Chapter 4

Inter-sectoral Structure of Flow of Capital Funds

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INTER-SECTORAL STRUCTURE OF FLOW OF CAPITAL FUNDS

4.0 In economic literature it is generally asserted that in the process of economic development the financial structure of the economy changes. It is also argued that the failure to modify and develop the financial infrastructure hinders the development of an economy.(1)

4.1 Generally, the structure is looked at from the angle of composition of financial assets, variety and number of finanrial institutions as well as the quantum of financial resources available through these institutions. R.W.Goldsmith looks at the problem of structure basically, in terms of various financial ratios and the changes in these as indicators of economic development.(2)

4.2 In this chapter the emphasis is on the analysis of the structural changes in the intersectoral Flow of capital funds in the Indian economy for the period 1966-67 to 1975-76. An attempt is made to find out the nature and extent of changes in the pattern of flows of various sectors in the economy. In other words, the hypothesis that the structure of Capital Flows changes in the process of economic development, is examined. The analysis also throws light on the problem of the stability of the coefficients of borrowing and lending of the economy as well as of individual sectors.

4.3 The structure of Flows of Capital Funds in the Indian economy is analysed with a view to measure changes in the relative importance of various sectors in the Aggregate Flows, both from the angle of Sources and Uses.

4.4 Apart from the analysis of the changes in the Aggregate Economies Flows, individual sectors' pattern of borrowing (Sources) and lending (Uses) is studied, with a view to find out the extent and nature of change in the borrowing and lending pattern of the individual sectors. To gain insight in the nature of the structural change and to identify rigorously the years which are structurally similar or different the cluster analysis is undertaken.

4.5 Methodology: The ten year data on Flow of Funds in India is recast in square matrix form and is presented in Chapter 3. See matrices 3.1 to 3.10. To study the structure of Flow of Capital Funds of the economy, the ratio of total Sources of a sector to total Flows is computed for each year. Thus, the coefficients of the shares of sectors' Sources in total Flows are obtained. As the Indian economy is divided into six sectors in RBI presentation of Flow of Funds data, we get six coefficients for each year - a vector of coefficients of borrowing (Sources) consisting of six elements with each element representing the share of a sector in the total Sources of the economy. These coefficients are calculated for all the ten years under review.

Similarly, the vectors of coefficients of lending (Uses) are computed. See Tables 4.1, 4.2. These coefficients are calculated from the Flow of Capital Funds Matrices 3.1 to 3.10.

Table 4.1: Aggregate Economy Coefficients of Financial Flows (Sources)

Year	House-hold Sector	Rest of the World Sector	Bank-ing Sector	Other Finan-cial Insti-tutions Sector	Corpo-rate Sector	Govern-ment Sector	Total
1966-67	.10	.00	.21	.12	.14	.43	1.00
1967-68	.10	.02	.22	.11	.12	.45	1.02
1968-69	.14	.00	.26	.12	.10	.39	1.01
1969-70	.18	.04	.27	.12	.10	.30	1.00
1970-71	.11	.01	.29	.11	.08	.39	1.00
1971-72	.10	.01	.30	.12	.10	.39	1.02
1972-73	.10	.00	.32	.13	.09	.37	1.01
1973-74	.12	.02	.40	.13	.15	.17	0.99
1974-75	.08	.02	.28	.11	.15	.35	0.99
1975-76	.09	.07	.32	.11	.07	.36	1.02

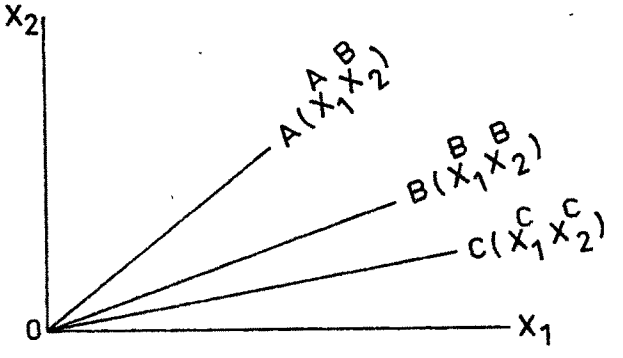
Table 4.2: Aggregate Economy Coefficients of Financial Flows (Uses)

Year	House-hold Sector	Rest of the World Sector	Bank-ing Sector	Other Finan-cial Insti-tutions Sector	Corpo-rate Sector	Govern-ment Sector	Total
1966-67	.32	.27	.22	.11	.01	.07	1.00
1967-68	.33	.25	.26	.10	.01	.06	1.01
1968-69	.36	.13	.31	.11	.02	.06	.99
1969-70	.40	.10	.29	.12	.02	.06	.99
1970-71	.39	.08	.31	.11	.00	.11	1.00
1971-72	.41	.09	.37	.14	.02	.02	1.05
1972-73	.44	.04	.34	.11	.02	.05	1.00
1973-74	.50	- .14	.41	.14	.03	.06	1.00
1974-75	.36	.13	.33	.12	.01	.05	1.00
1975-76	.36	.10	.34	.12	.02	.06	1.00

4.6 Measurement of Distance Between Vectors: In order to study the temporal changes in the structure of Flow of Capital Funds two main statistical tools of analysis are used: (a) Measurement of Distance Between Vectors, (b) Cluster analysis. In this study the vectors are coefficients of borrowing and lending of the Aggregate Economy, consisting of six elements, one each for the six sectors. We have ten vectors corresponding to ten years, each vector contains six elements.

4.7 Similarly, for each sector there are vectors of borrowing and lending coefficients consisting of a set of five elements,* for each year. Thus, a vector indicates the composition of Sources (Uses). For instance, if an economy is divided into only two sectors, the composition of Sources (Uses) is represented by a vector with two elements, which can be depicted in a two-dimensional diagram. See diagram below.

Diagram 4.1



* As intrasector borrowing/lending is netted out.

4.8 In the diagram OA represents the vector of Sources (Uses) for the A^{th} period, OB shows the vector of Sources (Uses for the B^{th} period, OC shows the vector of Sources (Uses) for the C^{th} period. It is clear that any two vectors will coincide only if their composition is identical, in which case the distance between them would be zero. If the composition of two vectors is different the distance between them can be used as a single measure of variation in their composition. For example, the distance between OA and OB is given by

$$\sqrt{(X_1^A - X_1^B)^2 + (X_2^A - X_2^B)^2}$$

4.9 In this analysis since all the vectors have elements greater than three, it is not possible to depict them on a diagram. However, distances between vectors are calculated using the standard formula, with the vector of coefficients of 1966-67 as base for all subsequent years. Since distance between vectors is a scalar and therefore has no direction the operation is performed over the ten year period by making each of the ten years as base by turns (both for Uses and Sources).

Inter-sectoral coefficient matrices:

4.10 From the Flow of Funds Matrices another set of Matrices are computed, the elements of which are obtained by dividing each sector's Sources in another by its total Sources. Thus, for each year we obtain a Matrix of coefficients of borrowing (Sources) each column of which gives the vector of Borrowing coefficients of a different sector. For a given year, the six columns of the Matrix represents the Borrowing coefficients of all the six sectors. See Matrices 4.1 to 4.10.

4.11 Similarly, a set of Matrices of coefficients of lending (Uses) of all sectors for the same ten year period are computed. In these Matrices each row represents the lending coefficients (Uses) of each sector.. The Matrix of coefficients of lending of a particular year represents the coefficients of lending for all six sectors. See Matrices 4.11 to 4.20.

4.12 The purpose of computing these Matrices is to study the change in the structure of Flows of individual Sectors, both from the point of view of Sources and Uses over the ten year period under study. Procedure of changing, each time, the base year for the calculation of distances between the vectors for the study of individual Sectors' structural behaviour is adopted. For the economy as a whole and for individual Sectors we get a set of matrices of distances. For example, in the matrix of distances of the Aggregate Economy(Uses) first row gives the distances between vectors of all the years with 1966-67 as the base. Thus, each row of this matrix gives the distances between the vectors with a different year as base. Similarly, we get the matrices of distances for individual sectors.

4.13 A frequency table has been prepared in which the distances between the vectors of coefficients of the Aggregate Economy and the individual sectors, both for the Sources and Uses, have been presented for the same class intervals. See Table 4.31. The purpose of presenting the distances in the form of frequency table is to gain insight into the relative range of fluctuations in the structure of Flows of the Aggregate Economy and the individual Sectors.

Coefficient Matrix 4.1: Borrowing Structure (1966-67)

	Household Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector
Household Sector	--	--	.74	.74	.22	.12
Rest of the World Sector	--	--	.11	.07	.04	.55
Banking Sector	.64	.18	--	.04	.46	.20
Other Financial Institutions Sector	.06	.72	.06	--	.23	.12
Corporate Sector	.08	- .14	- .01	.00	--	.00
Government Sector	.22	.23	.09	.15	.06	--
Total	1.00	.99	.99	1.00	1.01	.99

Coefficient Matrix 4.2: Borrowing Structure (1967-68)

	Household Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector
Household Sector	--	--	.78	.88	- .02	.15
Rest of the World Sector	--	--	.08	.00	.03	.49
Banking Sector	.56	.82	--	.02	.69	.24
Other Financial Institutions Sector	.09	- .03	.09	--	.21	.11
Corporate Sector	.03	- .01	.00	.00	--	.01
Government Sector	.32	.23	.04	.10	.08	--
Total	1.00	1.01	.99	1.00	.99	1.00

Coefficient Matrix 4.3: Borrowing Structure (1968-69)

	Household Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector
Household Sector	--	--	.74	.87	.13	.14
Rest of the World Sector	--	--	- .01	.00	- .04	.36
Banking Sector	.90	- 3.3	--	.01	.60	.34
Other Financial Institutions Sector	.05	.15	.08	--	.24	.15
Corporate Sector	.03	- .06	.05	.00	--	.01
Government Sector	.01	2.21	.14	.13	.07	--
Total	.99	- 1.00	1.00	1.01	1.00	1.00

Coefficient Matrix 4.4 : Borrowing Structure (1969-70)

	Household Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector
Household Sector	--	--	.86	.91	.22	.15
Rest of the World Sector	--	--	- .11	.00	- .08	.44
Banking Sector	.87	1.0	--	.05	.52	.14
Other Financial Institutions Sector	.05	.00	.07	--	.25	.25
Corporate Sector	.03	- .01	.03	.00	--	.01
Government Sector	.06	- .01	.15	.04	.09	--
Total	1.01	0.99	1.00	1.00	1.00	0.99

Coefficient Matrix 4.5: Borrowing Structure (1970-71)

	Household Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector
Household Sector	--	--	0.75	0.85	0.26	0.15
Rest of the World Sector	--	--	- 0.02	0.02	- 0.03	0.22
Banking Sector	0.84	- 2.16	--	0.12	0.52	0.46
Other Financial Institutions Sector	0.07	0.03	0.07	--	0.19	0.17
Corporate Sector	- 0.04	- 0.01	0.02	0.00	--	0.00
Government Sector	0.13	3.16	0.18	0.03	0.07	--
Total	1.00	1.02	1.00	1.02	1.01	1.00

Coefficient Matrix 4.6 : Borrowing Structure (1971-72)

	Household Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector
Household Sector	--	--	.88	.85	.30	.10
Rest of the World Sector	--	--	.03	.02	-.04	.18
Banking Sector	.64	1.37	--	.13	.39	.52
Other Financial Institutions Sector	.07	.02	.12	--	.16	.19
Corporate Sector	.04	.02	.05	.00	--	.00
Government Sector	.24	- .41	- .07	.00	.18	--
Total	0.99	1.00	1.01	1.00	0.99	0.99

