SAVING AND FLOW OF FUNDS ANALYSIS: A TOOL FOR FINANCIAL PLANNING IN INDIA*

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Overall balance between expected available resources and planned investment is not sufficient to ensure development with stability. Imbalances and inflationary pressures could develop as a result of inconsistencies between sector-wise investment structure and the sector-wise structure of saving. This means that the dichotomy between real and financial planning needs to be eliminated not only at the national level but at the sectoral levels as well, so that the sector-wise investment pattern is consistent with the emerging structure of saving and the flow-of-funds. This presents an analysis of the structure of saving and flow-of-funds in India, shows how it is actually used for the purpose of financial planning, and attempts to derive a formalized technique of financial planning. Analysis of the structure of saving in India during 1954–1955 to 1967–1968 indicates the importance of the household sector as the net lending sector to the borrowing sectors, the government and the private corporate sectors. On the basis of the feasible sectoral rates of growth in income and the past trends in sectoral saving-income ratios and household saving pattern with such modifications as are necessary in the light of expected changes in various policies, sector-wise saving structure and the pattern of household sector saving are projected for the Fourth Plan period (1969–1974).

Then a flow-of-funds matrix is prepared to derive sector-wise investment estimates as are consistent with the estimated structure of saving, on the basis of the projected sector-wise saving, the pattern of household sector saving and the likely changes in the lending policies of the financial institutions. A formalized technique of financial planning based on the Indian planning experience is presented in the last section of the paper.

In the literature on planning, a good deal of attention is paid to the derivation of investment pattern on the basis of the initial production capacities, the input and capital coefficients, the desired growth rate of consumption and the terminal capital stock. However, it is not sufficiently realised that the investment pattern is also a function of the structure of saving.[1] Quite often, it is assumed that once the total magnitude of investment is based on the over-all propensity to save, there would not be any inconsistency between the financial aspects of a plan and its physical aspects. This assumption inevitably leads, when the plan is implemented, to imbalances and inflationary pressures.[2]

The reason is that the constraint of the structure of saving on investment pattern is not recognised at the stage of plan formulation. Sector-wise distribution of investment (that is, composition of investment in terms of its ownership

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[1]In the growing literature on planning, it is only at one place that we have found the right emphasis on the integration between financial planning and physical planning. See United Nations, *Problems of Long-Term Economic Projections*, Report by a Group of Experts, New York, 1963, Chapter IV. See also Bent Hansen, *Long- and Short-Term Planning in Underdeveloped Countries*, Amsterdam, 1967, Chapter III. Even in purely theoretical literature, in spite of Keynes, the dichotomy between real and financial analysis still persists.

[2]See Bhatt, V. V., On Inflation and Its Control, a paper presented at the International Economic Association Conference in Kandy (Ceylon), June 1969.

—by government sector, corporate sector, household sector etc.) is one of the important determinants of the investment pattern, that is the functional (industry-wise) distribution of investment. And sector-wise structure of saving determines to a significant extent the sector-wise investment composition. The planned pattern of investment, therefore, has to be consistent with the evolving structure of saving.

The structure of saving has two aspects: one is the sector-wise composition of saving and the other is the pattern of saving of the household sector. The other sectors—government sector and the private corporate sector—are generally deficit sectors, that is, the capital formation in each of these sectors exceeds the sector's own saving. The household sector, on the other hand, is a surplus sector; its saving exceeds its capital formation. It is the surplus saving of the household sector which finances the deficits of the other two sectors, given the sector-wise net inflows from the external sector. The extent to which the household sector finances the deficit of each of these two sectors depends upon its pattern of saving—that is, how its saving is distributed in terms of its claims on the government sector, private corporate sector and the financial institutions.

The sector-wise distribution of saving depends on the income of each sector and its propensity to save. The pattern of household sector's saving depends on household preferences, the structure of interest rates and the structure of financial institutions and instruments. The borrowing of each of the deficit sectors depends on the pattern of household saving and the lending pattern of the financial institutions, for, the household sector lends directly when it purchases claims on the deficit sectors and indirectly when it purchases claims on the financial institutions. In the latter case, what each deficit sector borrows depends upon the pattern of lending of the financial institutions. Thus, it is not possible to determine the over-all as well as sector-wise composition of investment and hence the investment pattern without an adequate analysis of the structure of saving and the flow of funds in the base year and the likely changes in this structure during the plan period as a result of changes in fiscal and other policies affecting the structure of financial institutions, instruments, interest rates and overall saving.

This paper deals with the analysis of the structure of saving and flow-of-funds in India and indicates how such an analysis is actually used for the purpose of financial planning.

The principal sources of data and estimation procedures for deriving this structure are briefly indicated in Section I. The evolving structure of saving during the period 1954–1955 to 1967–1968 is analysed in Section II. The flow-of-funds table is presented for the year 1965–1966 in Section III, while the way in which such flow of funds analysis is used for the purpose of financial planning is indicated in Section IV. An attempt is made in Section V to formalise the technique of financial planning.

I. Sources of Data and Estimation Procedures

The Indian economy for the purpose of saving and flow of funds analysis is divided into the following sectors:

A. Domestic Non-financial Sector

1. Household sector comprising pure households, non-corporate enterprises in agriculture, trade and industry and private non-profit making trusts.

2. Private corporate sector comprising all non-financial joint stock companies in the private sector.

3. Government Sector comprising Central, State and Local Governments, Departmental non-financial enterprises and other non-financial corporate enterprises.

