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HIGH-POWERED MONEY IN INDIA DURING THE 'SEVENTIES

A. Vasudevan*

The concept of high-powered money (HM to be short) is generally considered to be the starting point in the explanation of the supply of money in an economy operating under fractional reserve system. The amount of money supplied in the economy gets determined as per the received theory, by the value of the money multiplier (mm, to be short), given the amount of HM as the base. But the use of a variety of expressions as near-synonyms of HM[1], and the limited treatment it has so far received in the Indian literature in monetary economics,[2] indicate that HM's significance is perhaps not as well understood as it ought to be. Officially, the first reference to it was made in the Working Group report on 'Money Supply Analysis in India' in 1961.[3] Annual data under the title 'reserve money' began to appear every year, beginning with the Report on Currency and Finance for 1973-74. Monthly data on reserve money are being published in the Reserve Bank of India's monthly Bulletins beginning only with January 1977. The discussions on the subject in India have been limited. But they leave a number of impressions which require to be viewed from both analytical and empirical angles. HM is considered by some[4] as of little use while taking a view of the **desired** money stock, since the relation between HM and money supply as reflected in the value of mm is no more than a 'mechanistic formula'. For some others, HM is both analytically and operationally meaningful, since mm bears a long run stability in its value.[5] Yet another argument was advanced to the effect that while mm is stable over the long run, it is not certain and predictable in the short run.[6] There is further view that the belief that HM is determined by the central bank is not well founded in the Indian context, since the Union Government is said to have unlimited powers to resort to credit from the central bank of the country.[7]

This paper proceeds on the assumption that the traditional explanation of money stock determination in terms of the money multiplier, holds good and seeks to examine the relevance of HM in policy making in the Indian context. It first examines the concept of HM, and then deals with the impressions mentioned above. The empirical focus is on the Indian experience during the 'seventies.

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The Concept

HM is discussed in almost all text books which deal with money and banking under fractional reserve system. But a very able description of HM in the modern literature is the one made by Phillip Cagan.[8] In his words :

> "The Government (including the Federal Reserve Banks as a government agency) controls the issue of assets that banks use as reserves for their monetary liabilities. Such assets are called high-powered money to signify that they can serve as the base for a multiple quantity of bank deposits. When held by banks, high-powered money is not, of course, part of the stock of money held by the public. When it is not held by banks but by the public, the same term is used in recognition of its potential use by banks to expand the money stock. High-powered money therefore, comprises bank reserves plus currency held by the public."

Cagan's description of HM was accepted and used by Milton Friedman and Anna Schwartz [1965] with a minor variation to make room for seasonal adjustments and for adjustments for gold correction. James Tobin [1963] referred to HM, as demand debt, but left sufficient clues to the readers that banks could sometimes regard short debt — treasury bills — as a better substitute for cash than cash with the public. Karl Brunner and Allan Meltzer [1964] preferred to call it 'monetary base' and defined it as "the amount of money issued by the government sector (incl. the Federal Reserve Banks.)"[9] Leonall Andersen and Jerry Jordan [1968] called HM, the 'source base', that is derived from a consolidated monetary balance sheet of the Federal Reserve System and the US Treasury, and contended that the source base is not as broad a concept as the monetary base. In their view, monetary base would be equivalent to source base plus reserve adjustments, these adjustments allowing for "the effects of the changes in reserve requirements on member bank deposits, and for changes in the proportion of deposits subject to different reserve requirements."[10] In a statistical note, the Bank of England [1981] presented a view that while there will be a wide measure of agreement on the inclusion of vault cash, bankers' deposits with the Bank of England, and notes and coins in circulation with the public in HM or monetary base, inclusion of any other deposit liabilities of the central bank would be questionable, as they are **not** liquid "in the normal sense" and are likely to have "little impact on the UK's economic and monetary conditions."

In the official literature in India, HM, referred to as "government money" by the Working Group Report on Money Supply Analysis in India, published in 1961, consisted of currency with the public, cash on hand with commercial and co-operative banks, bankers' deposits with the Reserve Bank of India, and 'other deposits' with the Reserve Bank of India. Total cash in the economy would consist of currency with the public (c_p) and cash with the banking system as a whole. Cash with the banking system is nothing but bank reserves (BR) consisting of vault cash (C_v) and banks' deposits with the Reserve Bank (C_{RB}). The component, 'other deposits with the Reserve Bank of India' (OD_s) are current accounts of financial and quasi-financial institutions other than banks in India and of international financial institutions, and are presumably therefore deemed to be as liquid as cash itself. The Report on Currency and Finance for 1973-74 called HM, the reserve money, and included in it all those items which the 1961 Working Group regarded as components of government money. The same concept of HM is found also in two important academic writings in India.[11]

An important question that may be asked is whether all the components of HM are 'liquid' and interchangeable with one another. Currency with the public and bank reserves are traditionally regarded as liquid and interchangeable. Although only BR actually serves as the base for the deposit structure of banks, C_p is a part of HM because it has the potential of becoming BR without central banks' intervention, if the public moves out of cash into bank deposits. But such a treatment of bank reserves may not be wholly satisfactory from the viewpoint of the RBI, because some reserves are required to be kept with the RBI statutorily as a part of the cash reserve ratios.[12] Minimum statutory or required cash reserves of banks with the Reserve Bank are, strictly speaking, **not** liquid in normal times. Such reserves are also **not** interchangeable with either currency with the public or vault cash of banks. That is to say, the deposit creation potential by banks does not depend only on the supply of reserves by non-bank public which could expand reserves, but also on the extent to which these add to the reserves over and above those which are statutorily required.

The inclusion of other deposits with the RBI in HM is argued this way. When a quasi-financial institution draws a cheque on the Reserve Bank and hands it over to its customer, the customer would credit it into his bank account and augment his deposits, which in turn could raise the claims of banks on the Reserve Bank. It has

in this sense the potential of becoming BR. This argument is analogous to that of c_p, with one difference, viz. that, while in case of c_p, public could move into deposits, without any need to discharge an obligation — a case of substitution of one asset to the other — a cheque is drawn to meet a claim made on the drawee, against the outstanding deposit in order to meet transactions needs/payment obligations. In any case, these deposits — RBI's liabilities to foreign and domestic financial institutions other than banks — are not interchangeable with currency with the public or vault cash or reserves other than the required ones. Going by the logic presented in the Bank of England's statistical note, it could be also argued that these deposits have so far been small in magnitude, and their impact on monetary and economic policies of India is likely to be insignificant.

If, however, agreements to purchase/repurchase or to create claims on others by the RBI could be regarded as imparting liquidity and interchangeability with bank reserves and could therefore be components of HM, there are perhaps two candidates becoming eligible for inclusion in HM. They are the automatic refinance entitlements and the holdings of treasury bills with banks. In principle, automatic refinance entitlements do not exist in India since the mid-'seventies when discretionary rules were introduced but credit extended for specific purposes like food procurement operations become eligible for automatic refinance if it crosses the **specified** base level to the **specified** extent of the excess over the stipulated base level. Even if automaticity does not exist, a refinancing facility, not-withstanding the rules governing it, could be a possible source for expanding/strengthening the reserve base, leading to credit creation.

It is often argued that whenever there is an actual or expected shortfall in vault cash, banks can replenish their liquidity by rediscounting treasury bills. But when they do so, fairly frequently, they would in fact be economizing the use of HM as pointed out by Tobin. But Tobin's view would hold good only when banks' preference for treasury bills is explicitly higher than that for vault cash.