Coefficient Matrix 4.7: Borrowing Structure (1972-73)

	Household Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector
Household Sector	--	--	.83	.81	.42	.12
Rest of the World Sector	--	--	.01	.02	- .02	.11
Banking Sector	.80	- 19.8	--	.12	.39	.58
Other Financial Institutions Sector	.06	.42	.05	--	.18	.19
Corporate Sector	.01	.75	.04	.00	--	.00
Government Sector	.13	19.6	.08	.06	.04	--
Total	1.00	0.97	1.01	1.01	1.01	1.00

Coefficient Matrix 4.8 : Borrowing Structure (1973-74)

	Household Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector
Household Sector	--	--	.72	.79	.34	.30
Rest of the World Sector	--	--	.05	.02	-.03	-0.88
Banking Sector	.79	.95	--	.15	.51	1.11
Other Financial Institutions Sector	.05	.03	.08	--	.14	0.47
Corporate Sector	.04	.00	.06	.00	--	0.00
Government Sector	.12	.02	.09	.04	.06	--
Total	1.00	1.00	1.00	1.00	1.02	1.00

Coefficient Matrix 4.9: Borrowing Structure (1974-75)

	Household Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector
Household Sector	--	--	.63	.76	.42	.10
Rest of the World Sector	--	--	.19	.01	- .02	.21
Banking Sector	.75	.41	--	.20	.45	.48
Other Financial Institutions Sector	.10	.03	.06	--	.11	.21
Corporate Sector	.03	.00	.03	.00	--	.00
Government Sector	.12	.56	.08	.02	.04	--
Total	1.00	1.00	0.99	0.99	1.00	1.00

Coefficient Matrix 4.10: Borrowing Structure (1975-76)

	Household Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector
Household Sector	--	--	.74	.78	.10	.10
Rest of the World Sector	--	--	.05	.02	- .05	.25
Banking Sector	.80	.87	--	.14	.65	.44
Other Financial Institutions Sector	.07	.00	.07	--	.21	.21
Corporate Sector	.12	.00	.03	.00	--	.00
Government Sector	.02	.13	.10	.06	.09	--
Total	1.01	1.00	0.99	1.00	1.00	1.00

Coefficient Matrix 4.11: Lending Structure (1966-67)

	Household Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector	Total
Household Sector	--	--	.49	.25	.10	.17	1.01
Rest of the World Sector	--	--	.09	.03	.02	.86	1.00
Banking Sector	.30	.00	--	.02	.28	.40	1.00
Other Financial Institutions Sector	.06	.01	.13	--	.30	.50	1.00
Corporate Sector	1.11	.00	- .25	.00	--	.18	1.04
Government Sector	.35	.01	.29	.24	.11	--	1.00

Coefficient Matrix 4.12: Lending Structure (1967-68)

	House-hold Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector	Total
Household Sector	--	--	.51	.28	- .01	.21	0.99
Rest of the World Sector	--	--	.07	.00	.02	.91	1.00
Banking Sector	.19	.06	--	.01	.32	.42	1.00
Other Financial Institutions Sector	.08	- .01	.20	--	.24	.49	1.01
Corporate Sector	.45	- .03	.18	.00	--	.40	1.00
Government Sector	.46	.07	.15	.17	.16	--	1.01

Coefficient Matrix 4.13: Lending Structure (1968-69)

	Household Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector	Total
Household Sector	--	--	.53	.29	.03	.15	1.00
Rest of the World Sector	--	--	- .02	.00	- .03	1.1	1.05
Banking Sector	.42	- .02	--	.00	.18	.43	1.05
Other Financial Institutions Sector	.07	.00	.19	--	.20	.54	1.00
Corporate Sector	.22	- .01	.65	.00	--	.13	0.99
Govt. Sector	.03	.08	.56	.23	.10	--	1.00

Coefficient Matrix 4.14: Lending Structure (1969-70)

	House-hold Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector	Total
Household Sector	--	--	.57	.27	.05	.11	1.00
Rest of the World Sector	--	--	- .31	.00	- .07	1.4	1.02
Banking Sector	.54	.14	--	.02	.15	.14	0.99
Other Financial Institutions Sector	.07	.00	.15	--	.17	.61	1.00
Corporate Sector	.31	-.01	.52	.00	--	.18	1.00
Govt. Sector	.17	-.01	.64	.08	.12	--	1.00

Coefficient Matrix 4.15: Lending Structure (1970-71)

	House-hold Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector	Total
Household Sector	--	--	.56	.24	.06	.15	1.01
Rest of the World Sector	--	--	- .07	.02	- .03	1.08	1.00
Banking Sector	.31	- .08	--	.04	.14	0.59	1.00
Other Financial Institutions Sector	.07	.00	.19	--	.14	.61	1.01
Corporate Sector	-1.49	- .03	2.18	.01	--	.33	0.99
Govt. Sector	.13	.32	.47	.03	.05	--	1.00

Coefficient Matrix 4.16: Lending Structure (1971-72)

	Household Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector	Total
Household Sector	--	--	.58	.24	.08	.09	0.99
Rest of the World Sector	--	--	.10	.03	- .05	.93	1.01
Banking Sector	.19	.03	--	.04	.13	.61	1.00
Other Financial Institutions Sector	.06	.00	.23	--	.13	.58	1.00
Corporate Sector	.21	.01	.71	.00	--	.07	1.00
Govt. Sector	1.10	- .15	- .81	.00	.87	--	1.01

Coefficient Matrix 4.17: Lending Structure (1972-73)

	House-hold Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector	Total
Household Sector	--	--	.61	.21	.08	.10	1.00
Rest of the World Sector	--	--	.05	.04	- .04	.96	1.01
Banking Sector	.24	- .01	--	.04	.10	.62	0.99
Other Financial Institutins Sector	.05	.00	.16	--	.14	.64	0.99
Corporate Sector	.10	.01	.85	.01	--	.04	1.01
Govt.Sector	.25	.10	.46	.13	.06	--	1.00

Coefficient Matrix 4.18: Lending Structure (1973-74)

	House-hold Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector	Total
Household Sector	--	--	.59	.21	.10	.10	1.00
Rest of the World Sector	--	--	.15	.02	- .04	-1.1	-0.97
Banking Sector	.24	.04	--	.05	.19	.48	1.00
Other Financial Institutions Sector	.04	.00	.22	--	.15	.59	1.00
Corporate Sector	.17	.00	.83	.01	--	- .01	1.00
Govt. Sector	.23	.01	.54	.08	.14	--	1.00

Coefficient Matrix 4.19: Lending Structure (1974-75)

	House-hold Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector	Total
Household Sector	--	--	.49	.24	.17	.09	0.99
Rest of the World Sector	--	--	.42	.01	- .02	.59	1.00
Banking Sector	.18	.02	--	.07	.21	.52	1.00
Other Financial Institutions Sector	.07	.00	.16	--	.14	.63	1.00
Corporate Sector	.22	.00	.73	.00	--	.04	0.99
Government Sector	.19	.20	.44	.05	.12	--	1.00

Coefficient Matrix 4.20: Lending Structure (1975-76)

	Household Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector	Total
Household Sector	--	--	.65	.23	.02	.10	1.00
Rest of the World Sector	--	--	.16	.02	- .03	.85	1.00
Banking Sector	.20	.18	--	.04	.12	.46	1.00
Other Financial Institutions Sector	.05	.00	.20	--	.12	.63	1.00
Corporate Sector	.54	.01	.45	.00	--	- . 01	0.99
Government Sector	.03	.17	.57	.12	.11	--	1.00

4.14 Cluster Analysis: The structure of Financial Flows was studied with the help of Cluster Analysis[3] based on the Matrices of distances between the vectors. Clustering technique is adopted for grouping vectors of coefficients having similar composition on the basis of distances amongst them. A verbal description of Cluster Analysis is as follows.

4.15 The elements of each matrix of distances were ranked in ascending order, each element of the matrices of distances was replaced by its rank to obtain a new set of matrices, whose elements are the ranks instead of the actual distances between the vectors. By examining the rank matrix (of a particular sector or aggregate economy) the rows in which the lowest number, rank one, appeared are struck off; for example, if rank one is found in the first row (1966-67) and the ninth row (1974-75) these would be struck off. A new row number eleven (in our case) is formed by taking the lower values from the rows that are struck off. The new row is transposed as a new column. It may be noted that these two rows that are struck off in the first operation represent the two years that form a cluster. Then we look for the next lowest rank in the remaining rows and columns, and repeat the operation described above. In our study the clusters formed upto five operations are considered. To stop at the fifth operation is arbitrary but as the procedure is followed uniformly the results are comparable.

4.16 Based on the coefficient matrices and the methodology and tools indicated above the analysis of structure of capital flows of the Indian economy is undertaken.

4.17 Aggregate Economy (Sources): 1973-74 is a "unique" year in the Sources of the aggregate economy, as the distance between this year's vector of coefficients is maximum from the vectors of coefficients of all other years (see Table 4.3).

4.18 If we examine the first ~~column~~/row of the table of distances of the vectors of coefficients of borrowing the distance of the vector of 1966-67 (the first year of the analysis) with the vectors of all subsequent years is obtained. This column reveals that the magnitudes of distances are not in ascending or descending order nor do these form any pattern.

4.19 The years 1970-71 and 1971-72 form one cluster in the first operation. In the second operation 1972-73 joins the cluster formed in first operation. In the third operation a second cluster is formed, consisting of the years 1966-67 and 1967-68. In the fourth and fifth operations the first cluster is further enlaged, as the years 1968-69, 1974-75 join it. Thus, in the Sources of the Aggregate Economy, there are two clusters of two years and five years each. The first five year cluster differs in structure from the second two year cluster as the shares of Government and Corporate Sectors are relatively lower, and the share of Banking Sector higher, in the first cluster. (See Table 4.4)

4.20 The most prominent feature of 1969-70, a non-cluster year is the share of the Household Sector in the total sources is all time high and Government Sector's share is low, this makes its structure different from the cluster years.