4. Non-credit (private) societies comprising enterprises organized on the co-operative principles.

B. Domestic Financial Sector

(i) *Banking Sector*

5. Reserve Bank of India (Central Bank).
6. Commercial Banks.
7. Credit Co-operatives.

(ii) *Other Financial Institutions Sector*

8. Term-lending institutions (Industrial Development Bank of India, Industrial Finance Corporation of India, State Financial Corporations, Industrial Credit and Investment Corporation of India, Agricultural Refinance Corporation, Unit Trust of India, etc.).
9. Life Insurance Corporation of India (LIC).
10. Provident Funds.

C. External (Rest of the World) Sector

The net saving of each of these sectors (excluding the co-operative, household and external sectors) is derived from its current account. The household sector's saving is divided into two parts: Saving in the form of financial assets and saving in the form of physical assets such as residential housing and capital formation in agriculture and non-corporate industry, transport and trade. Its financial saving is derived from changes in its financial assets and liabilities. For this, data available from the balance sheets and capital accounts of other sectors are used. Since the balance sheet data do no in all cases provide sector-wise breakdown of assets and liabilities, additional information on this aspect is collected through various purposive surveys. The changes in holdings of private (both equity and other securities) and government securities are derived on the basis of the total net issue of such claims in each year and the annual changes in the holdings of these claims by other sectors.

The household saving in the form of physical assets is estimated on the basis of data obtained through periodical surveys particularly with regard to rural sector. The estimates of capital formation in non-corporate industry and trade are based on the results obtained from ad hoc banking studies. The estimate of urban investment in residential construction is on the basis of the net income originating from this sector and certain assumptions relating to the life of the asset and rate of return.

These estimates of household saving in the form of physical assets represent only broad orders of magnitude and are not as firm and reliable as the estimates of financial saving.

The flow of funds table is constructed on the basis of the balance sheets of financial institutions, the balance sheets and profit and loss accounts of the non-financial private corporate sector (on a sample basis), the financial accounts of the government sector, and statistics of offerings and retirements of securities by their issuers (collected by the government). Some discrepancies do arise as it has been found difficult to obtain a sector-wise breakdown of "other" assets and "other" liabilities of various financial and non-financial institutions; these have been apportioned to various sectors on the basis of informed judgement. A part of these discrepancies is also due to the different methods of valuation adopted by the different sectors with regard to their holding of private and government securities.

Details relating to sources of data and estimation procedures are described in detail in the various articles published in the Reserve Bank of India Bulletin.[3] The sources of data used in framing the various estimates are indicated in a summary form in the Appendix.

II. Analysis of the Structure of Saving: 1954–1955 to 1967–1968

Sector-wise Composition of Saving

Let us now turn to the evolution of the structure of saving during 1954–1955 to 1967–1968. Table I shows the composition—sector-wise—of aggregate net saving for three years—1954–1955, 1963–1964 and 1967–1968. From 1954–1955 to 1963–1964, over-all and sector-wise saving as a proportion of national income show a fluctuating yet rising trend, reaching their peak levels in 1963–1964. Thereafter there has been a decline therein largely as a result of the failure of agricultural output to increase at a rate consistent with the growth of the non-agricultural output. The severe consecutive droughts led to large relief expenditures on the part of the government. An attempt at curbing inflationary pressures through reduction in the rate of increase of government capital formation led to excessive under-utilization of productive capacity already created. Further, significant rise in the foodgrains prices led to rise in money wages thus raising production costs in the industrial sector and a reduction in the capacity to save of the urban fixed income groups. Thus, there was a decline in the saving rate (saving as a proportion of national income) of all the sectors, though the

[3](a) Estimates of Saving in the Indian Economy, Reserve Bank of India Bulletin, March 1960.
(b) Estimates of Saving and Investment in the Indian Economy, 1950–1951 to 1958–1959, R.B.I. Bulletin, August 1961.
(c) Estimates of Saving and Investment in the Indian Economy, 1950–1951 to 1962–1963, Reserve Bank of India Bulletin, March 1965.
(d) Financial Flows in the Indian Economy, 1957–1958 to 1961–1962, Reserve Bank of India Bulletin, December 1964.
(e) Financial Flows in the Indian Economy, 1951–1952 to 1962–1963, R.B.I. Bulletin, March 1967.

TABLE I

NET SAVING—SECTOR-WISE AND AGGREGATE
(Percentage Distribution)

	1954–1955	1963–1964	1967–1968[a]
SECTOR			
Government	12.2	26.0	14.0
	(1.0)	(3.1)	(1.1)
Private corporate[b]	6.6	6.8	4.5
	(0.5)	(0.8)	(0.3)
Household	81.2	67.2	81.5
	(6.4)	(7.8)	(6.2)
Aggregate saving	100	100	100
	(7.9)	(11.7)	(7.6)
Aggregate saving as proportion of Net Capital Formation	94.2	80.8	70.2
	(7.9)	(11.7)	(7.6)
Net Capital Inflow from abroad as proportion of Net Capital Formation	5.8	19.2	29.8[c]
	(0.5)	(2.8)	(3.2)
Aggregate Net Capital Formation	100	100	100
	(814)	(14.5)	(10.8)

[a]Provisional.
[b]Includes also financial institutions and the co-operative sector.
[c]At the new rate of exchange.
Figures in brackets represent proportion (percent) to national income.

sharpest decline was with regard to government sector saving. The process of recovery of the saving rate has been in evidence in 1968–1969 with relative price stability and some recovery of industrial output.

The proportion of net aggregate saving to net national income rose by almost 50 percent between 1954–1955 and 1963–1964, rising from 7.9 percent to 11.7 percent. Government saving to national income ratio rose three times, while the corresponding ratio for the private corporate sector increased by more than 50 percent. The rise in the same ratio in respect of the household sector was only marginal—a little more than 20 percent. As a result, the share of the household sector saving in total saving declined from 81 percent to about 67 percent. However, during the subsequent few years, the decline in the government and the corporate sector saving ratios was very sharp, while the ratio for the household sector witnessed modest decline. Consequently, the share of the household sector saving in total saving rose to 81.5 percent in 1967–1968, a share larger than that in 1954–1955.