Clearly, HM is capable of different interpretations of its components. But we shall limit ourselves to a few versions of HM.[13] The official version of HM called HM_{v1} is : $HM_{v1} = C_p + BR + ODs$ where C_p = currency with the public, BR = bank reserves consisting of vault cash with banks (C_b) and bankers' deposits with RBI (BB) and ODs = other deposits with RBI. We can envisage yet another variant which may be called Variant 2, wherein HM_{v2}

would be equal to C_p + BR, as in most academic writings. Thus, in this variant, ODs are excluded. There can be yet another variant which could take care of the adjustments made in the statutory cash reserve ratios by the RBI. The adjusted HM as it is referred to in the literature may be written thus : $HM_{v3} = C_p + BR - ER$ where ER = excess reserves of banks with the RBI. In the 'seventies, the cash reserve ratio (CRR) was changed a number of times. It was moved up from the statutory minimum of 3 per cent to 8 per cent in 1973 in three stages to 5 per cent from May 31, 1973, 7 per cent from September 8, 1973 and 8 per cent from September 22, 1973, and moved downward in three stages in 1974 — to 5 per cent effective June 29, 1974, to 4.5 per cent effective December 4, 1974 and further to 4 per cent from December 28, 1974. The CRR was raised from 4 per cent to 5 per cent effective September 4, 1976 and further to 6 per cent from November 13, 1976. In the remainder of the 'seventies, the basic CRR was left untouched by the authorities, but effective January 14, 1977, 10 per cent of the increase in net demand and time liabilities (net DTL) over the outstanding net DTL of January 14, 1977, was required to be kept with the RBI as cash.

HM_{v3}, the adjusted HM, may be regarded as a more useful indicator of the actual base for the total deposit structure of banks. C_p could become a part of bank reserves without any intervention of the monetary authority if the public moves out of currency into bank deposits. Thus Cp and BR in this sense become interchangeable and as such liquid.

Where banks resort to borrowing from the central bank in large amounts and in a regular fashion, the concept of liquidity associated with excess reserves could, from the viewpoint of banks, well be net of such borrowings. HM would, in the event, be : $HM_{v4} = Cp + BR - ER - RBI_c$ where RBI_c = RBI's claims on banks. The adjusted bank reserves then would correspond to 'free' reserves as often alluded to in the literature. But inclusion of RBI_c — a variable solely determined by the monetary authority, enabling banks to create claims on others and thus deposits — would make HM_{v4} an uncertain base for multiple creation of deposits.

In Table 1, we present calculations of the above 4 variants of HM during the 'seventies on an annual basis. The table presents 12-month averages of outstandings as on the last Fridays of all months other than March, the March data incorporated being that for the last day, during the fiscal years 1970-71 through 1979-80. The averaging is done mainly to reduce the impact of large year-end, or

seasonal or any random factor movements in the data. From the data, it may be seen that the amounts mentioned under HM_{v1} were higher than those under the other three variants. Variants 1 and 2 grew at annual compound rates of 14.3 per cent and 14.2 per cent during the 'seventies. Variants 3 and 4 recorded annual compound growth rates respectively of 14.0 per cent and 14.7 per cent during the same period. Variants 3 and 4 showed smaller coefficients of variations than the variants 1 and 2. Since variant 3 is more stable than the other variants, it is useful to furnish on a regular basis the adjusted HM.

Sources of HM

Whichever concept of HM that one uses, the net claims of the central banks cannot alter. The counterpart of HM are the monetary assets of the monetary authority. While the size of HM could be determined by the monetary authority, allocation of its uses is determined primarily by banks and the non-bank public.

Exhibit 1, presented here for purposes of illustration, in the format in which variant 1 is presented, gives items that enter the 'assets' side of the combined balance sheet of the Monetary Authority together with the items that form part of the 'liabilities'. In an accounting sense 'assets' and 'liabilities' are always equal. To put it in another way, the value of the 'uses' to which the HM is deployed would always equal the value of the 'sources' of HM. In the exhibit, the 'uses' were distinguished into competing and non-competing ones, the latter being available for the non-bank public to be held in currency, for the banks to be held in the form of vault cash and for the central banks to be held in the form of banks' deposits with the authorities.

The exhibit presents useful clues as to 'how' the changes taking place in one side of the balance sheet would get reflected in the other. The impulses that create conditions for the change in the 'assets' or 'sources' of HM — the 'how' aspect — are the ones into which economists tend to look into. To illustrate, the compunctions of Government spending leading to a deficit in the Government's budget are reflected in the Government's resort to borrowing from the central bank which, it is generally assumed, would increase liquidity. Commercial banks borrow from central banks when their resources are not adequate to match the sum of loan-demand and other asset-demands at given interest/yield rates. The foreign exchange assets of the central bank move up or down, depending on

the demands made on them by different sectors, Government as well as private individuals or corporate entities, attempting to meet their needs. The liquidity generated in the process may be held in the form of cash or deposits depending on the choice of the non-bank public.

The 'Control' over HM

It is important to know whether decisions to have larger or lower claims on the Government or banks or financial institutions or any other sector than before, are taken wholly by the Monetary Authority. The treasury currency outstandings — the supply of currency by the Government to the public — are generally within the 'control' of the Government, which for purposes of argument, may be regarded as an integral part of the Monetary Authority. The central bank could in theory create or reduce or totally abstain from having any claims on commercial and co-operative banks and on the commercial sector, depending on its perceptions of banks' refinance requirements. In regard to acquisition of foreign exchange assets, the central bank in a developing economy with exchange controls has limited choice; it acts as a repository for foreign exchange flows which in turn move in tune with the external trade position and other invisible and capital flows. In respect of credit extended by central bank to the Government, however, there can be divergence of views. One standpoint is that since the objectives of monetary and fiscal policies are one and the same, and since the Monetary Authority represents in a federal set-up the view of the central bank of the country and the Treasury combined into one, the credit extended by the central bank to the Government could be endogenously fixed, and should therefore, be regarded as within the control of the central bank. On the other hand, it is argued that central banks passively react to the 'force' of the fiscal policies.

While it may be technically correct to regard both the Government and RBI as a Monetary Authority the fact is that net RBI credit to Government[14] is the main source of HM. The general impression is that RBI provides credit to the Government to the extent that there is a shortfall in the Government's budgetary position. Here it is necessary to clarify the concept of budget deficit and deficit financing as used in India. In India, when the Government incurs budget deficit, it resorts to not only borrowing from the public as in the West[15] but also to borrowing from the RBI either by issue of bonds and treasury bills (as in the case of the Union Government) or directly (as in the case of the State Governments). There are no

constitutional or legal limits over the quantum of borrowing by the Union Government from the RBI.[16] The published data show that net RBI credit to Government, thus defined forms a large proportion of the official variant of HM. In Table 2, the sources of HM are given for the period 1979-80. It shows that net RBI credit to Government as a proportion of HM which was never less than 64 per cent, and as high as 97 per cent, was on the average about 82 per cent during the 'seventies. The large element of support to the government by the Reserve Bank, it is suggested by many observers, arises not only because of inelastic tax and other revenue receipts, and of inexpensive borrowing at the given (generally low) rates on treasury bills and Government bonds,[17] but also because of continuously rising expenditures induced partly by inflationary conditions. More importantly, many models of interaction between monetary and fiscal policy actions with reference to India. including the recent one by Srinivasa Madhur et al [1982] show that feed back effects flowing from the real sector are significant on the actual budget deficits. The larger the price rise, the higher could be the budget deficit in view of larger lags in the collection of Government revenues and more prompt adjustment of Government expenditures to inflation.