Table 4.3: Distance Between Vectors - Aggregate Economy (Sources)

	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
1966-67	-	0.0374	0.0854	0.1735	0.1091	0.1463	0.1353	0.3236	0.1109	0.1643
1967-68	0.0374	-	0.0877	0.1797	0.1014	0.1030	0.1345	0.3354	0.1221	0.1523
1968-69	0.0854	0.0877	-	0.1067	0.0489	0.0574	0.0762	0.2672	0.0927	0.1135
1969-70	0.1735	0.1797	0.1067	-	0.1216	0.1780	0.1249	0.2009	0.1249	0.1269
1970-71	0.1091	0.1014	0.0489	0.1216	-	0.0265	0.0447	0.2569	0.0872	0.0768
1971-72	0.1463	0.1030	0.0574	0.1780	0.0265	-	0.0332	0.2480	0.0714	0.0775
1972-73	0.1353	0.1345	0.0762	0.1249	0.0447	0.0332	-	0.2254	0.0824	0.0768
1973-74	0.3236	0.3354	0.2672	0.2009	0.2569	0.2480	0.2254	-	0.2209	0.2295
1974-75	0.1109	0.1221	0.0927	0.1249	0.0872	0.0714	0.0824	0.2209	-	0.1034
1975-76	0.1643	0.1523	0.1135	0.1269	0.0768	0.0775	0.0768	0.2295	0.1034	-

Table 4.4 : Sequence of Cluster Formation, Aggregate Economy (Sources)

Year	Cluster No.	Coefficients of Borrowing					
		Household Sector	Rest of the World Sector	Banking Sector	Other Financial Inst. Sector	Corporate Sector	Govt. Sector
1970-71	I	.11	.01	.29	.11	.08	.39
1971-72	(Operation 1)	.10	.01	.30	.12	.10	.39
1972-73	Joins cluster I (Operation 2)	.10	.00	.32	.13	.09	.37
1966-67	II	.10	.00	.21	.12	.14	.43
1967-68	(Operation 3)	.10	.02	.22	.11	.12	.45
1968-69	(Joins cluster I (Operation 4)	.14	.00	.26	.12	.10	.39
1974-75	Joins cluster I (Operation 5)	.08	.02	.28	.11	.15	.35
Non-cluster years:							
1969-70		.18	.04	.27	.12	.10	.30
1973-74		.12	.02	.40	.13	.15	.17
1975-76		.09	.07	.32	.11	.07	.36

4.21 The year 1973-74 is a "unique" year from the point of view of Sources. In this year the Sources of the Government from the Rest of the World Sector are negative. PL 480 Funds were written off by the Rest of the World Sector in this year. Further, in this year the Rest of the World Sector's Uses in the Indian Economy are negative, this occurs only once in the entire ten year period. It has not only changed the structure of Uses, but the structure of Sources also, as the Uses of a sector are the Sources of another Sector or Sectors. Since the Rest of the World Sector interacts mainly with the Government Sector, there is a sharp fall in the Sources of the Government Sector, as in the Flow of Funds data, Reserve Bank of India represents it as a negative Source from the Rest of the World in the Government Sector (Negative Source implies reduction in liabilities).

4.22 The year 1975-76, another non-cluster year, has a structure which is not very different from ~~the~~ Cluster I consisting of five years.

4.23 The frequency table brings out the fact that the range of variation in the Sources of the economy is narrow, as the first three class intervals account for more than 68 per cent of the distances (31 out of 45 observations).

4.24 Since the second cluster formed consists of the first two years of the analysis, and the subsequent years form a different cluster (excluding the non-cluster years) it can be inferred that

structural change, though marginal, has occurred from the year 1968-69. It can be seen that the share of Banking Sector in the first cluster is higher than in the second cluster. It can be noted that even in the non-cluster years the share of Banking is higher than in the first two years. Thus, the rise in the share of Banking Sector's Sources in total Sources of the economy from the year 1968-69, is one of the main factors responsible for the change of structure in the Sources of the Aggregate Economy.

4.25 Aggregate Economy (Uses): In the structure of the Uses of the Aggregate Economy there is no "unique year". However, the structure of the Financial Flows in the year 1973-74 is significantly different from the structure of the flows of all other years except for one year, as the distance between the vector of coefficients of lending of the year 1973-74 is maximum from the vectors of all other years, except the year 1972-73.

4.26 In the Table of distances between vectors, the first column or row gives the distance between the vector of 1966-67 and vectors of all subsequent nine years. By looking at the first column in the Table of distance between vectors (Table 4.5) we find that the distance of the vectors of subsequent years from the vector of 1966-67 increases, reaches a peak in the year 1973-74 and registers a fall in the subsequent two years. It can be inferred, therefore, that the structure of Uses of the Aggregate Economy moves away from the structure of the year 1966-67 till the year 1973-74, though the structures of 1974-75 and 1975-76 are once again relatively nearer to earlier years.

Table 4.5: Distance Between Vectors Aggregate Economy (Uses)

	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
1966-67	-	0.0479	0.1717	0.2012	0.2254	0.2579	0.2867	0.4879	0.1838	0.2126
1967-68	0.0479	-	0.1342	0.1697	0.1942	0.2177	0.2508	0.4533	0.1438	0.1741
1968-69	0.1717	0.1342	-	0.0548	0.0794	0.1009	0.1245	0.3217	0.0265	0.0436
1969-70	0.2012	0.1697	0.0548	-	0.0625	0.0927	0.0889	0.2872	0.0656	0.0640
1970-71	0.2254	0.1942	0.0794	0.0625	-	0.1162	0.0949	0.2735	0.0872	0.0721
1971-72	0.2579	0.2177	0.1009	0.0927	0.1162	-	0.0781	0.2629	0.0843	0.0742
1972-73	0.2867	0.2508	0.1245	0.0889	0.0949	0.0781	-	0.2049	0.1216	0.1009
1973-74	0.4879	0.4533	0.3212	0.2872	0.2735	0.2629	0.2049	-	0.3159	0.2874
1974-75	0.1838	0.1438	0.0265	0.0656	0.0872	0.0843	0.1216	0.3159	-	0.0346
1975-76	0.2126	0.1741	0.0436	0.0640	0.0721	0.0742	0.1009	0.2874	0.0346	-

4.27 Like the Sources, in the Uses of the Aggregate Economy, there are two clusters of two years and five years. However, the sequence of cluster formation is different. The first operation results in the formation of a cluster of the years 1968-69 and 1974-75. The second operation extends the cluster by adding the year 1975-76 to it. The third operation results in the formation of the second cluster of the years 1966-67 and 1967-68.

4.28 The subsequent operations expand the first cluster (see Table 4.6). The share of the Rest of the World Sector being low in the first cluster compared to the second, mainly accounts for the difference in the structure of the two clusters (13 per cent maximum in the first cluster 25 and 27 per cent in the second cluster).

4.29 Of the three non-cluster years it can be observed that the years 1971-72 and 1972-73 exhibit structures which are not markedly different from the structure of the years that form the first cluster. In fact, the sixth operation when performed to see if these years join the first cluster, it is found that the year 1971-72 joins the first cluster.

4.30 The year 1973-74, a non-cluster year, has a structure which is very different from the structure of the cluster years, for, in this year the share of the Rest of the World Sector is negative (- 14%) while the share of Banking Sector is all time high (41%).

Table 4.6: Sequence of Cluster Formation of the Aggregate Economy (Uses)

Year	Cluster No.	Coefficients of Lending					
		Household Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Govt. Sector
1968-69	I	.36	.13	.31	.11	.02	.06
1974-75	(Operation 1)	.36	.13	.33	.12	.01	.05
1975-76	Joins Cluster I (Operation 2)	.36	.10	.34	.12	.0 2	.06
1976-77	II	.32	.27	.22	.11	.01	.07
1967-68	(Operation 3)	.33	.25	.26	.10	.01	.06
1969-70	Joins Cluster I (Operation 4)	.40	.10	.29	.12	.02	.06
1970-71	Joins Cluster I (Operation 5)	.39	.08	.31	.11	.00	.11
Non-Cluster Years:							
1971-72		.41	.09	.37	.14	.02	.02
1972-73		.44	.04	.34	.11	.02	.05
1973-74		.50	-.14	.41	.14	.03	.06

4.31 The frequency table shows that the range of fluctuation of distances between the vectors is greater in Uses of the Aggregate Economy than its Sources. This can be explained by the fact that the Rest of the World Sector's share in the Indian economy's total Sources is generally negligible, while its share in total Uses is relatively larger. See Tables 4.1 and 4.2. Thus, the impact of th fluctuations in the Uses of the Rest of the World Sector is reflected in the larger range of fluctuation in the Uses of the Aggregate Economy.

4.32 The second cluster consists of two years, the years 1966-67 and 1967-68, which are the first two years of the analysis. As already mentioned that the structure of the two clusters are different. The first cluster includes the years 1968-69, 1969-70, 1970-71, 1974-75 and 1975-76. It is seen that the non-cluster years 1971-72 and 1972-73 have a structure which is similar to the first cluster years. Thus, from the year 1968-69, except the year 1973-74, seven consecutive years are similar in structure. It can be inferred, therefore, that in the Uses of the Aggregate Economy structural change has taken place from the year 1968-69 after which the structure shows stability. The nature of the change in structure lies in a rising share of the Banking and Household Sectors and a falling share of the Rest of the World Sector in the total Uses of the Indian economy.

4.33 Household Sector (Sources): The Household Sector is a surplus sector in the Indian economy as mentioned earlier. Its Uses exceed its Sources throughout the period of the analysis. It is a major domestic Sector that creates net financial assets in the economy. However, its share in total Sources is relatively small though not negligible (see Table 4.1).

4.34 The Sectors' Sources does not have a "unique year", i.e., the distance between the vector of no single year is maximum from the vectors of all other years. But the distance of the vector of coefficients of the year 1967-68 records as maximum for seven years, while the vector of 1968-69 is the maximum for the rest of the period (3 years). This brings out the fact that the structure of the year 1967-68 is markedly different from that of other years.

4.35 The frequency table brings out that in the structure of Sources of the Household Sector the range of variation is much greater than its Uses. For instance, the first three class-intervals account for 40 per cent of the observations for the Sources, whereas for the Uses the percentage in the same class-intervals is 80 per cent. In the class-interval .3 to .5 there are eight observations in the Sources and none in the Uses. One may infer that the structure of the Sources of the Household Sector shows a greater degree of fluctuation than its Uses (see Table 4.31). The explanation for this lies in the fact that a part of the Household Savings is in the form of Life Insurance

and Provident Fund which are in the nature of committed savings. And due to the preference which the Household Sector has shown for Bank deposits the range of fluctuations in Uses is narrowed down. (5 year average of Bank deposits for 1966-67 to 1970-71 is 35.5 per cent while 5 year average of Bank deposits for 1971-72 to 1975-76 is 45.2 per cent). See Table 5.1.

4.36 The Household Sector is the only Sector in which three clusters are formed in the Sources over the ten-year period taken up for analysis of structure of Financial Flows in this chapter. In this Sector (Sources) three consecutive operations result in the formation of three clusters of two years each 4th and 5th operations expand the first cluster by adding the years 1970-71, 1974-75 to the first cluster (see Table 4.8). By looking at the Table of sequence of cluster formation we can observe the following differences in the structure of the years that form different clusters. In cluster I Government's share is 12 to 13 per cent, while in the second cluster its share is 22 and 24 per cent. In the third cluster, the Government's share is lower, 1 per cent and 6 per cent.

4.37 The year 1967-68, a non-cluster year, has a structure, which is closer to years of cluster II compared to the other two clusters, but it does not join it because the Government's share is high and Banking Sector's share is low in this year. The year 1975-76, another non-cluster year for the Sector's

Table 4.7: Distance between Vectors Household Sector (Sources)

	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
1966-67	--	0.1407	0.3380	0.2847	0.2502	0.0458	0.1965	0.1849	0.1619	0.2594
1967-68	0.1407	--	0.4618	0.4065	0.3461	0.1153	0.3082	0.3075	0.2760	0.3951
1968-69	0.3380	0.4618	--	0.0583	0.1526	0.3479	0.1578	0.1559	0.1926	0.1364
1969-70	0.2847	0.4065	0.0583	--	0.1054	0.2929	0.1015	0.1005	0.1432	0.1225
1970-71	0.2502	0.3461	0.1526	0.1054	--	0.2419	0.0648	0.0970	0.1183	0.1982
1971-72	0.0458	0.1153	0.3479	0.2929	0.2419	--	0.1967	0.1931	0.1658	0.2835
1972-73	0.1965	0.3082	0.1578	0.1015	0.0648	0.1967	--	0.0346	0.0678	0.1559
1973-74	0.1849	0.3075	0.1559	0.1005	0.0970	0.1931	0.0346	--	0.0648	0.1300
1974-75	0.1619	0.2760	0.1926	0.1432	0.1183	0.1658	0.0678	0.0648	--	0.1466
1975-76	0.2594	0.3951	0.1364	0.1225	0.1982	0.2835	0.1559	0.1300	0.1466	--

Table 4.8 : Sequence of Cluster Formation of the Household Sector(Sources)

Year Cluster No.	Coefficients of Borrowing			
	Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector
1972-73 I	.80	.06	.01	.13
1973-74 (Operation 1)	.79	.05	.04	.12
1966-67 II	.64	.06	.08	.22
1971-72 (Operation 2)	.64	.07	.04	.24
1968-69 III	.90	.05	.03	.01
1969-70 (Operation 3)	.87	.05	.03	.06
1970-71 Joins Cluster 1 (Operation 4)	.84	.07	- .04	.13
1974-75 Joins Cluster 1 (Operation 5)	.75	.10	.03	.12
Non-Cluster Years:				
1967-68	.56	.09	.03	.32
1975-76	.80	.07	.12	.02

Sources, exhibits a high share of Corporate Sector (12 per cent all time high). This makes its structure different from all cluster years.