Net capital inflow from abroad as a proportion of national income rose from 0.5 percent in 1954–1955 to 2.8 percent in 1963–1964 and further to 3.2 percent (at the new exchange rate) in 1967–1968. The ratio of net capital formation to net national income, as as result, rose from 8.4 percent to 14.5 percent, though it declined in 1967–1968 to 10.8 percent because of a fall in the domestic saving ratio.

Pattern of Household Sector Saving

The marked change which occurred in the saving pattern of household sector was with respect to the progressive rise in the share of saving in the form of financial assets and in the proportion of the household sector's financial liabilities to the sector's total saving (Table II). These changes reflect the progressive evolution of the financial super-structure in the economy and the rise in what Goldsmith has called the *marginal financial interrelations ratio.*

Among the financial assets, the share of saving in the form of claims on the banking system showed substantial rise up to 1963–1964 at the cost of the shares of the other financial instruments (Table III). However, after 1963–1964, the share of claims on social security institutions rose, while the share of the rest declined somewhat. Over the whole period, the share of saving in the form of direct claims on the government sector and the private corporate sector considerably declined reflecting the growing significance of the financial instruments of the banking system and the social security institutions.

TABLE II

PATTERN OF HOUSEHOLD SAVING

	1954–1955	1963–1964	1967–1968[a]
FORM OF SAVING	%	%	%
A. *Financial assets*	*58.6*	*66.7*	*65.0*
	(3.8)	(5.5)	(4.1)
B. *Financial liabilities*	*−9.0*	*−16.7*	*−14.7*
	(−0.6)	(−1.4)	(−0.9)
C. *Physical assets*	*50.4*	*50.0*	*49.7*
	(3.3)	(4.1)	(3.2)
D Total (A + B + C)	100	100	100
	(6.5)	(8.2)	(6.4)

[a]Provisional.

Figures in brackets indicate proportion (percent) to personal disposable income.

III. SAVING AND FLOW OF FUNDS ANALYSIS: 1965–1966

The saving and flow of funds table is constructed for the year 1965–1966 for all the sectors mentioned in Section I. This table is so constructed as could be put to use for the purpose of planning and was actually so used for formulating the financial aspects of the Indian Fourth Plan (1969–1974).[4]

The main flow of funds matrix is shown in columns and rows 1 to 11 (Table IV). Each column represents lending by the sector concerned to the other sectors, while each row represents the borrowing by the concerned sector from the other sectors. The column thus represents the marginal financial assets

[4]The financial aspects of the Plan as worked out through this technique were changed somewhat in the published version of the Plan, "*Fourth Five-Year Plan, 1969–1974—Draft*," Planning Commission, Government of India, March 1969.

TABLE III

PATTERN OF HOUSEHOLD SECTOR SAVING IN THE FORM OF FINANCIAL ASSETS
(Percentages)

	1954–1955	1963–1964	1967–1968[a]
FORM OF SAVING			
Financial assets	*100*	*100*	*100*
	(3.8)	(5.5)	(4.1)
1. Currency	23.5	23.5	14.4
	(0.9)	(1.3)	(0.6)
2. Bank deposits	17.5	29.9	35.8
	(0.7)	(1.6)	(1.5)
(1 + 2) *Claims on the banking system*	41.0	53.4	50.2
	(1.6)	(2.9)	(2.1)
3. Life insurance policies	7.6	10.2	12.2
	(0.3)	(0.6)	(0.5)
4. Provident funds	24.0	17.5	22.5
	(0.9)	(1.0)	(0.9)
(3 + 4) *Claims on social security institutions*	31.6	27.7	34.7
	(1.2)	(1.6)	(1.4)
5. Claims on the government sector	16.8	11.0	7.8
	(0.6)	(0.6)	(0.3)
6. Claims on the private corporate sector	10.6	7.9	7.3
(including co-operatives)	(0.4)	(0.4)	(0.3)
(5 + 6) *Claims on government and private corporate*	27.4	18.9	15.1
sector	(1.0)	(1.0)	(0.6)

[a]Provisional.
Figures in brackets represent proportion (percent) to personal disposable income.

pattern of the concerned sector, while the row represents its marginal financial liabilities pattern. Column 11 represents total domestic borrowing by each sector and row 11 represents total domestic lending by each sector.

This matrix is partitioned into nine sub-matrices. The left hand side top matrix of (4 × 4) order represents financial transactions among the non-financial sectors, the left middle matrix of (3 × 4) order represents lending transactions by the non-financial sectors to the banking sector and the left bottom matrix of (3 × 4) order represents lending by the non-financial sectors to the other financial institutions. Since all the non-financial sectors except the household sector are net borrowers, lending by them to the financial sector is netted against their borrowings so that the only sector lending to the financial sector is the household sector. However, since the term lending institutions and co-operatives rely for their resources on the government sector, the latter's lending to these sectors are shown separately.