There is little doubt that when the central bank absorbs Government securities in large quantities, there will be a corresponding expansion in liquidity and increase in HM, other things remaining the same. The central bank action in developing economies is however, defended on the ground that borrowings through bond issues from the market would be limited as capital markets in these economies are relatively underdeveloped.[18] It is also contended that where deficits in government budgets occur mainly on the capital account, as had been the case in India, as pointed out by Goldsmith, [1983], through the 'seventies financing of the deficit through the issue of treasury bills and bonds to all categories of holders of government securities including the central bank, would help not only create productive capacity over the long run, but also supplement, and **not** "crowd out", the private sector's investments in developing economies where the private sector is usually shy of entering new output avenues. The question is not whether deficit financing in the broad sense should be resorted to or completely eschewed, but whether there are any 'safety limits' to it.[19] Placing legal restrictions on the quantum of borrowings from the Reserve Bank by the Governments with a view to controlling the expansion of HM and/or raising the bond rates with a view to mobilising public support for Government loans,[20] may not be feasible in situations of inflation and rising public expenditures, as the industrialized and developing nations have now

found out. The **problem** for the policy makers is not what net RBI credit to Government **is** made up **of** but in **limiting the rise in HM, through policy actions having a bearing on savings and growth in real output.** The debate as to whether there should be targetting of HM or budget deficit is not as important as the need for working out a monetary-fiscal policy framework for economic growth and price stability.

The Importance of HM

The importance of HM in policy-making is often believed to hinge on closeness of the estimated value of money multiplier (mm) to the actual value of mm. HM can be estimated both from the demand and supply sides. On the demand side, the equations for currency and bank reserves are important, while on the supply side, what matters is an assessment (where full-scale monetary-fiscal models do not exist) of the size of the fiscal deficits in a broad sense, the likely magnitude of Reserve Bank's refinance to commercial and co-operative banks and loans and advances to other financial institutions, and the likely net accretion of foreign exchange reserves. Figures of net proceeds from treasury bills and gilt-edged securities are indicated by the Government every year in its budgets: they can as such be taken as guidelines for estimation of RBI credit to Government. The net accretion to foreign exchange assets may be estimated, for example, on the basis of the noticed trends in the demand for such assets or on the basis of some functional relationships of the past.

The money-multiplier approach implies that a best estimate of money supply on a given base of HM can be derived if mm is stable. It is often implied that mm is stable over the long run. In India, MM (derived by dividing broad money, M_3[21] by HM) showed a tendency for an upward drift during the 'seventies whichever variant of HM that one chooses (see Table 3). The mm_{v1} moved between 2.2549 and 2.9567 and averaged 2.6599 in the 'seventies. The average mm_{v2}, mm_{v3}, and mm_{v4} for the decade were: 2.6860, 2.7017 and 2.9675. The marginal mm averaged 4.4179 and 4.4662 in respect of variants 1 and 2 and averaged 5.3047 in respect of Variant 3. In regard to Variant 4, the marginal mm turned out to be on the average negative at 1.8972. The two 'behavioural' ratios,[22] **viz.**, the currency to deposits ratio, and the reserves to deposits ratio which are the main elements of mm, have also behaved in the predictable manner, with the currency to deposits ratio showing a downward drift over time

and reserves to deposits ratio exhibiting the influence of the policy actions.

The marginal mm had shown large variations on an annual basis. Ralph Bryant [1983] had shown that incremental money multipliers were not stable in the short run in the U.S. In his analysis, he showed that monthly increases in money stock are to a significant extent attributable to monthly changes in money multiplier, which are not easily predictable. His empirical exercise was worked out on the following premise :

$$\text{Since } mm = MS/HM \quad \ldots\ldots (1)$$

$$\triangle MS \equiv \triangle HM_{-1} (\triangle mm) + mm_{-1} (\triangle HM) + (\triangle mm)(\triangle HM) \quad \ldots. (2a)$$

or

$$\triangle MS \equiv \triangle mm\, HM_{-1} + \triangle HM\, mm_{-1} \quad \ldots. (2b)$$

assuming that $\triangle mm$ and $\triangle HM$ are small.

Following the method of Bryant, we examined whether actual monthly changes in broad money in India are attributable to changes in money multiplier or in HM. For purposes of illustration, we took into account the data for the period 1975 to 1980 (fiscal years) and worked out the changes in M_3 attributable to (a) changes in money multiplier (col. 2) and (b) changes in HM (col. 3) in respect of all the four Variants of HM in view, in Tables 4A, B, C and D. Data in these columns showed very large monthly shifts. Of the five years considered, the change in M_3 was attributable largely to changes in HM in 4 years in respect of Variants 1, 2 and 4 and in 3 years in respect of Variant 3. It is not that the changes in money multiplier were small or predictable either. The tables show that in the short run policy making, changes in HM should be recognised as important, for influencing money supply through policy actions. In other words, HM could well be a short-term monetary target.

Table — 1: Annual Averages of High-Powered Money in India 1970-71 to 1979-80

(Figures are rounded off)

(Rs. crores)

	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80
I. High-Powered Money (HM)-Variant 1 (CP+BR+OD with RBI)	4578	5052	5533	6777	7262	7492	8609	10235	12367	15202
II. HM — Variant 2 (CP+BR)	4521	5002	5474	6736	7211	7438	8536	10172	12224	14936
III. HM-Variant 3 (II-III A)	4498	4974	5438	6711	7209	7392	8560	10099	12151	14650
A. Excess of average daily balances with RBI	23	28	36	25	2	46	—24	73	73	286
IV. HM-Variant 4 (III-IV A)	3960	4550	5125	6275	6649	6617	7328	9209	11299	13570
A. RBI claims on Banks	538	424	313	436	560	775	1232	890	852	1080
V. M_3	10323	11813	13749	16471	18711	21038	25198	30262	36411	43754
(a) Currency with the public (CP)	4143	4560	4947	5822	6293	6521	7285	8231	9414	10995
(b) Aggregate deposits with banks (AD)	6123	7204	8743	10608	12367	14463	17840	21967	26855	32494
(c) Other deposits with RBI (ODs)	57	50	59	41	51	54	73	63	143	266
VI. Bank Reserves (BR)	378	442	527	914	918	917	1251	1941	2809	3941

Note: Yearly data are averages of last Fridays of every month of the financial years (April-March) except for March. March data relate to March 31 on the basis of the closure of Government accounts in respect of Reserve Bank of India and last Fridays in respect of other banks.

Table — 2: Sources of High-Powered Money During the 'Seventies

(Averages of last Fridays of months except that of March for which the last day data are reckoned)

(Rs. crores)

	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80
I. Reserve Bank's claims on :										
1. Government (net)	3585	4347	5094	6179	6658	7246	6917	7347	7918	9791
2. Commercial and Co-operative Banks	538	424	313	436	560	775	1232	890	852	1080
3. Commercial Sector	102	174	213	344	594	653	804	910	1089	1366
II. Net Foreign Exchange Assets of RBI	618	586	561	587	502	468	1712	3735	4959	5626
III. Government's Currency Liabilities to the Public	372	398	428	485	520	549	557	585	605	598
IV. Other net liabilities (Net non-monetary liabilities of the RBI)	637	878	1075	1254	1572	2199	2613	3231	3055	3260
V. High-Powered Money (I+II+III—IV)	4578	5052	5533	6777	7262	7492	8609	10235	12367	15202

Note: All figures are rounded off.