4.38 The analysis brings out the fact that the dominant feature in cluster formation is the behaviour of Banking and Government Sectors. Further, there appears to be a trade off relationship between the Banking and Government Sectors as Sources for the Household Sector. The sequence of cluster formation also reveals the oscillations in the structure of Sources of this Sector. It is worth noting that the importance of Banking Sector as a Source of the Household Sector has a rising trend over the ten-year span under study.

4.39 Household Sector (Uses): In the Uses of the Household Sector, Banking and Other Financial Institutions Sectors — Financial Intermediaries account for a very high share (between 73 to 88 per cent) over the ten year span. This brings out the fact that the direct interaction of the Household Sector is mainly with the Financial Intermediaries. It can be seen further, from the table that its interaction with the Corporate Sector is negligible.

4.40 The Uses of this Sector, like its Sources has no "unique" year. However, the distance of the year 1973-74 is maximum from the vectors of six other years. See Table 4.9. This implies that the structure of the year 1973-74 is significantly different from other years.

4.41 It can be noted that the fluctuation of distances between vectors is confined within a narrow range. The reasons are already discussed: a high percentage of the Household Sector's Financial Savings comes from urban sector, and is of a contractual nature, and Household Sector's preference for Bank Deposits.

4.42 The Household Sector has a single cluster of six consecutive years, from 1968-69 to 1973-74. A notable feature of the cluster formation is that after the first operation results in forming a two year cluster (1972-73, 1973-74) each subsequent operation expands the cluster by one more year. See Table 4.10.

Table 4.9: Distance Between Vectors Household Sector (USES)

	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
1966-67	--	0.1225	0.0922	0.1136	0.0837	0.1225	0.1459	0.1284	0.1068	0.1931
1967-68	0.1225	--	0.0755	0.1315	0.1123	0.1703	0.1874	0.1884	0.2209	0.1874
1968-69	0.0922	0.0755	--	0.0632	0.0656	0.1054	0.1334	0.1319	0.1652	0.1435
1969-70	0.1136	0.1315	0.0632	--	0.0520	0.0479	0.0787	0.0812	0.1487	0.0949
1970-71	0.0837	0.1123	0.0656	0.0520	--	0.0663	0.0794	0.0768	0.1435	0.1109
1971-72	0.1225	0.1703	0.1054	0.0479	0.0663	--	0.0436	0.0387	0.1273	0.0933
1972-73	0.1459	0.1874	0.1334	0.0787	0.0794	0.0436	--	0.0283	0.1533	0.0748
1973-74	0.1284	0.1884	0.1319	0.0812	0.0768	0.0387	0.0283	--	0.1261	0.1019
1974-75	0.1068	0.2209	0.1652	0.1487	0.1435	0.1273	0.1533	0.1261	--	0.2197
1975-76	0.1931	0.1874	0.1435	0.0949	0.1109	0.0933	0.0748	0.1019	0.2197	--

Table 4.10: Sequence of Cluster Formation of Household Sector (USES)

Year	Cluster No.	Coefficients of Lending			
		Banking Sector	Other Financial Institutions Sector	Corporate Sector	Government Sector
1972-73	I	.61	.21	.08	.10
1973-74	(Operation 1)	.59	.21	.10	.10
1971-72	Joins Cluster I (Operation 2)	.58	.24	.08	.09
1969-70	Joins Cluster I (Operation 3)	.57	.27	.05	.11
1970-71	Joins Cluster I (Operation 4)	.56	.24	.06	.15
1968-69	Joins Cluster I (Operation 5)	.53	.29	.03	.15
Non-Cluster Years:					
1966-67		.49	.25	.10	.17
1967-68		.51	.28	- .01	.21
1974-75		.49	.24	.17	.09
1975-76		.65	.23	.02	.10

4.43 Of the four non-cluster years, the years 1967-68 and 1974-75 have a markedly different structure. The peculiarity of the year 1967-68 is the negative share of the Corporate Sector in the Uses of the Household Sector and the all time high share of the Government Sector (-10 per cent and 21 per cent, respectively). In spite of the fact that the other two years 1966-67 and 1975-76 are non-cluster years, yet their structure is quite close to the structure of the cluster years. To confirm this observation the sixth operation is also done; in cluster formation it is found that the year 1975-76 also joins the cluster.

4.44 The analysis brings out the fact that there is a great deal of stability in the structure of the Household Sector's Uses. This is evident from the six year cluster of consecutive years and low range of variation of distance between vectors.

4.45 Rest of the World Sector (Sources): The Rest of the World Sector does not play any significant role in the total Sources of the Indian Economy, as its share is negligible. Except for the year 1973-74 its Sources are always much lower than its own Uses. (See Tables 4.1 and 4.2). In other words, there is a net inflow of capital in the Indian Economy, except for one year, over the ten year period of the analysis.

4.46 The year 1972-73 is a "unique"year, as the distance of the vector of this year is maximum from the vectors of all the other years. The structure of 1972-73 is "unique" due to the

fact that the Rest of the World Sector registered the maximum reduction in its Sources from the Banking Sector (-19.8 per cent) while the increase in its liabilities in the Government Sector is all time high with 19.6 per cent (over the ten year period). See Tables 4.11 and 4.12. As a result of this, its total Sources are negligible (1.8 crores) and the relative share of the Other Financial Institutions Sector and Corporate Sector, which are negligible in absolute terms, work out to be 42 per cent and 75 per cent, respectively.

4.47 It can be observed from the Table 4.11 that the magnitude of distance between the vectors vary over a wide range, from 0.0663 to 29.142. It can be seen from the frequency table that there are twelve (26 per cent) observations in the class-interval 2 to 5 and nine (20 per cent) observations lie in the class-interval 10 and above. Compared to all other sectors the structure of coefficients of borrowing of this sector registers maximum degree of fluctuation. See Table 4.31.

4.48 The cluster analysis confirms the unique behaviour of the structure of this sector. The first operation forms a cluster of the years 1969-70 and 1973-74. In the four subsequent operations the cluster expands with a new year joining the cluster in each operation. It has,therefore, a single cluster of six years. However, it does not mean structural stability, as it can be seen from the sequence of cluster formation that the non-cluster years (four) are alternate years. This brings out the oscillatory nature of the structure of coefficients of borrowing of the Rest of the World Sector.

Table 4.11: Distance Between Vectors Rest of the World Sector (SOURCES)

	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-5	1975-76
1966-67	--	0.9945	4.0450	1.1250	3.8150	1.5301	27.8438	1.0643	0.8103	1.0120
1967-68	0.9945	--	4.5749	0.3015	4.1795	0.3459	28.3048	0.2544	0.5298	0.1162
1968-69	4.0450	4.5749	--	4.8418	1.4896	5.3569	23.9873	4.7829	4.0625	4.6628
1969-70	1.1250	0.3015	4.8418	--	4.4761	0.5461	28.5997	0.0663	0.8209	0.1913
1970-71	3.8150	4.1795	1.4896	4.4761	--	5.0206	24.1283	4.4195	3.6558	4.2852
1971-72	1.5301	0.3459	5.3469	0.5461	5.0206	--	29.1421	0.6015	1.3649	0.7365
1972-73	27.8438	28.3048	23.9873	28.5997	24.1283	29.1421	--	28.5421	27.7791	28.4090
1973-74	1.0643	0.2544	4.7829	0.0663	4.4195	0.6015	28.5421	--	0.7637	0.1393
1974-75	0.8103	0.5298	4.0625	0.8209	3.6558	1.3649	27.7791	0.7637	--	0.6304
1975-76	1.0120	0.1162	4.6628	0.1913	4.2852	0.7365	28.4090	0.1393	0.6304	--

Table 4.12 : Sequence of Cluster Formation of Rest of the World Sector (SOURCES)

Year	Cluster No.	Coefficients of Borrowing			
		Banking Sector	Other Financial institutions Sector	Corporate Sector	Govt. Sector
1969-70	I	1.0	.00	- .01	- .01
1973-74	(Operation 1)	0.95	.03	.00	.02
1975-76	Joins Cluster 1 (Operation 2)	0.87	.00	.00	.13
1967-68	Joins Cluster 1 (Operation 3)	.82	- .03	- .01	.23
1974-75	Joins Cluster 1 (Operation 4)	.41	.03	.00	.56
1971-72	Joins Cluster 1 (Operation 5)	1.37	.02	.02	- .41
Non-Cluster Years:					
1966-67		.18	.72	- .14	.23
1968-69		-3.30	.15	- .06	2.21
1970-71		-2.16	.03	- .01	3.16
1972-73		-19.80	.42	.75	19.60

4.49 Three of the non-cluster years have a common feature that the Sources of the Sector from Banking are negative in these years. Inspite of this, they do not form a cluster as the structures of these years are otherwise very different. In the year 1966-67, Other Financial Institutions' share in the Sources of the Rest of the World is all time high(72 per cent) and the Corporate Sector's share is all time low with -14 per cent. Further, 1966-67 does not form a cluster with any other non-cluster year as the coefficients of borrowing this year are all less than one, while in the non-cluster years some of the coefficients are greater than one. (See Table 4.12).

4.50 The peculiarity of the year 1968-69, another non-cluster year is that the total Sources of the Rest of the World Sector are negative. The comparison of the years 1968-69 and 1970-71 brings out the fact that the share of Banking and Government Sectors in these two years have reversed. In the year 1968-69 Banking's share is -335 per cent and Government's is 221 per cent, while in the year 1970-71 it is 316 per cent and -216 per cent, respectively.

4.51 The Table further brings out a feature worth noting that in the structure of Sources of the Rest of the World Sector there is a clear trade-off relationship between the Government and Banking Sectors.

4.52 Rest of the World Sector (Uses): The year 1973-74 is a "unique" year in the Uses of the Rest of the World Sector. The peculiarity of the structure of this year's Uses, is that the total Uses of the sector in the Indian Economy are negative only for this year in the entire ten years period (See Table 4.2). The explanation for the unusual behaviour of the Rest of the World Sector is already provided in the analysis of the aggregate Uses of the Indian economy.

4.53 Fluctuations in the distances of vectors of coefficients of Uses of the Sector are less compared to its Sources. The maximum distance recorded is between the vectors of the years 1969-70 and 1973-74 (2.5422) and the minimum distance is between the vectors of the years 1968-69 and 1970-71 (0.0574). See Table 4.13.

4.54 Frequency table brings out the difference in the range of fluctuations of the Uses of the Sector clearly. The last class-interval in which the observation for the Uses of the Sector lies is between 2 to 5, in which there are only six observations, while for the Sources there are twelve observations in the same class interval. Further, the last class interval where observations for Sources are found is 10 and above, the frequency table highlights the fact that the range of fluctuations of the sector's Sources is appreciably higher compared to its own Uses (See Table 4.31).