The middle top sub-matrix of (4 × 3) order represents lending by the banking sector to the non-financial sectors, the middle middle of (3 × 3) order to

TABLE IV

MATRIX OF SAVING AND FINANCIAL FLOWS 1965–1966[a]
(Amount in Rs. crores at current prices; One crore = 10 millions)

From Sector / To Sector	Non-Financial Sector					Financial Sector—Banking			
	Household	Private Corporation	Government	Non-Credit Societies	Total Borrowing	Reserve Bank of India	Commercial Banks	Credit Co-operatives	Total Borrowing
	1	2	3	4		5	6	7	
1. Household	—	—	63.0	16.5	79.5	—	28.6	120.1	148.7
2. Private corporate	91.7	—	1.4	—	93.1	0.9	178.6	—	179.5
3. Government	107.3[b]	—	—	—	107.3	382.9	139.1	5.8	527.8
4. Non-credit societies	15.6	—	19.6	—	35.2	—	3.9	28.6	32.5
Total lending	214.6	—	84.0	16.5	315.1	383.8	350.2	154.5	888.5
5. Reserve Bank of India	275.5	—	—	—	275.5	—	85.9	0.2	86.1
6. Commercial banks	459.3[c]	—	—	—	459.3	—	—	0.6	0.6
7. Credit co-operatives	84.7	—	9.7	9.1	103.5	21.5	4.0	—	25.5
Total lending	819.5	—	9.7	9.1	838.3	21.5	89.9	0.8	112.2
8. Term lending institutions	3.1	—	64.8	—	67.9	1.9	4.0	—	5.9
9. Life Insurance Corporation	97.6	—	—	—	97.6	2.0	18.3	—	20.3
10. Provident funds	102.4	—	—	—	201.4	—	—	—	—
Total lending	302.1	—	64.8	—	366.9	3.9	22.3	—	26.2
11. Aggregate lending	1,336.2	—	158.5	25.6	1,520.3	409.2	462.4	155.3	1,026.9
12. External sector	—	—	—	—	—	—	—	—	—
13. Capital formation	541.9	453.8	2,015.3	54.3	3,065.3	—	—	—	—
14. Increase in total assets	1,878.1	453.8	2,173.8	79.9	4,585.6	409.2	462.4	155.3	1,026.9

TABLE IV—continued

MATRIX OF SAVING AND FINANCIAL FLOWS 1965–1966[a]

(Amount in Rs. crores at current prices; One crore = 10 millions)

From Sector / To Sector	Financial Sector Other Financial Institutions: Term Lending Institutions	Life Insurance Corporation	Provident Funds	Total Borrowing	Aggregate Borrowing	External Sector	Own Saving	Aggregate Resources	Capital Formation (Aggregate Resources Aggregate Lending)
	8	9	10		11	12	13	14	15
1. Household	7.5	9.9	—	17.4	245.6	—	1,632.5	1,878.1	541.9
2. Private corporate	72.1	22.5	—	94.6	367.2	0.9	85.7	453.8	453.8
3. Government	—	112.2	199.5	311.7	946.8	607.2	619.8	2,173.8	2,015.3
4. Non-credit societies	2.5	6.9	—	9.4	77.1	—	2.8	79.9	54.3
Total lending	82.1	151.5	199.5	433.1	1,636.7	608.1	2,340.8	4,585.6	3,065.3
5. Reserve Bank of India	—	—	—	—	361.6	35.4	12.2	409.2	—
6. Commercial banks	—	—	1.9	1.9	461.8	−3.6	4.2	462.4	—
7. Credit co-operatives	4.3	8.3	—	12.6	141.6	—	13.7	155.3	—
Total lending	4.3	8.3	1.9	14.5	965.0	31.8	30.1	1,026.9	—
8. Term lending institutions	—	2.5	—	2.5	76.3	6.1	4.0	86.4	—
9. Life Insurance Corporation	—	—	—	—	117.9	−6.7	51.1[d]	162.3	—
10. Provident funds	—	—	—	—	201.4	—	—	201.4	—
Total lending	—	2.5	—	2.5	395.6	−0.6	55.1	450.1	—
11. Aggregate lending	86.4	162.3	201.4	450.1	2,997.3	639.3	2,426.0	6,062.6	3,065.3
12. External sector	—	—	—	—	—	—	—	—	—
13. Capital formation	—	—	—	—	3,065.3	—	—	—	—
14. Increase in total assets	86.4	162.3	201.4	450.1	6,062.6	—	—	—	—

[a]Provisional.

[b]After adjustment of Rs.44.7 crores of disinvestment in Government Securities by households.

[c]Includes a balancing entry of Rs.100.2 crores mainly in lieu of branch adjustments (shown on liabilities' side) between Indian Offices of banks.

[d]Includes also Rs.30.7 crores shown as rise in investment reserves and other non-identifiable liabilities of Rs.19.1 crores.

itself and the middle bottom of (3 × 3) order to the other financial institutions. The right hand side top, middle and the bottom sub-matrices similarly represent lending by the other financial institutions to the non-financial sector, banking sector and to itself, respectively.

Column 11 represents total domestic borrowing of each sector, column 12, the net inflow of resources from the external sector and column 13, the net saving of each sector. Column 14 represents the total financial resources available to each sector and column 15 represents their net capital formation.

Row 11 represents increase in financial assets of each sector and row 13, the net capital formation in each sector. Row 14 represents the increases in total assets of each sector.

It may be noted that the square block formed by column 11 and row 11 represents both total domestic lending and borrowing in the economy. Similarly, the rectangular block formed by column 14 and row 11 represents the increase in total assets (both physical and financial) in the economy which is equal to the amount indicated in the block formed by column 11—row 14. It may also be noted that total net inflow of resources from the external sector (column 12) plus total saving (column 13) represents net capital formation (column 15 or column 14 minus row 11 or row 14 minus row 11).

The household sector is responsible for more than 50 percent of aggregate resources, though its capital formation is only 17.7 percent of the total (Table V). This is the only surplus sector which is responsible for net lending to all the other sectors.

Since the household sector is the only surplus sector, its pattern of saving determines the transfer of resources from it to the other sectors. This pattern is shown in table VI; the pattern projected for the Fourth Plan period is also shown. It would be seen from this table that for 1965–1966, a little more than one third of its saving was represented by net capital formation, about half of which was financed by borrowing and the other half by self-financing. Saving in the form of financial assets (gross) represented 80.7 percent of its saving; only one sixth of the increase in the financial claims represented claims on the other non-financial sectors, while five-sixths represented claims on the financial institutions. The increase in its claims on the banking sector represented nearly three-fourths of its total claims on the financial sectors.