Table 3: Broad Money Multipliers, Currency-Deposit and Reserve-Deposit Ratios

	$\frac{M_3}{HM_{v1}\ (MM_{v1})}$	$\frac{\Delta M_3}{\Delta HM_{v1}\ (\Delta MM_{v1})}$	$\frac{M_3}{HM_{v2}\ (MM_{v2})}$	$\frac{\Delta M_3}{\Delta HM_{v2}\ (\Delta MM_{v2})}$	$\frac{M_3}{HM_{v3}\ (MM_{v3})}$	$\frac{\Delta M_3}{\Delta HM_{v3}\ (\Delta MM_{v3})}$	$\frac{M_3}{HM_{v4}\ (MM_{v4})}$	$\frac{\Delta M_3}{\Delta HM_{v4}\ (\Delta MM_{v4})}$	$\frac{CP}{AD\ (C)}$	$\frac{\Delta CP}{\Delta AD\ (\Delta C)}$	$\frac{BR}{AD\ (r)}$	$\frac{\Delta BR}{\Delta AD\ (\Delta r)}$
1970-71	2.2548	3.3646	2.2833	3.1200	2.2950	2.8087	2.6068	3.8916	0.6766	0.3757	0.0617	0.0562
1971-72	2.3383	3.0662	2.3617	3.1800	2.3749	3.2524	2.5963	2.6865	0.6330	0.3402	0.0614	0.0862
1972-73	2.4849	3.6212	2.5117	3.5030	2.5283	3.4874	2.6827	3.2431	0.5658	0.3609	0.0603	0.0234
1973-74	2.4304	2.0452	2.4452	2.0369	2.4543	1.8271	2.6249	2.2304	0.5488	0.5377	0.0862	0.2187
1974-75	2.5766	5.7039	2.5948	6.1100	2.5955	15.8655	2.8141	—14.4122	0.5089	0.0281	0.0742	0.1419
1975-76	2.8081	13.9803	2.8284	14.1194	2.8460	12.0766	3.1794	—28.6667	0.4509	0.1368	0.0634	—0.0558
1976-77	2.9269	2.5143	2.9520	2.5711	2.9437	2.3647	3.4386	2.4684	0.4084	0.3130	0.0701	0.2019
1977-78	2.9567	4.8863	2.9750	4.6776	2.9962	6.0118	3.2858	3.9694	0.3747	0.1507	0.0884	0.0931
1978-79	2.9442	2.2136	2.9786	2.2833	2.9965	2.1823	3.2225	2.3214	0.3505	0.3015	0.1046	0.2763
1979-80	2.8782	2.7835	2.9294	3.0600	2.9866	3.1706	3.2243	3.2958	0.3384	0.2829	0.1213	0.1503
Average	2.6599	4.4179	2.6860	4.4662	2.7017	5.3047	2.9675	—1.8972	0.4856	0.2828	0.0792	0.1192

Money Multipliers were worked out on the basis of the average outstandings while incremental money multipliers were worked out on the basis of the increases/decreases in the outstandings during the years.

Table — 4A

Changes in M_3 attributable to changes in Money Multiplier and HM — Variant 1

(Rs. crores)

	Actual change in M_3	Change in M_3 attributable to changes in	
		MMV_1	HMV_1
April 1975	+433	+661	—228
May	+351	—38	+389
June	+312	+310	+2
July	+92	+620	—528
August	+5	+354	—349
September	+33	+383	—350
October	+325	—285	+610
November	+200	+440	—240
December	+231	+49	+182
January 1976	+193	+199	—6
February	+349	—4	+353
March	+314	—438	+752
	+2838	+2251	+587
April 1976	+657	—201	+858
May	+607	—2	+609
June	+438	+360	+78
July	+168	+512	—344
August	+281	+353	—72
September	+387	—132	+519
October	+494	—163	+657
November	+337	+65	+272
December	+988	+1065	—77
January 1977	—179	—765	+586
February	+309	—195	+504
March	+519	—1589	+2108
	+5006	—692	+5698

Table 4A (Contd.)

(Rs. crores)

	Actual change in M_3	Change in M_3 attributable to changes in	
		MMV_1	HMV_1
April 1977	+890	+945	—55
May	+462	—149	+611
June	+433	+407	+26
July	+47	+899	—852
August	+260	—575	+835
September	+287	+669	—382
October	+401	—616	+1017
November	+561	—601	+1162
December	+1053	+1373	—320
January 1978	—159	—725	+566
February	+401	+939	—538
March	+949	—308	+1257
	+5585	+2258	+3327
April 1978	+661	—1363	+2024
May	+530	+401	+129
June	+760	—807	+1567
July	—81	+2080	—2161
August	+283	—523	+806
September	+459	+701	—242
October	+694	—506	+1200
November	+587	+52	+534
December	+1732	+634	+1098
January 1979	+295	—1219	+1514
February	+24	—687	+711
March	+1011	—835	+1846
	+6955	—2072	+9027

Table 4A (Contd.)

(Rs. crores)

	Actual change in M_3	Change in M_3 attributable to changes in	
		MMV_1	HMV_1
April 1979	+584	+91	+493
May	+740	—564	+1304
June	+1336	+936	+400
July	+201	+29	+172
August	+725	+874	—149
September	—333	+837	—1170
October	+730	—2405	+3135
November	+230	+1032	—802
December	+1314	+1291	+23
January 1980	+41	—1259	+1300
February	+677	+807	—130
March	+686	—1694	+2380
	+6931	—25	+6956

HIGH-POWERE

Table

Changes in M_3 attributable to changes in Money Multiplier and HM — Variant 2

(Rs. crores)

	Actual change in M_3	Change in M_3 attributable to changes in	
		MMV_2	HMV_2
April 1975	+433	+598	—165
May	+351	—27	+378
June	+312	+334	—22
July	+92	+596	—504
August	+5	+328	—323
September	+33	+379	—346
October	+325	—275	+600
November	+200	+462	—262
December	+231	+62	+169
January 1976	+193	+196	—3
February	+349	—61	+410
March	+314	—338	+652
	+2838	+2254	+584
April 1976	+657	—300	+957
May	+607	—8	+615
June	+438	+368	+70
July	+168	+535	—367
August	+281	+419	—138
September	+387	—148	+535
October	+494	—69	+563
November	+337	+3	+334
December	+988	+1084	—96
January 1977	—179	—800	+621
February	+309	—252	+561
March	+519	—1452	+1971
	+5006	—620	+5626

Table 4B (Contd.)

(Rs. crores)

	Actual change in M_3	Change in M_3 attributable to changes in	
		MMV_2	HMV_2
April 1977	+890	+824	+66
May	+462	—180	+642
June	+433	+357	+76
July	+47	+929	—882
August	+260	—589	+849
September	+287	+705	—418
October	+401	—608	+1009
November	+561	—604	+1165
December	+1053	+1381	—328
January 1978	—159	—740	+581
February	+401	+896	—495
March	+949	—259	+1208
	+5585	+2112	+3473
April 1978	+661	—1402	+2063
May	+530	+430	+100
June	+760	—714	+1474
July	—81	+2126	—2207
August	+283	—519	+802
September	+459	+778	—319
October	+694	—554	+1248
November	+587	+30	+557
December	+1732	+759	+973
January 1979	+295	—1190	+1485
February	+24	—798	+822
March	+1011	—977	+1988
	+6955	—2031	+8986

Table 4B (Contd.)