4.55 There are two clusters for the Uses of the Rest of the World Sector as against a single cluster for its Source. The structne of the first cluster is different from the second

Table 4.13 : Distance Between Vectors Rest of the World Sector (USES)

	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
1966-67	--	0.0616	0.2703	0.6787	0.2768	0.0995	0.1237	1.9618	0.4287	0.0872
1967-68	0.0616	--	0.2161	0.6266	0.2268	0.0843	0.0900	2.0125	0.4760	0.1208
1968-69	0.2703	0.2161	--	0.4192	0.0574	0.2111	0.1618	2.2067	0.6737	0.3087
1969-70	0.6787	0.6266	0.4192	--	0.4025	0.6247	0.5707	2.5422	1.0916	0.7248
1970-71	0.2768	0.2268	0.0574	0.4025	--	0.2278	0.1711	2.1911	0.6931	0.3253
1971-72	0.0995	0.0843	0.2111	0.6247	0.2278	--	0.0600	2.0306	0.4683	0.1025
1972-73	0.1237	0.0900	0.1618	0.5707	0.1711	0.0600	--	2.0625	0.5245	0.1571
1973-74	1.9618	2.0125	2.2067	2.5422	2.1911	2.0306	2.0625	--	1.7115	1.9500
1974-75	0.4287	0.4760	0.6737	1.0916	0.6931	0.4683	0.5245	1.7115	--	0.3680
1975-76	0.0872	0.1208	0.3087	0.7248	0.3253	0.1025	0.1571	1.9500	0.3680	--

as the Uses of the Sector in Banking are negative in the years that form the first cluster while in the second 5 year cluster the same are positive. It may be noted that the Rest of the World Sector's Uses are predominantly in the Government Sector. Its interaction with other sectors is negligible except in the year 1974-75, when Banking Sector's share rises to 42 per cent in its Uses and Government's share is reduced to 59 per cent. See Table 4.14.

4.56 1969-70 is a non-cluster year, in which the Uses of the Rest of the World Sector are negative in the Banking Sector, to the extent of -31 per cent which is all time low. The year 1973-74, a unique year with negative total Uses is another non-cluster year. The year 1974-75 is also non-cluster year, for reasons mentioned above. See Table 4.14.

4.57 The sequence of the cluster formation reveals the instability of the structure of this Sector's Uses.

4.58 It may be noted that the "unique" year for the Uses of the Aggregate Economy coincides with the "unique" year of the Rest of the World Sector's Uses.

Table 4.14: Sequence of Cluster Formation of Rest of the World Sector (USES)

Year	Cluster No.	Coefficients of Lending			
		Banking Sector	Other Financial Institutions Sector	Corporate Sector	Govt. Sector
1968-69	I	- .02	.00	- .03	1.10
1970-71	(Operation 1)	- .07	.02	- .03	1.08
1971-72	2	.10	.03	- .05	.93
1972-73	(Operation 2)	.05	.04	- .04	.96
1966-67	3	.09	.03	.02	.86
1967-68	(Operation 3)	.07	.00	.02	.91
Clusters 2 and 3 join to become Cluster II (Operation 4)					
1975-76	Joins Cluster II (Operation 5)	.16	.02	- .03	.85
Non-Cluster Years:					
1969-70		- .31	.00	- .07	1.40
1973-74		.15	.02	- .04	- 1.10
1974-75		.42	.01	- .02	.59

4.59 Banking Sector (Sources): The Sources of the Banking Sector has no "unique year" as the distance of the vector of no single year is maximum with respect to the Vectors of all other years.

4.60 Not only is there no unique year in the Sources of this sector but the structure of the Flows is such that the distance of the vector of coefficients of no single year is maximum for more than four Other years. See Table 4.15. One may infer from this that the structure of no single year is significantly different from structure of all other years.

4.61 This Sector has a single cluster of six years; the only other sector which has a single six year cluster in its Sources is the Rest of the World Sector. The six year cluster consists of the years 1966-67, 1967-68, 1968-69, 1970-71, 1973-74 and 1975-76. The sequence in which the cluster is formed can be seen from the Table 4.16.

4.62 The four non-cluster years have certain peculiarities which distinguish their structure from the other cluster years. The year 1969-70 has a different structure as the share of Household Sector is very high at 86 per cent and the share of the Rest of the World Sector is all time low with -11 per cent in the Sources of the Banking Sector. The year 1971-72 is distinct in the sense that the Sources from the Government Sector are negative and the share of the Household Sector is all time high (88 per cent). The structure of the year 1972-73

Table 4.15: Distance Between Vectors Banking Sector (SOURCES)

	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
1966-67	--	0.0775	0.1446	0.2610	0.1616	0.2425	0.1442	0.0964	0.1421	0.0735
1967-68	0.0775	--	0.1493	0.2364	0.1769	0.1673	0.1104	0.1034	0.1949	0.0860
1968-69	0.1446	0.1493	--	0.1581	0.0529	0.2587	0.1145	0.0812	0.2377	0.0755
1969-70	0.2610	0.2364	0.1581	--	0.1456	0.2670	0.1439	0.2231	0.3846	0.2062
1970-71	0.1616	0.1769	0.0529	0.1456	--	0.2921	0.1345	0.1249	0.2621	0.1072
1971-72	0.2425	0.1673	0.2587	0.2670	0.2921	--	0.1744	0.2309	0.3385	0.2276
1972-73	0.1442	0.1104	0.1145	0.1439	0.1345	0.1744	--	0.1229	0.2694	0.1030
1973-74	0.0964	0.1034	0.0812	0.2231	0.1249	0.2309	0.1229	--	0.1705	0.0387
1974-75	0.1421	0.1949	0.2377	0.3846	0.2621	0.3385	0.2694	0.1705	--	0.1794
1975-76	0.0785	0.0860	0.0755	0.2062	0.1072	0.2276	0.1030	0.0387	0.1794	--

appears to be very close to the years 1973-74 and 1975-76 (cluster years). But compared to the cluster years the share of the Household Sector is high. The year 1974-75 has a structure which is different from the other years as the Rest of the World Sector's share is all time high, with 19 per cent and the Household Sector's share all time low with 63 per cent. See Table 4.16.

4.63 The analysis brings out that the structure of the Sources of the Banking Sector has stability which is evident from a single six year cluster.

4.64 The frequency table strengthens the inference as it brings out the narrow range of fluctuations which ranges between 0 to .4. See table 4.31.

4.65 The stability in the structure of Sources of the Banking Sector can be attributed to the fact that the Household Sector dominates the Sources of the Sector (See Table 4.16) and it has been pointed out earlier that the Uses of the Household Sector are stable.

4.66 Banking Sector (Uses): Unlike its Sources the Banking Sector's Uses has a "unique" year, 1969-70 as the distance between the vector of coefficients of this year is maximum from the vectors of all other years. It may be noted that the "unique" year 1969-70 is the year in which Banks were nationalised. See Table 4.17.

Table 4.16: Sequence of Cluster Formation of the Banking Sector (SOURCES)

Year	Cluster No.	Coefficients of Borrowing				
		Household Sector	Rest of the World Sector	Other Financial Institutions Sector	Corporate Sector	Govt. Sector
1973-74	I	.72	.05	.08	.06	.09
1975-76	(Operation 1)	.74	.05	.07	.03	.10
1968-69	2	.74	- .01	.08	.05	.14
1970-71	(Operation 2)	.75	- .02	.07	.02	.18
1966-67	Joins Cluster I (Operation 3)	.74	.11	.06	- .01	.09
Cluster 1 and Cluster 2 join to form a single Cluster (Operation 4)						
1967-68	Joins the Cluster (Operation 5)	.78	.08	.09	.00	.04
Non-Cluster Years:						
1969-70		.86	- .11	.07	.03	.15
1971-72		.88	.03	.12	.05	- .07
1972-73		.83	.01	.05	.04	.08
1974-75		.63	.19	.06	.03	.08

4.67 It can be observed from the table of sequence of cluster formation that the first four operations result in a five year cluster from 1970-71 to 1974-75. The fifth operation forms the second cluster of two years, 1966-67 and 1967-68.

4.68 The structure of the first cluster and second cluster differs significantly in one respect, viz., the share of Corporate Sector in the Uses of the Banking Sector in the second cluster (first two years of the analysis) is very high (28 per cent and 32 per cent) compared to all other years under study. (See Table 4.18).

4.69 The year 1968-69 is a non-cluster year as it is structurually different due to the share of the Household Sector being significantly higher and being also almost equal to the share of the Government Sector, in the Uses of the Banking Sector.

4.70 The year 1969-70, the year of Bank Nationalisation, has an entirely different structure with the Household Sector registering an all time high share of 54 per cent and the Government with all time low share of 14 per cent. The Government's share is low in this year because the volume of deficit financing (in absolute and percentage terms is all time low) with 158.1 crores (14 per cent). See Flow of Funds matrices 3.1 to 3.10.*

4.71 1975-76, a non-cluster year, is different in structure due to the asset creation of the Banking Sector in the Rest of the World Sector being all time high. The explanation for this

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* It must be noted that according to the definition of Reserve Bank of India, deficit financing consists of total borrowing of the Government Sector from the Banking Sector.

Table 4.17: Distance Between Vectors Banking Sector (USES)

	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
1966-67	--	0.1334	0.1616	0.4021	0.2502	0.2828	0.2913	0.1435	0.1913	0.2683
1967-68	0.1334	--	0.2812	0.4861	0.3102	0.2720	0.3110	0.1581	0.1655	0.2387
1968-69	0.1616	0.2812	--	0.3541	0.2109	0.3032	0.2768	0.2027	0.2704	0.3074
1969-70	0.4021	0.4861	0.3541	--	0.5516	0.5969	0.5880	0.4670	0.5427	0.4700
1970-71	0.2502	0.3102	0.2109	0.5516	--	0.1643	0.1109	0.1844	0.1939	0.3114
1971-72	0.2828	0.2720	0.3032	0.5969	0.1643	--	0.0714	0.1523	0.1249	0.2126
1972-73	0.2913	0.3110	0.2768	0.5880	0.1109	0.0714	--	0.1741	0.1658	0.2524
1973-74	0.1435	0.1581	0.2027	0.4670	0.1844	0.1523	0.1741	--	0.0800	0.1631
1974-75	0.1913	0.1655	0.2704	0.5427	0.1939	0.1249	0.1658	0.0800	--	0.1965
1975-76	0.2683	0.2387	0.3074	0.4700	0.3114	0.2126	0.2524	0.1631	0.1965	--

Table 4.18: Sequence of Cluster Formation of the Banking Sector (USES)

Year	Cluster No.	Coefficients of Lending				
		House-hold Sector	Rest of the World Sector	Other Financial Inst. Sector	Corporate Sector	Govt. Sector
1971-72	I	.19	.03	.04	.13	.61
1972-73	(Operation 1)	.24	- .01	.04	.10	.62
1973-74	2	.24	.04	.05	.19	.48
1974-75	(Operation 2)	.18	.02	.07	.21	.52
1970-71	Joins Cluster I (Operation 3)	.31	- .08	.04	.14	.59
	Clusters 1 and 2 join to form Cluster I (Operation 4)					
1966-67	II	.30	.00	.02	.28	.40
1967-68	(Operation 5)	. 19	.06	.01	.32	.42
Non-Cluster Years:						
1968-69		.42	- .02	.00	.18	.43
1969-70		.54	.14	.02	.15	.14
1975-76		.20	.18	.04	.12	.46

lies in the Balance of Payments on Capital Account of the Indian Economy, where we find that this is one of those rare years when there was no in-flow of capital in India, actually there was an out-flow of 62 crores.(4)

4.72 The frequency table brings out the fact that the range of fluctuations of Banking Sector's Uses is greater compared to its own Sources. It may be inferred from the sequence of cluster formation that the structural change occurred in the Uses of this Sector after the year 1968-69, and got accentuated from 1970-71. There appears to be greater stability in the structure of this sector between 1970-71 and 1974-75. In the year 1975-76, there is an increase in the foreign assets of the Banking Sector (RBI) which makes its structure different from the structure of other cluster years.