The dominance of the banking sector is reflected in the financing pattern of the capital formation in the non-financial sectors (Table VII). In 1965–1966, nearly 40 percent of the net capital formation in the private corporate sector was financed by net borrowing from the banking sector, while this proportion was around 26 percent for the government sector.

From the saving and flow of funds analysis, it is also possible to indicate the extent of development of what Goldsmith calls the financial super-structure.[5] The *new issue ratio* (the ratio of net new issues of non-financial sectors to their capital formation) is 0.53; while the *financial intermediation ratio* (the ratio of new issues of financial instruments to non-financial sectors by financial institutions to new issues by non-financial sectors) is 0.74 and the *layering ratio* (the

[5]See Raymond W. Goldsmith, The Determinants of Financial Structure, OECD, Paris, 1966.

TABLE V

PATTERN OF SAVING AND NET CAPITAL FORMATION

Sector	Actuals: 1965–1966 Aggregate Resources %	Actuals: 1965–1966 Net Capital Formation %	Projection: 1969–1974 Aggregate Resources %	Projection: 1969–1974 Net Capital Formation %
1. Household	52.6	17.7	63.1	36.4
2. Private corporate	2.9	14.8	3.7	14.8
3. Government	21.3	65.7	18.9	47.8
4. Non-credit societies	0.1	1.8	0.1	1.0
5. Reserve Bank of India	0.4	—	1.7	—
6. Commercial banks	0.2	—	0.1	—
7. Credit co-operatives	0.5	—	0.3	—
8. Term-lending institutions	0.1	—	0.1	—
9. Life Insurance Corporation of India	—	—	—	—
10. Providing funds	—	—	—	—
11. Total domestic resources	*78.1*	*100.0*	*88.0*	*100.0*
12. External (Net capital inflow from abroad)	*21.9*	—	*12.0*	—
13. Aggregate resources/Capital formation	*100.0*	*100.0*	*100.0*	*100.0*

TABLE VI

PATTERN OF SAVING OF THE HOUSEHOLD SECTOR

	Actual Pattern: 1965–1966 %	Projected Pattern: 1969–1974 %
A. *Change in financial assets*	*80.7*	*56.3*
(i) Claims on private corporate sector	5.9	3.0
(ii) Claims on government sector	7.0	3.4
(iii) Claims on non-credit societies	1.0	0.4
(iv) Claims on Reserve Bank of India	18.0	6.4
(v) Claims on commercial banks	23.5	13.8
(vi) Claims on credit co-operatives	5.5	3.5
(vii) Claims on term-lending institutions	0.2	—
(viii) Claims on Life Insurance Corporation of India	6.4	9.0
(ix) Claims on provident funds	13.2	16.8
B. *Change in Financial Liabilities*	*16.0*	*14.0*
(i) Borrowings from government sector	4.1	2.0
(ii) Borrowings from non-credit societies	1.1	0.7
(iii) Borrowings from commercial banks	1.9	2.9
(iv) Borrowings from credit co-operatives	7.8	7.6
(v) Borrowings from term-lending institutions	0.5	—
(vi) Borrowings from Life Insurance Corporation of India	0.6	0.8
C. *Net Capital Formation*	*35.3*	*57.7*
D. Total Household Saving (A − B + C)	*100.0*	*100.0*

TABLE VII

PATTERN OF FINANCING NET CAPITAL FORMATION

	Private (Non-financial) Corporate Sector		Government Sector	
	Actuals: 1965–1966 %	Projection: 1969–1974 %	Actuals: 1965–1966 %	Projection: 1969–1974 %
A. Borrowing from external sources	*80.9*	*69.8*	*39.1*	*37.7*
(i) Household	20.2	12.8	2.2	1.8
(ii) Private corporate sector	—	—	−0.1	−0.1
(iii) Government	0.3	0.4	—	—
(iv) Non-credit societies	—	—	−1.0	−0.5
(v) Reserve Bank of India	0.2	−0.5	19.0	9.4
(vi) Commercial banks	39.3	28.1	6.9	6.6
(vii) Credit co-operatives	—	—	−0.2	—
(viii) Term-lending institutions	15.9	22.1	−3.2	−4.9
(ix) Life Insurance Corporation of India	5.0	6.9	5.6	7.1
(x) Provident funds	—	—	9.9	18.3
B. Net capital inflow from abroad	*0.2*	*5.3*	*30.1*	*22.9*
C. Own Savings	*18.9*	*24.9*	*30.8*	*39.4*
D. Net capital formation	*100.0*	*100.0*	*100.0*	*100.0*

TABLE VIII

COMPONENTS OF FINANCIAL INTERRELATIONS RATIO
(Marginal)

	Actuals: 1965–1966	Projection: 1969–1974
1. Financial Interrelations Ratio (ratio of increase in financial assets to net capital formation)	0.98	0.84
2. New Issue Ratio (ratio of net new issues of non-financial units to their capital formation)	0.53	0.43
3. Financial Intermediation Ratio (ratio of new issues of financial instruments to non-financial units by financial institutions to new issues by non-financial units)	0.74	0.79
4. Layering Ratio (ratio of total issues of financial institutions to other financial institutions to their issues to non-financial unit)	0.13	0.21

ratio of total issues of financial instruments by financial institutions to other financial institutions to their issues to non-financial sectors) is 0.13. The marginal financial inter-relations ratio is 0.98 (Table VIII).