(Rs. crores)

	Actual change in M_3	Change in M_3 attributable to changes in	
		MMV_2	HMV_2
April 1979	+584	—163	+747
May	+740	—377	+1117
June	+1336	+919	+417
July	+201	+120	+81
August	+725	+1040	—315
September	—333	+1016	—1349
October	+730	—1953	+2683
November	+230	+417	—187
December	+1314	+1431	—117
January 1980	+41	—1259	+1300
February	+677	+1017	—340
March	+686	—1729	+2415
	+6931	+479	+6452

Table — 4C

Changes in M_3 attributable to changes in Money Multiplier and HM — Variant 3

(Rs. crores)

	Actual change in M_3	Change in M_3 attributable to changes in	
		MMV_3	HMV_3
April 1975	+433	+587	—154
May	+351	—97	+448
June	+312	+369	—57
July	+92	+586	—494
August	+5	+295	—290
September	+33	+405	—372
October	+325	—324	+649
November	+200	+451	—251
December	+231	+102	+129
January 1976	+193	+105	+88
February	+349	—65	+414
March	+314	—255	+569
	+2838	+2159	+679
April 1976	+657	—295	+952
May	+607	—11	+618
June	+438	+311	+127
July	+168	+560	—392
August	+281	+439	—158
September	+387	—163	+550
October	+494	—212	+706
November	+337	—55	+392
December	+988	+665	+323
January 1977	—179	—699	+520
February	+309	—125	+434
March	+519	—1513	+2032
	+5006	—1098	+6104

Table 4C (Contd.)

(Rs. crores)

	Actual change in M_3	Change in M_3 attributable to changes in	
		MMV_3	HMV_3
April 1977	+890	+1382	—492
May	+462	—184	+646
June	+433	+383	+50
July	+47	+842	—795
August	+260	—564	+824
September	+287	+726	—439
October	+401	—643	+1044
November	+561	—586	+1147
December	+1053	+1095	—42
January 1978	—159	—150	—9
February	+401	+722	—321
March	+949	—174	+1123
	+5585	+2849	+2736
April 1978	+661	—1522	+2183
May	+530	+318	+212
June	+760	—582	+1342
July	—81	+2061	—2142
August	+283	—523	+806
September	+459	+803	—344
October	+694	—609	+1303
November	+586	+56	+530
December	+1733	+329	+1404
January 1979	+295	—783	+1078
February	+24	—689	+713
March	+1011	—1252	+2263
	+6955	—2393	+9348

Table 4C (Contd)

(Rs. crores)

	Actual change in M_3	Change in M_3 attributable to changes in	
		MMV_3	HMV_3
April 1979	+584	+333	+251
May	+740	—356	+1096
June	+1336	+1606	—270
July	+201	—125	+326
August	+725	+1615	—890
September	—333	+1270	—1603
October	+730	—2620	+3350
November	+230	—127	+357
December	+1314	+1510	—196
January 1980	+41	—1309	+1350
February	+677	+636	+41
March	+686	—1763	+2449
	+6931	+670	+6261

Table — 4D

Changes in M_3 attributable to changes in Money Multiplier and HM — Variant 4

(Rs. crores)

	Actual change in M_3	Change in M_3 attributable to changes in	
		MMV_4	HMV_4
April 1975	+433	—425	+858
May	+351	+7	+344
June	+312	+226	+86
July	+92	—68	+160
August	+5	+451	—446
September	+33	+973	—940
October	+325	—157	+482
November	+200	+309	—109
December	+231	+1258	—1027
January 1976	+193	+772	—579
February	+349	—422	+771
March	+314	+391	—77
	+2838	+3315	—477
April 1976	+657	—1087	+1744
May	+607	—187	+794
June	+438	—80	+518
July	+168	+939	—771
August	+281	+264	+17
September	+387	+405	—18
October	+494	—51	+545
November	+337	—70	+407
December	+988	+1054	—66
January 1977	—179	—860	+681
February	+309	—236	+545
March	+519	—1860	+2379
	+5006	—1769	+6775

Table 4D (Contd.)

(Rs. crores)

	Actual change in M_3	Change in M_3 attributable to changes in	
		MMV_4	HMV_4
April 1977	+890	+243	+647
May	+462	—868	+1330
June	+433	+661	—228
July	+47	+575	—528
August	+260	—395	+655
September	+287	+447	—160
October	+401	—530	+931
November	+561	—622	+1183
December	+1953	+1273	—220
January 1978	—159	—481	+322
February	+401	+723	—322
March	+949	+16	+933
	+5585	+1042	+4543
April 1978	+661	—2480	+3141
May	+530	+329	+201
June	+760	—233	+993
July	—81	+1606	—1687
August	+283	—377	+660
September	+459	+1080	—621
October	+694	—592	+1286
November	+587	+41	+546
December	+1732	+645	+1087
January 1979	+295	—208	+503
February	+24	—726	+750
March	+1011	—1574	+2585
	+6955	—2489	+9444

Table 4D (Contd.)

(Rs. crores)

	Actual change in M_3	Change in M_3 attributable to changes in	
		MMV_4	HMV_4
April 1979	+584	—663	+1247
May	+740	—109	+849
June	+1336	+2045	—709
July	+201	+37	+164
August	+725	+1153	—428
September	—333	+2468	—2801
October	+730	—3328	+4058
November	+230	—30	+260
December	+1314	+2061	—747
January 1980	+41	—1837	+1878
February	+677	+446	+231
March	+686	—1659	+2345
	+6931	+584	+6347

EXHIBIT 1

SOURCES OF HM

I. **RBI's credit to Government**
   1. Holdings of —
      regular and ad hoc treasury bills,
      other rupee securities, and rupee coins
   2. Loans and advances to State Governments including overdrafts, if any

II. **RBI's credit to banks and other Financial institutions**
   1. Loans and advances to —
      State co-operative banks
      Scheduled Commercial Banks
      IDBI
      ARDC/NABARD
      Other financial institutions

III. **RBI's investments in corporate and co-operative bonds/ debentures and commercial bills**
   1. Holdings of —
      internal bills purchased & discounted
      bonds of DIC/DICGC, and other financial institutions
      ordinary debentures of the co-operative banks —

IV. **RBI's holdings of gold & foreign exchange reserves**
   1. Gold coin and bullion
   2. Foreign currencies and investments

V. **Treasury Currency Outstanding**
   (Government's currency liabilities to the public)

Uses of HM

I. **Non-competing**
   1. Commercial banks' deposits with RBI
   2. Co-operative banks' deposits with RBI
   3. Cash on hand with commercial banks
   4. Cash on hand with co-operative banks
   5. Currency with the public

II. **Competing**
   1. Central Government's deposits with RBI
   2. State Governments' deposits with RBI
   3. Foreign liabilities of RBI
   4. Other RBI deposits and RBI accounts.

FOOT-NOTES

[1] Some of the synonyms or near-synonyms are: primary money, government money, reserve money, source base, monetary base, base money, and extended monetary base.

[2] The major exceptions are those of Suraj B. Gupta (1976, 1979) and Gurushri Swamy (1978).

[3] Published in Reserve Bank of India **Bulletins** for July and August 1961. It was reproduced as an annexure to the Second Working Group Report entitled **Money supply in India: Concepts, Compilation and Analysis** Reserve Bank of India, Bombay, 1977.

[4] See e.g., N.A. Mujumdar (1976), S.L. Shetty et al (1976).

[5] See Suraj Gupta (1976, 1979), A Vasudevan (1979).

[6] See D.C. Rao, et al (1981).

[7] V.K.R.V. Rao (1973) pointed out that there is no consitutional limit to the Union Government's borrowing from the Reserve Bank of India.

[8] Phillip Cagan (1965), p. 7.

[9] Karl Brunner and Allan Meltzer (1964), p. 245.

[10] L.C. Andersen and J.L. Jordan (1968), p. 8 Andersen and Jordan stated that "these reserve adjustments are referred to by Brunner — Meltzer as 'liberated' reserves" (fn. 2) and that their own definition of monetary base "is the same magnitude which Brunner — Meltzer define as the 'extended base'. (fn 3)."

[11] See Gurushri Swamy (1978) and S.B. Gupta (1979).

[12] The minimum cash reserves to net demand and time liabilities to be maintained by banks with the Reserve Bank are 3 per cent. This ratio however, could be raised by RBI. The Reserve Bank had stipulated higher required reserves ratio for the first time in the 'seventies on June 29, 1973 and varied this ratio subsequently a number of times only for scheduled commercial banks.