4.73 Other Financial Institutions Sector (Sources): The Household Sector has a dominant share throughout the period of study in the Sources of the Other Financial Institutions Sector (74 per cent to 91 per cent). Therefore, the structural differences are not significant.

4.74 The Sources of this Sector has no "unique year" (See Table 4.19).

4. 75 The Sector's (Sources) has two clusters of five and two years each. In the first cluster (of 5 years) the share of Banking Sector is relatively high (12 per cent to 15 per cent)

Table 4.19: Distance Between Vectors Other Financial Institutions Sector (SOURCES)

	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
1966-67	--	0.1655	0.1520	0.2145	0.1881	0.2066	0.1480	0.1709	0.2156	0.1490
1967-68	0.1655	--	0.0332	0.0735	0.1273	0.1158	0.1300	0.1703	0.2309	0.1625
1968-69	0.1520	0.0332	--	0.1063	0.1513	0.1792	0.1449	0.1857	0.2458	0.1741
1969-70	0.2145	0.0735	0.1063	--	0.0949	0.0775	0.1253	0.1575	0.2133	0.1606
1970-71	0.1881	0.1273	0.1513	0.0949	--	0.0332	0.0500	0.0678	0.1212	0.0787
1971-72	0.2066	0.1158	0.1792	0.0775	0.0332	--	0.0728	0.0748	0.1162	0.0927
1972-73	0.1480	0.1300	0.1449	0.1253	0.0500	0.0728	--	0.0412	0.1029	0.3606
1973-74	0.1709	0.1703	0.1857	0.1575	0.0678	0.0748	0.0412	--	0.0625	0.0245
1974-75	0.2156	0.2309	0.2458	0.2133	0.1212	0.1162	0.1029	0.0625	--	0.0755
1975-76	0.1490	0.1625	0.1741	0.1606	0.0787	0.0927	0.3606	0.0245	0.0755	--

compared to the second two year cluster where its share is 2 per cent and 1 per cent. Further, in the second cluster the share of Government Sector is relatively high (10 per cent to 13 per cent).

4.76 The first year of the analysis, the year 1966-67, is a non-cluster year for this Sector's Sources. It has the peculiarity that the share of the Rest of the World and Government Sectors are all time high. In 1969-70, which is another non-cluster year, the share of the Household Sector is highest in the entire period. The year 1974-75 remains a non-cluster year due to Banking Sector's share (20 per cent) being highest in the entire 10 year period of the analysis. See Table 4.20.

4.77 One may infer from the cluster analysis that there has been a change in the structure of this sector as the first year of the analysis is a non-cluster year with a structure which is different from all other years. The next two years of the analysis form one cluster, which is obviously different in its structure from the 5-year cluster in which all the subsequent years (7) with the exception of the non-cluster years appear. This denotes structural stability.

4.78 Another feature that may be observed is the narrow range of fluctuation of distances between the vectors as 38 observations out of 45 fall in the first 4 class-intervals (84 per cent). (See Table 4.31). This indicates that the magnitude of fluctuations in the structure of this sector is low.

Table 4.20: Sequence of Cluster Formation of the Other Financial Institutions Sector (SOURCES)

Year	Cluster No.	Coefficients of Borrowing				
		Household Sector	Rest of the World Sector	Banking Sector	Corporate Sector	Govt. Sector
1973-74	I	.79	.02	.15	.00	.04
1975-76	(Operation 1)	.78	.02	.14	.00	.06
1970-71	2	.85	.02	.12	.00	.03
1971-72	(Operation 2)	.85	.02	.13	.00	.00
1967-68	II	.88	.00	.02	.00	.10
1968-69	(Operation 3)	.87	.00	.01	.00	.13
1972-73	Joins Cluster I (Operation 4)	.81	.02	.12	.00	.06
Clusters 1 and 2 join to form Cluster I (Operation 5)						
Non-Cluster Years:						
1966-67		.74	.07	.04	.00	.15
1969-70		.91	.00	.05	.00	.04
1974-75		.76	.01	.20	.00	.02

4.79 Other Financial Institutions Sector (USes): The analysis of the Other Financial Institutions Sector brings out some interesting features of the structure of its Uses. Although there is no "unique" year for the Uses of this Sector the distance between the vector of 1966-67 is maximum from the vectors of nine other years, revealing the difference in the structure of this year from those of other years. See Table 4.21.

4.80 Another feature which strikes one is the narrow range of oscillation of the distances between the vectors, as first four class-intervals account for 40 out of 45 observations (89 per cent) (See Table 4.31).

4.81 The cluster analysis gives us two clusters of 5 and 2 years each, but the distance between the cluster years and non-cluster years and between the two clusters is very small. This brings out the fact that the change in structure of Uses of this Sector is not very marked. (See Tables 4.21 and 4.22). However, in the first three years of the analysis the share of the Corporate Sector is relatively high compared to the years in the two clusters, in which the Government Sector's share is high. Hence, there is structural difference between the first three years and the rest of the period.

Table 4.21: Distance Between Vectors Other Financial Institutions Sector (USES)

	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
1966-67	--	0.0970	0.1241	0.1720	0.2037	0.2131	0.2152	0.1980	0.2088	0.2332
1967-68	0.0970	--	0.0663	0.1483	0.1571	0.1469	0.1874	0.1421	0.1772	0.1871
1968-69	0.1241	0.0663	--	0.0860	0.0922	0.0905	0.1221	0.0825	0.1123	0.1225
1969-70	0.1720	0.1483	0.0860	--	0.0500	0.0949	0.0480	0.0812	0.0374	0.0762
1970-71	0.2037	0.1571	0.0922	0.0500	--	0.0519	0.0469	0.0480	0.0361	0.0361
1971-72	0.2131	0.1469	0.0905	0.0949	0.0519	--	0.0933	0.0316	0.0872	0.0600
1972-73	0.2152	0.1874	0.1221	0.0480	0.0469	0.0933	--	0.0794	0.0224	0.0458
1973-74	0.1980	0.1421	0.0825	0.0812	0.0480	0.0316	0.0794	--	0.0787	0.0548
1974-75	0.2088	0.1772	0.1123	0.0374	0.0361	0.0872	0.0224	0.0787	--	0.0489
1975-76	0.2332	0.1871	0.1225	0.0762	0.0361	0.0600	0.0458	0.0548	0.0489	--

Table 4.22: Sequence of Cluster Formation of Other Financial Institutions Sector (USES)

Year	Cluster No.	Coefficients of Lending				
		Household Sector	Rest of the World Sector	Banking Sector	Corporate Sector	Govt. Sector
1972-73	I	.05	.00	.16	.14	.64
1974-75	(Operation 1)	.07	.00	.16	.14	.63
1971-72	II	.06	.00	.23	.13	.58
1973-74	(Operation 2)	.04	.00	.22	.15	.59
1970-71	Joins Cluster I (Operation 3)	.07	.00	.19	.14	.61
1975-76	Joins Cluster I (Operation 4)	.05	.00	.20	.12	.63
1969-70	Joins Cluster I (Operation 5)	.07	.00	.15	.17	.61
Non-Cluster Years:						
1966-67		.06	.01	.13	.30	.50
1967-68		.08	- .01	.20	.24	.49
1968-69		.07	.00	.19	.20	.54

4.82 Corporate Sector (Sources): The Corporate Sector's Sources always exceed its Uses, i.e., its investments exceed its internal savings. (This is a feature of Corporate Sector all over the World).

4.83 The distance between the vector of no single year is maximum from the vectors of all other years. In other words, there is no "unique year" for the Sources of Corporate Sector. However, the structure of 1967-68 appears to be significantly different from the structures of all the other years as its distance is maximum with respect to six other years' vectors. (See Table 4.23).

4.84 From the frequency table (Table 4.31) it can be seen that the range of variation of distances of this sector's Sources is greater compared to Banking Sector and Other Financial Institutions Sector.

4.85 Cluster analysis brings out the oscillation of the structure of the Sources of this Sector. In the first three operations, three two-year clusters are formed. The fourth operation results in adding the year 1973-74 to the second cluster. In the last operation the second and third clusters are joined to form a single five-year cluster. Thus, there are two clusters in this Sector (Sources). See Table 4.24.

4.86 The first two years of the analysis, 1966-67 and 1967-68, and the year 1971-72 are the non-cluster years for the Sources of the Corporate Sector (1966-67 though a non-cluster year, its

Table 4.23: Distance Between Vectors Corporate Sector (SOURCES)

	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
1966-67	--	0.3337	0.1852	0.1389	0.1086	0.1924	0.2267	0.1729	0.2418	0.2447
1967-68	0.3337	--	0.1910	0.3167	0.3337	0.4580	0.5372	0.4134	0.5150	0.1500
1968-69	0.1852	0.1910	--	0.1288	0.1609	0.3025	0.3648	0.2498	0.3533	0.0693
1969-70	0.1389	0.3167	0.1288	--	0.0900	0.2027	0.2605	0.1732	0.2657	0.1838
1970-71	0.1086	0.3337	0.1609	0.0900	--	0.1777	0.2088	0.0954	0.1947	0.2090
1971-72	0.1924	0.4580	0.3025	0.2027	0.1777	--	0.1865	0.1757	0.2012	0.3439
1972-73	0.2267	0.5372	0.3648	0.2605	0.2088	0.1865	--	0.1513	0.0922	0.4175
1973-74	0.1729	0.4134	0.2498	0.1732	0.0954	0.1757	0.1513	--	0.1067	0.2888
1974-75	0.2418	0.5150	0.3533	0.2657	0.1947	0.2012	0.0922	0.1067	--	0.3947
1975-76	0.2447	0.1500	0.0693	0.1838	0.2090	0.3439	0.4175	0.2888	0.3947	--

Table 4.24: Sequence of Cluster Formation of Corporate Sector (SOURCES)

Year	Cluster No.	Coefficients of Borrowing				
		House-hold Sector	Rest of the World Sector	Banking Sector	Other Finan-cial Insti., Sector	Govt. Sector.
1968-69	I	.13	- .04	.60	.24	.07
1975-76	(Operation 1)	.10	- .05	.65	.21	.09
1969-70	2	.22	.08	.52	.25	.09
1970-71	(Operation 2)	.26	- .03	.52	.19	.07
1972-73	3	.42	- .02	.39	.18	.04
1974-75	(Operation 3)	.42	- .02	.45	.11	.04
1973-74	Joins Cluster II (Operation 4)	.34	- .03	.51	.14	.06
	Clusters 2 and 3 join to form Cluster II (Operation 5)					
Non-Cluster Years:						
1966-67		.22	.04	.46	.23	.06
1967-68		- .02	.03	.69	.21	.08
1971-72		.30	- .04	.39	.16	.18

structure is not markedly different from 1969-70). The year 1967-68 is structurally different from all other years as the Household Sector's share in the Sources of this Sector is negative and Banking Sector's contribution to the Corporate Sector's Sources is all time high. 1971-72 is different as the share of Government in Corporate Sources is all time high (18 per cent).