The *marginal* financial intermediation ratio for India is thus comparable to the average ratio for the U.S.A. and the other developed countries, while the *marginal* layering ratio is a little higher than the *average* ratio in the U.S.A. and some other developed countries. The marginal financial inter-relations ratio is also comparable to the *average* ratio in the U.S.A.[6]

[6]See ibid, pp. 26–30.

IV. Technique of Financial Planning

The main steps in the technique of financial planning as actually used for the work relating to Fourth Plan formulation can be indicated very briefly. The analytic tool for the purpose is the saving and flow of funds table.

The first step is to derive sector-wise net saving (column 13) on the basis of the feasible growth rates in net national income and industrial output, given changes in the tax-system and government current expenditures and the average and marginal saving-income ratios of the various non-financial sectors. The saving of the financial sectors can be estimated on the basis of past trends. The net inflows to various sectors from the external sector (column 12) can be taken as exogenously given.

Since the net lending sector is the household sector, the second step is to derive its saving pattern on the basis of past trends and expected institutional and policy changes. The figures in column 1 are thus derived.

The *third* step is to derive total lending (row 11) by each sector on the basis of steps 1 and 2 and the exogenously given lending by the government sector to credit co-operatives, term-lending institutions, and the non-financial sectors.

The *fourth* step is to derive sector-wise lending of the financial institutions on the basis of their total lending (step three) and their lending pattern determined on the basis of their past pattern and the expected changes in this pattern—as a result of institutional and policy changes (including interest rate policy changes). The *fifth* step is to derive aggregate resources of each sector (column 14). The *sixth* step is to deduct total lending by each sector (row 11) from the total resources available to each sector (column 14). The *final* step seven, thus, would indicate the net capital formation of each non-financial sector (column (15)—a pattern which is *consistent* with the saving and flow of funds pattern.

If the *desired* sector-wise composition of investment is different from this pattern, it would be necessary to adopt such policy measures as would change the saving pattern of the household sector and the lending pattern of the financial institutions so as to give the desired sector-wise composition of investment. If such policy measures are not feasible, the desired sector-wise investment pattern would have to be changed to the pattern as emerges from the seven steps indicated. For the Fourth Plan (1969–1974) financial planning exercise, it was assumed on the basis of past experience that the gestation lag of investment would be on an average five years so that new investment undertaken during the plan period would have no significant impact on the increase in real national income during the same period.

The feasible growth rate of industrial output (8 percent) was determined on the basis of productive capacities already built by 1968 and the growth rate of agricultural output (4 percent) was based on the current and prospective agricultural programmes particularly relating to the high yielding varieties programme. The feasible growth rate of national income (5 percent) was worked out on the basis of these two growth rates.

The tax-revenue of the government sector was estimated on the basis of the growth rate in non-agricultural output, average tax-income ratio of 12.3 percent in 1968 and a marginal tax-income ratio of 20 percent—the ratio realised during

TABLE IX

Matrix of Projected Saving and Financial Flows 1969–1974

(Amount in Rs. crores at 1968–1969 prices: one crore = 10 millions)

From Sector	Non-Financial Sector					Financial Sector—Banking			
To Sector	Household	Private Corporate	Government	Non-credit Societies	Total Borrowing	Reserve Bank of India	Commercial Banks	Credit Co-operatives	Total Borrowing
	1	2	3	4		5	6	7	
1. Household	—	—	244	80	324	—	344	907	1,251
2. Private corporate	360	—	12	—	372	−15	792	—	777
3. Government	410	—	—	—	410	861	600	30	1,491
4. Non-credit Societies	50	—	45	—	95	—	18	110	128
Total lending	820	—	301	80	1,201	846	1,754	1,047	3,647
5. Reserve Bank of India	759	—	—	5	764	—	133	20	153
6. Commercial banks	1,651	—	—	4	1,655	—	—	30	30
7. Credit co-operatives	425	—	25	35	485	200	155	—	355
Total lending	2,835	—	25	44	2,904	200	288	50	535
8. Term-lending institutions	10	—	450	—	460	201	28	—	229
9. Life Insurance Corporation	1,074	—	—	—	1,074	—	—	—	—
10. Provident funds	2,010	—	—	—	2,010	—	—	—	—
Total lending	3,094	—	450	—	3,544	201	28	—	229
11. Aggregate lending	6,749	—	776	124	7,649	1,247	2,070	1,097	4,414
12. External sector	—	—	—	—	—	—	—	—	—
13. Capital formation	6,921	2,816	9,097	186	19,020	—	—	—	—
14. Increase in total assets	13,670	2,816	9,873	310	26,669	1,247	2,070	1,097	4,414

TABLE IX—continued *

MATRIX OF PROJECTED SAVING AND FINANCIAL FLOWS 1969–1974

(Amount in Rs. crores at 1968–1969 prices; one crore = 10 millions)

From Sector / To Sector	Financial Sector— Other Financial Institutions: Term Lending Institutions	Life Insurance Corporation	Provident Funds	Total Borrowing	Aggregate Borrowing	External Sectors	Own Saving	Aggregate Resources	Capital Formation (Aggregate Resources Aggregate Lending)
	8	9	10		11	12	13	14	15
1. Household	10	95	—	105	1,680	—	11,990	13,670	6,921
2. Private corporate	622	194	—	816	1,965	150	701	2,816	2,818
3. Government	—	643	1,665	2,308	4,209	2,080	3,584	9,873	9,097
4. Non-credit societies	15	47	—	62	285	—	25	310	186
Total lending	647	979	1,665	3,291	8,139	2,230	16,300	26,669	19,020
5. Reserve Bank of India	—	—	—	—	917	—	330	1,247	—
6. Commercial banks	10	9	345	364	2,049	—	21	2,070	—
7. Credit co-operatives	137	60	—	197	1,037	—	60	1,097	—
Total lending	147	69	345	561	4,003	—	411	4,414	—
8. Term-lending institutions	—	29	—	29	718	50	26	794	—
9. Life Insurance Corporation	—	—	—	—	1,074	—	3	1,077	—
10. Provident funds	—	—	—	—	2,010	—	—	2,010	—
Total lending	—	29	—	29	3,802	50	29	3,881	—
11. Aggregate lending	794	1,077	2,010	3,881	15,944	2,280	16,740	34,964	19,020
12. External sector	—	—	—	—	—	—	—	—	—
13. Capital formation	—	—	—	—	19,020	—	—	—	—
14. Increases in total assets	794	1,077	2,010	3,881	34,964	—	—	—	—