[13] A number of variants in fact can be derived, and the ones shown here are merely illustrative.

[14] Government excludes public sector undertakings as well as local authorities.

[15] See Planning Commission (1952), K.N. Raj (1954), A. Vasudevan (1967) for definition of deficit financing.

[16] See V.K.R.V. Rao et al (1974), A. Raman (1974).

[17] Treasury bill rate was 3.0 per cent at the beginning of the 'seventies. Since July 1974, it has been 4.6 per cent. The long-term bond rate was between 4.8 to 5.5 per cent in 1970-71 and 6.4 to 7.5 per cent in 1980-81.

[18] See K.N. Raj (1954).

[19] The discussion on safety limits to deficit financing in India was voluminous in the 'fifties and 'sixties. See Planning Commission (1955) V.K.R.V. Rao, (1964), A.K. Das Gupta (1965), Jagdish Bhagwati (1956) and B.R. Shenoy (1958).

[20] Raising the bond rate would unjustifiably place enormous debt-servicing burden on the future generation which does not exercise any authority in the matter of debt-raising or debt-utilization. The 'welfare' question in the inter-generation burden of public debt is as yet an unresolved debate.

[21] Only M_3 is considered here in view of the 'break' in the M_1 series with the change in the basis of classification of savings deposits into demand and time liabilities components effected in March 1978.

[22] Currency-deposit ratio is said to be influenced by a number of factors such as real income, interest earned on alternative assets, price changes, number of branch offices of banks, food procurement credit, remittances from abroad and price changes in select commodities. Reserves to deposits ratio as Khusro and Siddarthan (1971) have shown, is influenced by the rate that banks have to pay on their refinances and the rates that they would obtain on their loans/investments.

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TRADE INSTABILITY — INDIA'S EXPERIENCE (1956-57 to 1979-80)

R. Kannan*

Introduction

Instability in the volume, pattern and direction of external trade of developing countries has assumed considerable importance since the early seventies. Even now, with growing protectionism, the problem cannot be ignored and it may well become even more important in future, in view of its effects on the distribution of income and wealth. In this paper an attempt is made to quantify the instability in exports and imports and analyse the contributing factors. We try to develop a measure that will show the year-to-year relative changes in exports/imports corrected for trend influence.

The analysis covers two periods, viz., 1956-57 to 1965-66 and 1966-67 to 1979-80. Because of the devaluation of the Indian Rupee, 1966 is selected as the cut-off period, and we would like to examine the nature of the instability and the contributing factors for a decade before and after devaluation. The second period extends up to 1979-80, the last year for which all the requisite data are available.

This paper is divided into three sections. Section I describes a suitable measure for quantifying instability followed by an analysis of the sources of such instability. Section II discusses the policy aspects. The conclusions are given in Section III.

SECTION I

Export instability has been widely discussed in the literature, as can be seen from the citations given in 'References' at the end of this article. But import instability has not received as much attention as export instability.

Export/import instability is defined as short-term fluctuations in export earnings/import payments corrected for trend. The necessity for trend correction arises in order to avoid interpreting a constant year-to-year increase or decrease as indicating instability.

Instability Index

Different methods have been used by economists to measure instability. In this paper, Instability Index (II) is obtained by

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calculating deviations from a trend line. The trend line used is a least square line through the logarithms of the actual export/import values (or actual measures of characteristics for which we want to find instability). Thus we have the trend line:

log Y = a + b log t where Y = export earnings, t = time and 'a' and 'b' are coefficients to be estimated by the least squares method (Table 1). It should be mentioned that this exponential relation provided a better fit to the data than a linear or semilog relationship.[2] In this method, the coefficient of time variable indicates the constant percentage rate of growth (or decline) over log-time. The Instability Index, calculated in this study, is the average value of the absolute difference between actual and estimated values, expressed as a percentage of actual value. It is obvious that the larger the deviations from the trend line, the greater is the index and Instability Index will be zero when there are no deviations from the trend line in any one of the years.

Different methods are, however, available for calculating instability index. While Coppock suggested log-variance method,[3] MacBean used the moving average method of obtaining the trend values and deviations from the trend. United Nations, in its 1952 study entitled 'Instability in Export Markets of Underdeveloped Countries', used another method to measure II. In this method no adjustment for trend is made. It consists of obtaining the absolute difference in values from year to year, expressing this difference as a percentage of the larger of the two annual values and then averaging these percentages. Since the statistical properties of the indices based on different methods are yet to be established, it is very difficult to discuss the relative merits of the different methods. Differences in instability during different periods should be treated with caution, because of (a) larger influence of one or two years of relatively large change and (b) small number of observations.

Table 2 gives the instability index for value of Exports (EXII), value of Imports (IMII), Export Unit Value Index (EXUVI), Import Unit Value Index (IMUVI), Export Volume Index (EXVI) and Import Volume Index (IMVI).

EXII increased from 5.34 in period I to 14.43 in period II. It is interesting to note that EXVI in period II stood at 5.88, exhibiting a marginal increase compared to 5.06 in period I. However, EXUVI increased from 3.03 in period I to 11.12 in period II. Hence it is evident from these values that the increase in export instability in period II mainly resulted from the increase in the instability of

unit value of exports. This view is further strengthened by the regression analysis subsequently referred to. IMII increased from 5.62 in period I to 21.50 in period II. Unlike exports, we find both IMVI and IMUVI increased in period II. While IMUVI increased from 3.87 to 22.58, IMVI increased from 4.02 to 10.84. This suggests that the contribution of the fluctuation in unit values is more than that of the fluctuation in volume of imports in import value instability. The steep hikes in oil prices during the second period explains this to a large extent.

Fluctuations in the export proceeds are generally found to be much greater for developing countries than for developed countries due to (i) the nature of exports (i.e., exports of primary products), (ii) commodity concentration, i.e., dependence on a few commodities and (iii) geographic concentration in trade relations.

Specialisation in primary products

The developing economies specialise in primary products to a large extent and it is assumed that the export receipts from primary products are inherently subject to greater short-term fluctuations than the receipts from the export of manufactures. It is, however, worth noting that even developed countries like Australia, New Zealand, Denmark, Ireland and Finland are predominantly exporters of primary products. In countries producing primary commodities both instability in world demand and instability in domestic supply appear to have been important causes of variation in export proceeds. While for exports of manufactures, demand fluctuations usually lead to fluctuations in volume rather than price, the reverse is true for most of the primary products. Compared to manufactured products, foodstuffs are less affected by cyclical variations in demand. With the exception of a few commodities, whose prices are stabilised by an understanding between producing firms or by Governmental action, many primary products are supplied to world markets under highly competitive conditions. Primary producers are also more likely to maintain the quantities supplied, leaving prices to vary, though there may be exceptions to this feature. The differential response of manufactures and primary goods to demand variations could be a consequence of the nature of commodities viz., the long shelf-life of manufactured goods and the perishability of primary products, particularly in the absence of scientific storage facilities. "The important distinction is not between goods which are produced in factories and goods which are grown on the land or extracted from earth. The crucial distinctions lie in the variability of demand and

supply and in the short run responses of demand and supply to changes in prices."[4]

From Table 3, we observe that the proportion of manufactured goods increased in our export basket considerably in the second period.[5] Among manufactured goods, exports of miscellaneous manufactured goods showed considerable increase. Exports of machinery and transport equipment also increased in the second period. To measure instability in the exports of primary and manufactured goods, a similar procedure, as in the case of total exports/imports, was followed and the instability indices are given in Table 4.

