

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.