the Third Plan period (1961–1966) over the previous plan. The main items of non-tax revenue were estimated on the basis of past trends. The net saving of the public sector enterprises was estimated on the basis of the growth in their output and the desired rate of profit on capital employed (with a five year lag). Current expenditures of the government sector were projected on the basis of the past trends in each category of expenditure. Government sector's net saving was thus derived.

The saving of the private non-financial corporate sector was estimated on the basis of the growth of industrial output, the sector's average saving-income ratio of 33 percent in 1968 and its marginal saving-income ratio of 55 percent (actually realized during the Third Plan period) over the Second Plan. The saving of the rest of the corporate sector was derived on the basis of past trends.

The household sector's saving was estimated on the basis of the growth in personal disposable income, the sector's average saving-income ratio of 6.5 percent in 1968–1969 and the observed marginal relationship between saving and income of 12 percent during the Third Plan period over the Second Plan. The financial saving of the household sector was derived after estimating the saving in the form of each financial asset separately.

On the basis of past relationship, the saving in the form of currency and demand deposits with the banks was assumed to grow at the same rate as personal disposable income. Fixed deposits with the banks were estimated on the basis of a *marginal* ratio of 14 percent between fixed deposits and personal disposable income (this was the ratio realized in the past several years).

The saving in the form of life insurance policies was estimated on the assumption that the new business of the LIC would grow at an annual rate of 5.5 percent per annum. With regard to provident funds, subscriptions were assumed to grow at an annual rate of 8.5 percent, half a percent more than industrial output to allow for increasing coverage of workers and salary earners under the scheme. The saving in the form of claims on the other financial institutions was estimated on the basis of past trends.

The saving in the form of private shares and securities, company deposits and government securities was assumed to grow at the rate of the personal disposable income on the basis of past trends and expected yield pattern. The net inflow from the external sector to each of the domestic sectors was given exogenously. Accordingly, columns 12 and 13 of the table were filled and also column 1 up to row 11. The government sector lending to the other non-financial institutions were taken as given. The total lending (row 11) by all the sectors was thus determined.

The lending pattern of the financial institutions was then fixed on the basis of the past trend with regard to this pattern and expected changes as a result of institutional and policy measures. For example, the bank's investment in government securities as a proportion of deposits would be less as they are expected to invest relatively more in the bonds of Land Mortgage Banks. Similarly, the investment patterns of the LIC and Provident Funds were likely to change as a result of government policies as well as the new yield structure.

Thus, all the columns from 1 to 11 were filled. The sums of column 11, 12 and 13—each row-wise gave column 14, that is aggregate resources. Then, each sector's lending (row 11) was deducted from its aggregate resources (colum 14) to derive net capital formation by each non-financial sector as well as total net capital formation. Sector-wise composition of net investment and total net investment was derived in such a way as was consistent with the evolving saving and the flow of funds structure (Table IX).

V. Formalized Technique of Financial Planning

The technique of financial planning or projections can be formalized on the pattern of the input–output analysis, if the lending coefficients in the table can be taken as fixed. Suppose the problem is to derive an internally consistent sector-wise composition of investment on the basis of a given sector-wise pattern of saving and a sector-wise pattern of net inflow of funds from abroad. This problem can be tackled formally in terms of the flow of funds matrix.

For illustrative purposes, only four non-financial sectors are taken: Government (G), Private Corporate (C), Household (H) and External (E). The financial sectors are: Banking System (B) and Other Financial Institutions (F). The financial flow matrix to be used for the purpose would be given in Table X below

TABLE X

MATRIX OF SAVING AND FINANCIAL FLOWS

From Sector to Sector		H	C	G	B	F	Total Borrowings	Net Saving	E	Total Resources	Net Capital Formation
		1	2	3	4	5	6	7	8	9	10
1	H	—	—	—	L_{BH}	L_{FH}	B_H	S_H	L_{EH}	R_H	C_H
2	C	L_{HC}	—	—	L_{BC}	L_{FC}	B_C	S_C	L_{EC}	R_C	C_C
3	G	L_{HG}	—	—	L_{BG}	L_{FG}	B_G	S_G	L_{EG}	R_G	C_G
4	B	L_{HB}	—	—	—	L_{FB}	B_B	S_B	L_{EB}	R_B	—
5	F	L_{HF}	—	—	—	—	B_F	S_F	L_{EF}	R_F	—
6	Total lending	L_H	L_C $= 0$	L_G $= 0$	L_B $= R_B$	L_F $= R_F$	L $= B$	S	L_E	R	C $= S + LE$

It is assumed that the household sector is the only net lending sector, while the government and the private corporate sectors are net borrowers. Therefore, lendings by G and C sectors are netted against their borrowing and so columns 2 and 3 remain unfilled.[7] For the B sector, its total lending (L_B) is equal to its total resources (R_B) i.e. what it gets from the H sector (L_{HB}) and the F Sector (L_{FB}) *plus* its own Saving (S_B) *plus* inflow of resources from the E sector (L_{EB}); it can be seen that

$$L_B = R_B = L_{HB} + S_B + L_{FB} + L_{EB} \quad (1)$$
$$L_F = R_F = L_{HF} + S_F + L_{EF} \quad (2).$$

[7]If, however, it is desired as a matter of government policy to render assistance to any of the sectors, there would be non-zero elements along the column for the G sector. But then the figures of such government lending would be exogenously given.