4.87 The first two years of the analysis are non-cluster years revealing the fact that the structure of the first two years is different from all other years. The first and second clusters remain distinct as their structure is different due to relatively high share of the Household Sector in the Corporate Sector's Sources in the second cluster and relatively higher share of Banking in the first cluster. As the first cluster comprises of the years 1968-69 and 1975-76 it brings out the oscillatory nature of the structure of sources of the Corporate Sector. Since this cluster implies that the structure of 1975-76 is close to the structure of the year 1968-69, while the years in between are either non-cluster years (1971-72) or belong to the other cluster.

4.88 Corporate Sector (Uses); The Uses of the Corporate Sector, i.e., its activity of creating financial assets is secondary and negligible, its percentage share in total Uses is very low (see Table 4.2). The Corporate Sector is primarily concerned with the creation of real, rather than financial assets. The analysis of the structure of the Uses of the Corporate Sector, therefore, is not of much importance. It is nevertheless undertaken for the sake of symmetry.

4.89 It may be observed that the year 1970-71 is a"unique" year in the Uses of this Sector, as the distance between the vector of this year is maximum from the vectors of all other years (See Table 4.25). 1970-71, therefore, is a non-cluster year. The structure of 1970-71 is peculiar as the coefficient of Uses of this sector in the Household Sector is negative and greater than one in magnitude.

4.90 The Uses of the Sector has a single cluster of six years similar to Household Sector. The important feature to be noted is that the share of Banking in the Uses of the Corporate Sector is high in the cluster years, while the share of the Household Sector is high in the non-cluster years (unique year is an exception).

4.91 The first two years of the analysis do not form part of the six year cluster. The share of Household Sector in these two years is high compared to the cluster years. 1975-76, which is a non-cluster year, exhibits the same features on the first two years. Hence, the structure appears to be oscillating in this case.

Table 4.25 : Distance Between Vectors Corporate Sector (USES)

	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
1966-67	--	0.8184	1.2668	1.1104	3.5694	1.3205	1.4999	1.4443	1.3312	0.9226
1967-68	0.8184	--	0.5891	0.4289	2.7942	0.6700	0.8383	0.8185	0.6971	0.5006
1968-69	1.2668	0.5891	--	0.1658	2.3108	0.0877	0.2509	0.2339	0.1208	0.4030
1969-70	1.1104	0.4289	0.1658	--	2.4606	0.2420	0.4161	0.3899	0.2681	0.3071
1970-71	3.5694	2.7942	2.3108	2.4606	--	2.2703	2.1011	2.1744	2.2685	2.6966
1971-72	1.3205	0.6700	0.0877	0.2420	2.2703	--	0.1808	0.1503	0.0387	0.4276
1972-73	1.4999	0.8383	0.2509	0.4161	2.1011	0.1808	--	0.0889	0.1703	0.5968
1973-74	1.4443	0.8185	0.2339	0.3899	2.1744	0.1503	0.0889	--	0.1228	0.5306
1974-75	1.3312	0.6971	0.1208	0.2681	2.2685	0.0387	0.1703	0.1228	--	0.4283
1975-76	0.9226	0.5006	0.4030	0.3071	2.6966	0.4276	0.5968	0.5306	0.4283	--

Table 4.26 : Sequence of Cluster Formation of the Corporate Sector (USES)

Year	Cluster No.	Coefficients of Lending				
		Household Sector	Rest of the World Sector	Banking Sector	Other Financial Institutions Sector	Govt. Sector
1971-72	I	.21	.01	.71	.00	.07
1974-75	(Operation 1)	.22	.00	.73	.00	.04
1968-69	Joins Cluster I (Operation 2)	.22	- .01	.65	.00	.13
1972-73	2	.10	.01	.85	.01	.04
1973-74	(Operation 3)	.17	.00	.83	.01	- .01
	Clusters 1 and 2 join to form Cluster I (Operation 4)					
1969-70	Joins Cluster I (Operation 5)	.31	- .01	.52	.00	.18
Non-Cluster Years:						
1966-67		1.11	.00	- .25	.00	.18
1967-68		.45	- .03	.18	.00	.40
1970-71		- 1.49	- .03	2. 18	.01	.33
1975-76		.54	.01	.45	.00	- .01

4. 92 Government Sector (Sources): In the context of the Government sponsored economic development in India it is not surprising that the Government Sector's Sources exceed its Uses throughout the period of the analysis. As the Government in India takes the lead in initiating the process of economic development sustaining and increasing the rate of capital formation, the continuous deficits of the Government Sector is a reflection of the fact that the Government fills the gap between its Savings and Investment targets by incurring financial liabilities (Sources).

4.93 By looking at the table of distance between the vectors (Table 4.27) for this Sector, we find that 1973-74 is a "unique" year as the distance of this year's vector is maximum from the vectors of all other years. This implies that the borrowing structure of the Government Sector in the year 1973-74 is distinctly different from the structure of all other years. It may be noted that the "unique" year of this Sector (Sources) coincides with the "unique" year of the overall economy (Sources), since the Government has a high percentage share in the total Sources of the economy (See Table 4.1).

4.94 The reason for the uniqueness of the year 1973-74 for the Sources of the Government Sector is the same as in the case of the overall economy.

4.95 Another feature of the behaviour of the structure of the Sector's Sources which the frequency table brings out (see Table 4.31) is the large range of variation in the distance between the vectors. (Frequencies are evenly spread out at both ends).

Table 4.27 : Distance Between Vectors Government Sector (SOURCES)

	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
1966-67	--	0.0794	0.2390	0.1833	0.4241	0.4946	0.5856	1.7410	0.4500	0.3959
1967-68	0.0794	--	0.1691	0.1792	0.3536	0.4284	0.5171	1.6690	0.3855	0.3320
1968-69	0.2390	0.1691	--	0.2377	0.1861	0.2610	0.3496	1.5029	0.2177	0.1655
1969-70	0.1833	0.1792	0.2377	--	0.3966	0.4671	0.5542	1.6597	0.4156	0.3609
1970-71	0.4241	0.3536	0.1861	0.3966	--	0.0900	0.1667	1.3209	0.0678	0.7350
1971-72	0.4946	0.4284	0.2610	0.4671	0.0900	--	0.0944	1.2609	0.0538	0.1082
1972-73	0.5856	0.5171	0.3496	0.5542	0.1667	0.0944	--	1.1712	0.1442	0.2000
1973-74	1.7410	1.6690	1.5029	1.6597	1.3209	1.2609	1.1712	--	1.3010	1.3540
1974-75	0.4500	0.3855	0.2177	0.4156	0.0678	0.0538	0.1442	1.3010	--	0.0566
1975-76	0.3959	0.3320	0.1655	0.3609	0.7350	0.1082	0.2000	1.3540	0.0566	--

4.96 This sector has two clusters of five and two years each.(See Table 4.28). The second cluster is formed in the fourth operation. The first cluster except for the "unique" year is a continuous 5 year cluster. The first two years of the analysis form the second cluster revealing that the structure of the later years is different from the years 1966-67 and 1967-68 (first two years of the analysis). In the second cluster the share of Rest of the World Sector in the Sources of the Government Sector is very high (49 to 55 per cent) while the Banking Sector's share is low (20 to 24 per cent), as against the first cluster where the Banking Sector's share is very high (41 to 58 per cent) and the Rest of the World Sector's share is low (11 to 25 per cent). See Table of sequence of cluster formation (- Table 4.28.)

4.97 A striking feature which the Table 4.28 reveals is the trade off relationship between the Banking Sector and the Rest of the World Sector's shares in the Sources of the Government Sector. In the years in which, in Government Sector's Sources the share of the Rest of the World is low, the share of the Banking Sector is high. In other words, the volume of deficit financing depends on the availability of finances from the Rest of the World Sector. This further brings into relief the fact that the Government under Plans is committed to certain Investment Expenditure which is met throgh deficit financing if less financial resources are available from the Rest of the World Sector. This is reflected in the trade-off relationship between Banking Sector and the Rest of the World Sector as Sources for the Government Sector.

Table 4.28: Sequence of Cluster Formation of Government Sector (SOURCES)

Year	Cluster No.	Coefficients of Borrowing				
		Household Sector	Rest of the World Sector	Banking Sector	Other Financial Inst., Sector	Corporate Sector
1971-72	I	.10	.18	.52	.19	.00
1974-75	(Operation 1)	.10	.21	.48	.21	.00
1975-76	Joins Cluster I (Operation 2)	.10	.25	.44	.21	.00
1970-71	Joins Cluster I (Operation 3)	.15	.22	.46	.17	.00
1966-67	II	.12	.55	.20	.12	.00
1967-68	(Operation 4)	.15	.49	.24	.11	.01
1972-73	Joins Cluster I (Operation 5)	.12	.11	.58	.19	.00
Non-Cluster Years:						
1968-69		.14	.36	.34	.15	.01
1969-70		.15	.44	.14	.25	.01
1973-74		.30	- .88	1.11	.47	.00

4.98 It can also be observed from the Tables that the role of Banking in general has increased over the ten year span under study in the Sources of the Government Sector.

4.99 It can be seen from the cluster analysis that 1968-69 does not join either of the two clusters as the difference between the Rest of the World and Banking Sectors' shares in the Government Sector's Sources is minimum in the year for the entire period of the study. Thus, this year's structure of Sources of the Government Sector is different from the structure of the two clusters. In the case of 1969-70, the share of the Banking Sector is all time low and it is compensated by not only the Rest of the World Sector's increased share but the share of the Other Financial Institutions Sector as well in the Sources of the Government Sector, which differentiates the structure of this year from that of other years. 1973-74 is a "unique" year as already mentioned. In this year, the Rest of the World Sector's share is negative in the Sources of the Government Sector while the coefficient of borrowing from the Banking Sector is greater than one (See Table 4.28).

4.100 The analysis of the cluster formation brings out that there is a change in the structure of Sources of the Government Sector as 1966-67 and 1967-68 form one cluster and the last six years with the exception of the 8th year (1973-74), which happens to be a "unique" year, form another cluster. The vectors of coefficients of the II Cluster years bring out

the fact that the share of the Rest of the World Sector is high in the Government Sector, while in the I cluster, which consists of the years 1970-71 to 1975-76, with the exception of 1973-74, exhibits a high share of Banking Sector and a low share of Rest of the World Sector in the Government Sector's Sources. Thus, there is a change in the structure of borrowing of the Government Sector.

4.101 Government Sector (Uses): The Government Sector's Uses, unlike the other deficit Sector, namely, the Corporate Sector, are important, for, it not only provides funds directly to other Sectors, but indirectly through the Banking Sector makes available financial resources to the rest of the economy to a significant extent.

4.102 1971-72 is a "unique" year for this Sector (Uses). It is clear from the table of distances (Table 4.29) that the distance between the vectors of this year is maximum from the vector of all other years. The structure of this year reveals certain unusual features, such as the Uses of Government in Banking and the Rest of the World Sectors being negative and magnitudewise high (-81 per cent and -15 per cent). Further, the share of the Household Sector in its Uses is abnormally high (110 per cent). Thus, the structure of this year is "unique".

4.103 The range of fluctuations in the distances between the vectors of different years is greater in the case of the Uses of the Government Sector compared to the oscillation in the structure of its own Sources.