In period I, the Instability Index of the value of exports of manufactured goods was greater than that of primary exports.[6] The II of value of total exports is close to II of value of primary exports, since the share of manufactured goods in our exports was lower than that of primary exports in that period.

The II of primary exports increased to 16.31 in the second period from 4.63 in the first period, whereas the II of manufactured exports increased to 11.72 in the second period from 7.81 in the first period. Thus the increase in instability was more pronounced for primary exports. It is evident from this feature that the increase in II of total exports in the second period was mainly due to the increase in the instability of primary exports. We find a similar feature in the case of the II in unit value of exports also.

Commodity Concentration

Another factor, which could be a cause of instability in total value of exports, is commodity concentration. Specialisation in a limited range of goods may increase instability. Defining the "commodities" is the first step in finding commodity concentration coefficient, since, according to Michaely, the value of the coefficient depends in an important way on what commodity classification scheme is employed. Here we follow the same definition of commodities as given in the "Report on Currency and Finance" (RBI Publication).

The degree of concentration is measured by the Hirschman coefficient of concentration. The coefficient of commmodity concention for exports (COMX) is defined as

$$COMX = 100 \sqrt{\sum_{i=1}^{n} \left(\frac{X_{it}}{X_t} \right)^2}$$

where x_{it} is the value of exports of i^{th} commodity in year 't' and x_t is the value of total exports in year 't'.

$$\left(X_t = \sum_{i=1}^{n} X_{it} \right)$$

The coefficient of commodity concentration for imports (COMM) is defined as

$$COMM = 100 \sqrt{\sum_{i=1}^{n} \left(\frac{M_{it}}{M_t} \right)^2}$$

where M_{it} is the value of imports of i^{th} commodity in year 't' and M_t is the value of total imports in year 't'. For convenience, the coefficients are expressed in percentage form. The maximum value of the coefficient is 100. The minimum value is $\frac{100}{\sqrt{n}}$, (n = number of commodities). In the case of exports, the minimum value is 16.2221 (n = 38) and for imports it is 17.1498 (n = 34).

There are some limitations in using this coefficient. (a) Commodities are considered as different from each other. (b) In the commodity classification of exports/imports, we have miscellaneous manufactured goods, for which we have only the total value and the exact number of goods and their share are not taken into account. This group, though of a small percentage in total, creates a bias towards a higher degree of concentration. This effect is more pronounced in a transition period when the country is in the process of industrialisation and the export basket undergoes a change. (c) Throughout the analysis, we use only trade in goods and not in services.

The coefficients of commodity concentration (CC) for both exports and imports (covering the period 1956-57 to 1979-80) are given in Table 5. The linear lines fitted for the two periods (1956-57 to 1965-66 (I) and 1966-67 to 1979-80 (II)) are given in Table 6.

In the first period CC of exports decreased at a faster rate than in the second period. The mean CC for the first period works out

to 27.17 (Table 7) which is higher than the mean of the second period 22.10. This decrease in the CC suggests that Indian exports were in the process of diversification and the degree of diversification was more pronounced in the second period. The coefficient of variation of this index in the second period was 12 per cent which was less than the figure of 16 per cent for period I.

To explain the process of transformation, we give data on (i) the share of different groups of exports in total (Table 3) and (ii) mean, standard deviation and coefficient of variation of (a) unit value indices (Table 8) and (b) quantum indices (Table 9) of these groups of exports for the two periods separately. Since the quantum indices of individual group of exports are not available for the period 1956-57 to 1959-60, quantum indices in the first period cover 1960-61 to 1965-66. However, for the total exports, quantum index covers the full period (1956-57 to 1965-66).

Food and live animals, which accounted for 31 per cent in the total value of exports in 1966-67 declined to 26 per cent in 1979-80. In the case of crude materials, the percentage share declined from 18 per cent in 1966-67 to 10 per cent in 1979-1980. The share of beverages and tobacco remained almost the same at 2 per cent. The share of primary goods in total value of exports accounted for about 54 per cent in the first period. However, this share declined from 52 per cent in 1966-67 to 39 per cent in 1979-80. Chemicals and allied products exhibited a marginal increase from 1 per cent in 1966-67 to 3 per cent in 1979-80. The share of manufactured products fluctuated around 40 per cent during the second period. From 42 per cent in 1966-67, it reached a peak level of 45 per cent in 1969-70 and declined to 34 per cent in 1975-76. However, their share increased to 41 per cent in 1978-79.

The share of miscellaneous manufactured articles showed a substantial increase. The percentage share of this group shot up from 3 per cent in 1966-67 to 13 per cent in 1979-80. The share of machinery and transport equipment increased from 1 per cent in total value of exports to 7 per cent in 1979-80, except for the year 1972-73, when it was 4 per cent.

For (almost) all commodity groups, except crude materials and machinery and transport equipment the unit value indices more than doubled in the second period. The increase is more pronounced for mineral fuels, lubricants, etc. But the share of this group in total exports is very small; hence this increase in unit value has no substantial effect on the export concentration index. However,

the increase in the unit value index of manufactured goods, miscellaneous manufactured goods and machinery and transport equipment had a substantial effect on total value of exports since the quantum indices of these groups have been on the increasing trend in the recent period.

Considerable reduction in export concentration index in the second period could have stemmed from the diversification in our exports, which, *inter alia,* is the result of various export promotion schemes launched by the Government of India in recent years. A significant increase in the share of exports of engineering goods and other manufactured products in total exports could have been responsible for the decrease in the export concentration index.

In addition, in the initial stages of economic development, production of goods for exports is constrained by the endowment of natural resources and climatic conditions. As the economy develops, increase in the availability of capital and skilled labour enlarges the product mix of exports. With added incentives provided by the Government for exporters the country can compete in the international market. Exports are no longer confined to a narrow range of goods and hence the concentration index for exports decreases.

As for the concentration index of imports, it is evident from Table 6 that though this index was decreasing at a low rate in the first period, it shows an increasing trend in the second period. In the second period, the import concentration index was at the peak in 1975-76 (35.10) and started declining subsequently. However, it again went up in the year 1979-80 to 31.91, which was lower than the earlier peak value of 35.10. The mean index in the second period works out to 28.90, which was higher than the mean index of 22.70 in the first period. The coefficient of variation marginally increased from 9 per cent in the first period to 10 per cent in the second period. The spurt in oil prices in the seventies is one of the important reasons for the increase in the concentration index. Government has followed a vigorous import substitution policy, which has led to a decrease in the imports of selected commodities.

Geographic Concentration of Exports and Imports

Changes in demand in one country could be offset by contrary changes in demand in another country, if exports were regionally diversified. In general, underdeveloped countries have trade ties with individual (developed) countries or groups of countries. A regional spread of exports/imports can reasonably be expected to increase stability in export proceeds/import payments.

The coefficient of geographic concentration of exports (GEOX) and imports (GEOM) is defined as follows:

$$GEOX = 100 \sqrt{\sum_{i=1}^{n} \left(\frac{X_i}{X}\right)^2}$$

$$GEOM = 100 \sqrt{\sum_{i=1}^{n} \left(\frac{M_i}{M}\right)^2}$$

where X_i is the exports to i^{th} country and X is the total exports in a particular year; M_i is the imports from i^{th} country and M is the total imports. We consider n as the total number of countries.

While calculating these coefficients, we have considered 47 countries, which account for around 95 per cent of the total exports/imports in any year. Thus the highest possible value of this coefficient is 100 when the trade is concentrated only in one country and the lowest value of the coefficient is $\frac{100}{\sqrt{n}}$ (i.e. 14.5864) which will figure if all the trading partners are equally represented.