Columns 7 and 8 are known. The structure of saving of the H sector is also known in terms of the H sector's saving in the form of financial assets (L_H) and its total saving (S_H). Now, if L_H (column total) is known and L_{Hi}'s (elements of the column—the lending coefficients of the H sector) are taken as fixed, the borrowing of each sector from the H sector is known.

Thus from identity (2) $L_F = R_F$ is known. If the L_{Hi}'s (the lending coefficient of the F sector) are taken as fixed, the borrowing of the other sectors from the F sector, are know. Then L_{FB} is also known and so is $L_B = R_B$ from identity (1). Given the LBi's (the lending coefficients of the B sector), the borrowing of other sectors from the B sector can be determined. Then, column 6 (total borrowings by each sector) and column 9 (total resources of each sector) could be obtained, by subtracting corresponding elements of row 6 (total lending by each sector) from column 9 (total resources of each sector), sector-wise figures of capital formation given in column 10 could be derived. Since $L_B = R_B$ and $L_F = R_F$, for other two financial sectors, no capital formation is shown.

This formalized technique would give valid results only if the lending coefficients can be taken as fixed and known. It would also be useful in cases where the changes in the lending coefficients can be predicted in a more or less direct manner. For the under-developed countries, since the financial superstructure is still evolving and the saving structure of the H sector is changing, it would not be possible to use such a formalized technique for the purpose of projection over a five year period. For these countries, the saving pattern of the H sector and the lending pattern of the financial institutions will have to be projected on the basis of past trends, expected evolution of the structure of financial institutions, instruments and interest rates and policy changes. However, as Divatia rightly mentions, it is possible to evolve an operational mathematical model for short period financial planning.[8] It would certainly be easier to work out the broad implications of alternative assumptions and plans by his technique.

APPENDIX

Sources of Information Used in the Construction of Sector-wise Financial Flows in the Indian Economy

Sector	*Sources*
1. Reserve Bank of India	1. Weekly statements of affairs of the Reserve Bank of India.
	2. Data on money supply with the public published in the Reserve Bank of India Bulletin.
2. Commercial banks	1. Data collected on selected items of assets and liabilities of commercial banks under Section 42 of the Reserve Bank of India Act.
	2. Reserve Bank of India surveys on sector-wise ownership of deposits of commercial banks.

[8]V. V. Divatio, "*An Operational Technique for Financial Planning*"

Sector	Sources
	3. Reserve Bank of India surveys on sector-wise advances by commercial banks. 4. Survey of bank's investments conducted periodically by the Reserve Bank of India. 5. Statistical tables relating to banks in India published annually of the Reserve Bank of India.
3. Co-operative sector (banks, credit and non-credit societies)	1. Statistical statement relating to Co-operative Movement in India published annually by the Reserve Bank of India. 2. Section 42 data for State Co-operative Banks maintaining accounts with Reserve Bank of India published in the Reserve Bank of India Bulletin. 3. A statement "Reserve Bank of India and Agricultural Credit" published in the Report on Currency and Finance.
4. Financial corporations	1. Annual reports and accounts of Industrial Finance Corporation of India, State Financial Corporations (including Madras Industrial Investment Corporation), Industrial Development Bank of India, Industrial Credit and Investment Corporation of India, Agricultural Refinance Corporation and the Unit Trust of India. 2. A statement "Reserve Bank of India and Industrial Finance" published in the Reserve Bank of India Bulletin.
5. Life insurance	1. Annual reports and accounts of the Life Insurance Corporation of India (the only institution dealing in life business after nationalization in 1956). 2. Indian Insurance Year Books for years prior to 1956.
6. Provident funds	1. Annual reports on Employees Provident Fund Scheme published by the Provident Fund Commissioner, Government of India. 2. Reports on working of Coal Mines' Provident Fund Scheme released on annual basis. 3. Annual reports of Assam Tea Plantations Provident Fund Scheme. 4. Government budget papers (for figures of State provident funds). 5. Special returns called for provident fund collections in respect of employees of Financial Corporations.

Sector	*Sources*
	6. Own accounts for R.B.I. employees provident funds.
	7. Statement of earnings and expenses received from commercial banks.
	8. Ad-hoc reports and studies (for provident fund figures in respect of educational institutions trusts, etc.).
7. Non-financial domestic corporate sector	1. Reserve Bank of India's studies on finances of (a) public limited companies (medium and large with paid-up capital Rs. 5 lakhs and above), (b) public limited companies (small), (c) private limited companies, (d) branches and subsidiaries of foreign companies operating in India.
	2. Statements issued by the Controller of Capital Issues giving quarterly and annual figures of consents given and capital raised by companies.
	3. Reserve Bank of India's periodical surveys of deposits with non-banking companies.
8. Government sector	1. Economic classification of the Central Government budget.
	2. Budget papers of State Governments and Union Territories and unpublished studies of Ministry of Finance in this regard.
	3. Report on the working of public sector undertakings in India published by Ministry of Finance, Bureau of Public Enterprises.
	4. Reserve Bank of India's studies on finances of government companies.
	5. Reserve Bank of India surveys on borrowings and investments of local authorities.
	6. Reserve Bank of India's annual studies on pattern of ownership of public debt in India.
	7. Statement on small savings collections published in the R.B.I. Bulletin.
9. Foreign sector	Surveys and studies undertaken in connection with the compilation of India's balance of payments; for details please refer to Reserve Bank of India's monograph "India's Balance of Payments: 1948–1949 to 1961–1962".