Table 4.29: Distance Between Vectors Government Sector (USES)

	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76
1966-67	--	0.2066	0.4247	0.4254	0.4739	1.3886	0.2482	0.3216	0.3469	0.4699
1967-68	0.2066	--	0.6003	0.5834	0.5527	1.2750	0.3908	0.4659	0.4357	0.6134
1968-69	0.4247	0.6003	--	0.2387	0.3438	1.6068	0.2653	0.2634	0.2953	0.1428
1969-70	0.4254	0.5834	0.2387	--	0.3831	1.6415	0.2388	0.1200	0.2922	0.2420
1970-71	0.4739	0.5527	0.3438	0.3831	--	1.5915	0.2701	0.3487	0.1555	0.2328
1971-72	1.3886	1.2750	1.6068	1.6415	1.5915	--	1.5389	1.5497	1.5021	1.6141
1972-73	0.2482	0.3908	0.2653	0.2388	0.2701	1.5389	--	0.1542	0.1549	0.2607
1973-74	0.3216	0.4659	0.2634	0.1200	0.3487	1.5497	0.1542	--	0.2214	0.2627
1974-75	0.3469	0.4357	0.2953	0.2922	0.1555	1.5021	0.1549	0.2214	--	0.2200
1975-76	0.4699	0.6134	0.1428	0.2420	0.2328	1.6141	0.2607	0.2627	0.2200	--

4.104 The formation of clusters in the Uses of this Sector is similar to the Sources to the extent of the number of clusters. Both have two clusters of two and six years each. However, the sequence of cluster formation as well as the years that remain as non-cluster years are different in the Uses of this sector (see Table 4.30). The first operation gives a cluster of two years 1969-70 and 1973-74. The second operation results in the second cluster of the years 1968-69 and 1975-76. The subsequent operations result in enlarging the first cluster by adding the years 1972-73, 1974-75 and 1970-71 in that order.

4.105 There are three non-cluster years, 1971-72 is a "unique" year as already explained. The other two non-cluster years are 1966-67 and 1967-68, the first two years of the analysis. The striking features of the structures of these two years are that the share of the Household Sector in the Uses of the Government Sector is very high (35 per cent and 46 per cent) compared to the cluster years, and the share of Banking in the two years is relatively low. Thus, the first two years are structurally different from all other years.

4.106 It can be inferred from the above analysis that there has been a change in the structure of the Uses of the Government Sector as the share of the Household Sector in its Uses has declined, whereas the share of the Banking Sector has increased. It can be observed from the Table 4.30 that the second cluster of 1968-69 and 1975-76, which has not formed part

Table 4.30: Sequence of Cluster Formation of Government Sector (USES)

Year	Cluster No.	Coefficients of Lending				
		Household Sector	Rest of the World Sector	Banking Sector	Other Financial Inst., Sector	Corporate Sector
1969-70	I	0.17	- 0.01	0.64	0.08	0.12
1973-74	(Operation 1)	0.23	0.01	0.54	0.08	0.14
1968-69	II	0.03	0.08	0.56	0.23	0.10
1975-76	(Operation 2)	0.03	0.17	0.57	0.12	0.11
1972-73	Joins Cluster I (Operation 3)	0.25	0.10	0.46	0.13	0.06
1974-75	Joins Cluster I (Operation 4)	0.19	0.20	0.44	0.05	0.12
1970-71	Joins Cluster I (Operation 5)	0.13	0.32	0.47	0.03	0.05
Non-Cluster Years:						
1966-67		0.35	0.01	0.29	0.24	0.11
1967-68		0.46	0.07	0.15	0.17	0.16
1971-72		1.10	- 0.15	- 0.81	0.00	0.87

of five-year cluster, exhibits the same features of the change of structure, viz., the low share of the Household Sector and high share of the Banking Sector. It has remained as a seperate cluster because of the all time low share of the Household Sector (3 per cent).

4.107 The analysis undertaken in this chapter, also enables us to establish the interrelationships in the changes in the structures of different Sectors of the Economy. An attempt is made here, to highlight the inter-sectoral structural dependence and the reflection of individual Sector's structural changes in the Aggregate Economy's Sources and Uses.

4.108 In the structure of the Sources of the Aggregate Economy there is a change, though not marked from the year 1968-69. The most important factor which accounts for the change in the structure is the greater share of the Banking Sector, in the Sources of the Aggregate Economy. The structure of the Uses of the Aggregate Economy has also changed from the year 1968-69. The change has occurred in this case due to the rise in the share of Banking Sector and a fall in the share of the Rest of the World Sector. There appears to be a trade off relationship between the shares of the Rest of the World Sector and the Banking Sector. Another Sector which accounts for the change in structure in the Uses of the Aggregate Economy is the rise in the share of the Household Sector.

4.109 The structure of Sources of the Household Sector exhibits instability. There appears to be a trade off relationship between the share of Banking and Government Sectors in the Sources of the Household Sector. The structure of the Uses of the Household Sector, however, is stable. This is accounted for by the fact that a greater part of Household Sector's savings are in the nature of committed savings, hence the Household Sector's discretion in the disposition of its savings is restricted.

4.110 The Rest of the World Sector's structure is highly oscillatory both for its Sources and Uses. As the interaction of the Rest of the World Sector is mainly with the Government Sector and in the years in which Rest of the World's Uses in the Government Sector's Sources is high, Government Sector's borrowing from the Banking Sector is low and vice versa. The Uses of the Rest of the World Sector's impact is reflected in the "unique" year of the Rest of the World's Uses coinciding with the "unique" year of the Aggregate Economy's Uses.

4.111 The Rest of the World Sector's share (percentage) in the Aggregate Economy's Sources is low, hence the fluctuations in it do not influence the overall behaviour of the Sources of the Aggregate Economy.

4.112 The analysis brings out that the structure of the Sources of the Banking Sector is stable. It is found that the Household Sector's share dominates in the Banking Sector's

Sources (66 - 88 per cent); further, in the Household Sector's Uses, the share of Banking Sector is also high (ranging from 51 to 65 per cent), which accounts for stability of structure of the Household Sector's Uses. Thus, it could be inferred that the stability in the Banking Sector's Sources and Household Sector's Uses are inter-related in the Indian economy over the period of study.

4.113 In the Banking Sector's Structure of Uses there is evidence of change after the year 1968-69. After 1968-69, the structure is stable. The nature of the change has been a marginal rise in the share of the Government Sector in the Uses of the Banking Sector, and a fall in the share of the Corporate Sector in the Uses of the Banking Sector. It must be noted that the structural change in the Uses of the Aggregate Economy has occured in the same year. One of the factors responsible for this change is rise in the share of the Banking Sector in the Uses of the Aggregate Economy (22 per cent) in 1966-67 and increase to 34 per cent in 1975-76.

4.114 The Sources of the Other Financial Institutions Sector exhibit marginal structural change. The main factor for the stability of this Sector's Sources is the dominance of the Household Sector's share in it (ranges from 74 to 94 per cent). This also reflects the committed part of the savings of the Household Sector, namely, contributions to Provident Fund and Life Insurance. The increase in Uses of the Other Financial Institutions Sector in Government Sector reflects the "captive nature" of the capital market in India, as important constituents

of this Sector, like Life Insurance and Provident Fund are governed by Governmental regulations, which compel these institutions to invest in Government Securities.

4.115 The structure of the Corporate Sector's Sources is oscillating. In the Sources of this Sector, the shares of three Sectors, namely, Household Sector, Banking Sector and Other Financial Institutions Sector are significant. Among these three Sectors, the share of Banking Sector is dominant in the Sources of the Corporate Sector. The lack of stability in this Sector can be explained by the fact that if the share of one of these Sectors changes the other Sectors' share changes; therefore, three sectors mainly influence the structure, so that if one of these sectors' share changes it leads to change in all three important sectors' shares. This accounts for the range of variation of distances of this sector's Sources being greater than Other Financial Institutions Sector and Banking Sector.

4.116 As mentioned earlier, the Uses of the Corporate Sector are insignificant.

4.117 The structure of Sources of the Government Sector has changed from the year 1968-69, which coincides with the change in the structure of the Aggregate Economy. The nature of change is a higher share of Banking in the Sources of the Government Sector and a lower share of the Rest of the World Sector. This implies a higher share of Banking in the Aggregate Economy's Uses and a fall in the Rest of the World's Uses in the Aggregate Uses of the Economy.

4.118 The structure of the Uses of the Government Sector has also changed from the year 1968-69, which coincides with the change of structure of Sources and Uses of the Aggregate Economy. In the Uses of the Government Sector the share of Banking Sector has increased and that of Household Sector has decreased. The Uses of the Government Sector have increased in the Banking Sector which implies that the Sources of Banking from Government have increased; this is reflected in the Sources of the Aggregate Economy in the form of a higher share of Banking in total Sources.

4.119 The above analysis brings out the inter-relationships amongst sectors' structural changes and the impact of these structural changes on the structure of Flow of Capital Funds in the Indian Economy. (See Chart 4.1). It may be observed that a significant development in the period under study is the increase in the relative importance of the Banking Sector, which appears to have influenced the change in structure of Flow of Capital Funds in the Indian Economy.

Table 4.31: Frequency Table

Class Intervals	Aggregate Economy		Household Sector		Rest of the World Sector		Banking Sector		Other Financial Institutions Sector		Corporate Sector		Government Sector	
	S	U	S	U	S	U	S	U	S	U	S	U	S	U
0 - 0.05	5	4	2	4			1		5	10		1		
0.05 - 0.10	11	13	5	14	1	7	7	2	10	17	4	2	7	
0.10 - 0.15	15	7	11	18	2	3	14	4	11	7	4	2	2	2
0.15 - 0.20	5	5	12	7	1	3	8	12	12	6	13	4	6	3
0.20 - 0.30	7	12	7	2	1	6	13	13	6	5	11	4	5	15
0.30 - 0.40	2	2	6		1	3	2	6	1		8	2	7	6
0.40 - 0.50		2	2			5		4			3	5	6	6
0.50 - 0.75					5	8		4			2	6	3	4
0.75 - 1.00					5							4		
1.00 - 1.50					5	1						6	5	2
1.50 - 2.00					1	3						9	4	7
2.00 - 5.00					12	6								
5.00 -10.00					2									
10.00 -& above					9									
Total	45	45	45	45	45	45	45	45	45	45	45	45	45	45

Chart 4.1

AGGREGATE ECONOMY

SOURCES	USES
Marginal Structural Change (1968-69) Share of Banking ↑	Change in Structure (1968-69) Banking ↑ Household ↑ Rest of the World ↓

HOUSEHOLD SECTOR

SOURCES	USES
Structure Oscillates, Banking ↑	Stable

REST OF THE WORLD SECTOR

SOURCES	USES
Structure Oscillates	Structure Oscillates

BANKING SECTOR

SOURCES	USES
Structure Stable, Share of Household Sector dominates	Structural Change after 1968-69, Corporate Share ↑ Government Share ↑ Stable thereafter

OTHER FINANCIAL INSTITUTIONS SECTOR

SOURCES	USES
Change in Structure After 1969-70	Change in Structure After 1968-69, not marked

CORPORATE SECTOR

SOURCES	USES
First two years structure is different. Share of Households ↑ Structure Oscillates	Structure Oscillates. Early years Households share ↑ then ↓

GOVERNMENT SECTOR

SOURCES	USES
Change in Structure, 1968-69, Banking Share ↑ Rest of the World Sector share ↓	Change of structure 1968-69, Share of Household Sector, Banking Sector ↑ Rest of the World ↓

Note: ↑ indicates increase in the share
↓ indicates decrease in the share

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