues was necessary to identify target areas and policy options. It was clear from the available data that the savings performance of the public sector, and to a lesser extent, that of the corporate sector were not as expected of them and hence these two sectors were obvious targets for additional savings generation. However, given the interdependencies within the economy, it was necessary to devise policies to achieve the objective of a higher savings rate without adversely affecting savings in other sectors. Also, the issue of further savings generation from the other sectors could not be closed.

Vaidyanathan first summed up the major points brought out during the discussion as falling under one of the following three sets: data, specific issues, and policy.

Under the group of points regarding data, the main issues were the gaps in available data and doubts regarding their reliability. He stressed the need for periodic surveys to firm up the data base, especially on construction and the unorganised sector to gather information on input use, prices paid and charged as well as technologies involved. It was necessary in this connection to evolve a sound method of conducting surveys from all the agencies involved. He also advocated better utilisation of available survey data (e.g., All India Debt and Investment Survey). He also reiterated the doubts raised about the estimates

of corporate savings and investment, primarily due to the blowing up of the sample data on the basis of paid-up capital only.

Regarding specific issues, he stressed the need for further detailed work on determinants of household savings, particularly in a disaggregated framework. As for the corporate savings behaviour, the discussions identified two strands of issues, he felt. The first was about the sluggish growth of the corporate sector while the second was the reasons for a low rate of savings in the corporate sector. Another issue meriting a hard look was the question of nominal and real rates of savings and the conceptual problems relating to the latter. He also mentioned the importance of analysing the trends in prices of capital goods *vis-a-vis* those of consumer goods.

He lamented that the deliberations did not come up with any clear policy adoption perhaps due to the uncertain conclusions of research in this field.

Vaidyanathan's summing up was supplemented by some others. Bagchi suggested that the attempt to raise the savings rate must affect fundamental determinants of savings as from available indications, interest elasticity of savings appears to be low and introduction of further savings instruments can be expected to have only a marginal effect. Chitre pointed out the need to consider interdependencies within the system while framing policies. The Chairman was more concerned with the proper use of available savings than the need to raise the savings rate. Minhas also suggested that perhaps the emphasis of the Planning Commission on raising the savings rate was misplaced since India already has the highest savings rate in the world, given the per capita income; optimal utilisation of the available savings should be the first priority, he felt.

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