The geographic concentration coefficients (GC) are given in Table 10 for the period 1956-57 to 1979-80. The mean GC of exports decreased to 24.96 in period II from the mean value of 31.98 in period I. A similar feature is seen in import concentration index also. From an average index of 35.32 in the first period, it declined to 28.50 in the second period. However, the coefficients of variation of both export and import GC indices increased considerably in the second period as compared with the first period. In order to find out the rate of increase/decrease of this coefficient over the two periods, straight lines of the type $y = a+bt$ were estimated and the results are given in Table 6. During the period 1956-57 to 1965-66, while GC of exports exhibited a declining trend, GC of imports showed an increasing trend. However, in the second period (1966-67 to 1979-80) GC of both exports and imports reflected a declining trend. The rate of decline of GC of imports is more pronounced than that of exports. The GC of exports declined at a faster rate in the second period as compared with that of the first period. We notice a reversal of the trend in the case of imports.

Turning to the GC of imports, in the first period, it increased at a rate of 1.08 per annum. One of the important factors contributing to such behaviour is the 'tied-aid' policy followed by donor countries. In many cases, the recipient country of foreign aid had to import from the donor country towards project implementation. However, in the second period, GC of imports declined which might be due to India's ability to get over this compulsion partially.

Another feature which deserves our attention is that in the first period, GC of imports was greater than that of GC of exports. Even in the second period, this trend continued till 1976-77 except for the two years 1971-72 and 1972-73. This strengthens the view expressed about the country's increased capacity to expand its imports from new markets/countries.

Tables 11A and 11B give the percentage share of India's exports to some of the important countries. While the share of traditional customers like the USA, UK and Canada decreased considerably, the share of East European countries, Saudi Arabia, Kuwait, Iran, etc., increased. The higher rate of decline in the GC of exports in the second period is due to the success of India in penetrating into new markets.

Regression Analysis

As mentioned in the previous paragraphs, long-run forces which determine the trend are to be distinguished from the short-run forces which are to be deemed as mainly responsible for determining the fluctuations around the trend. The trend values are estimated by double-log relationship between the variables of interest under study and time. A measure of instability is derived by expressing the absolute difference between the actual and estimated value as a percentage of actual value. To get an idea regarding how much of the variation in the degree of export/import instability can be explained by the important variables, viz., primary exports, commodity and geographic concentrations, etc., a multiple regression analysis was carried out (Table 12).

Neither commodity concentration nor geographic concentration is an important variable influencing instability in the export values in both the periods. Hence an attempt was made to use both the variables together but again these variables put together could not explain substantially the instability in exports (Equations 5 and 6 in Table 12). However, $\bar{R}^2$ increased in the second period to 0.29 as compared to 0.13 in the first period. One would normally expect a positive

correlation between instability and concentration index. But in the case of geographic concentration, one can envisage situations in which countries may enter into bilateral commodity arrangements and this will have a smoothening effect in the fluctuations of export receipts in spite of high concentration. Hence positive correlation may not hold good.

The low correlation between concentration and instability is contrary to the result expected on *a priori* grounds. This could stem from the fact that India exports commodities with different degrees of "volatality" in their unit values and quantities. While mineral fuels, lubricants, animal and vegetable oils, food and beverages and tobacco have a high coefficient of variation in their unit values, miscellaneous manufactured goods, chemicals and machinery and transport goods have a high coefficient of variation in their volume index of exports (Table 8 and 9). Thus the extent of fluctuations in price and volume differs considerably from one commodity group to another. For a given concentration, countries will exhibit more instability if they specialise in trading in products which are relatively more "volatile".

From the regression exercise, we find that the instability in the unit value index of exports is a significant variable in explaining export instability in both the periods. In the second period $\overline{R}^2$ takes the value of 0.81 as compared to 0.73 in the first period. The instability in volume index does not seem to be a significant variable in both the periods. However, $\overline{R}^2$ increased to 0.31 in the second period from 0.07 in the first period.

In the case of instability in imports, we find that the instability in unit value of imports is a significant variable, as in the case of exports. While commodity concentration coefficient is a significant variable (in both the periods) geographic concentration is not a significant variable. An attempt was made to examine the effects of both the concentration coefficients together and it was found that both of them were significant in the first period but not significant in the second period. The change in the pattern of our imports and oil price hike in the seventies could be the possible reasons for the same.

SECTION II

Policy Aspects

We can visualise, in general, four kinds of instability as a result of a high degree of export instability : (i) instability in the

income earned in the export industries vis-a-vis other industries in the economy, (ii) instability in prices, (iii) instability in the external purchasing power of the rupee and (iv) instability in real investment, as a result of (ii) and (iii). These are, of course, related to each other.

It is possible that, in the long-run, export instability has a net inflationary effect. In the long run fluctuations in the purchasing power of exporters or of external receipts, unless offset, tend to give rise to fluctuations in imports to some extent. However, from experience it has been found that instability is not fully transmitted to domestic variables because of offsetting national policies through introduction of stabilisation measures that insulate domestic economy from the impact of fluctuations. Instability in exports reacts through its monetary repurcussions on the levels of domestic production. Hence the flow of investment is likely to suffer because of its high import content. For a developing economy such instability in investment has undesirable implications from social and economic standpoints. Moreover, under persistent inflationary pressures, high export fluctuation is sufficient to give rise to a payments crisis. The level of income is already too low and foreign exchange cushion too small for a developing economy to absorb such shocks. "It was hoped that the very process of maintaining a fairly high average rate of growth would in itself-by keeping capital investment progressively higher — subordinate the instability problem".[7] To mitigate the problems of instability, countries have often recourse to the intensification of restrictions on imports and adjustment of exchange rates. J. Marcus Fleming suggested that in such circumstances developing countries could resort to compensatory financing to offset the fluctuations in the external purchasing power of exports.[8] (The term "compensatory financing" is used in a broad sense to include movements in a country's own official resources as well as any international borrowing or any other international transfers that are designed to relieve the strain on reserves or to preserve the stability of the exchange rate). He also recommended the stabilisation of export proceeds of primary products through the stabilization of prices. Compensatory financing is suggested for solving import instability also.

Total export proceeds in a year are a product of demand and supply factors. In addition they also depend upon the external value of the currency. In the year 1975, the Government of India, in consultation with the Reserve Bank of India, reviewed the arrangement under which the Indian rupee was linked to the pound sterling. In the context of then prevailing international monetary

situation it was decided that pegging to a multi-currency basket would be more suitable and satisfactory than linking with any single reserve currency. Hence rupee was delinked from sterling with effect from September 25, 1975 and rupee value is now determined with reference to a basket of currencies of countries, which are India's major trading partners. However, pound sterling continues to be the intervening currency. To analyse the impact of this procedure the instability index was calculated for the period 1975-76 to 1979-80 (Table 2). Both export and import instability indices (total value and unit value index) were much lower in this period than the mean index for the period 1966-67 to 1979-80. Since we have only five observations for this period, the usual regression may not be a suitable technique to test the hypothesis about the new exchange rate system reducing insability. However, the fact that instability is reduced during this period is worth mentioning even though one may not be able to attribute it to the floating exchange rate or any other policy measure.

In the previous paragraph it was mentioned that the instability in unit value index of exports is a significant factor in explaining the instability in the total value of exports in both the periods. *Ceteris paribus*, export price depends upon domestic price of the goods which are exported and external demand factors. The latter factors are outside the purview or control of the country concerned. The local price reflects the domestic supply condition. In order to find out which of the two factors affect instability in exports, we calculated the correlation between instability in export unit value index and instability in wholesale prices of selected commodities, which India exports. Instability in wholesale price was calculated by the same method, viz., double-log trend equation. The correlation coefficient worked out as +0.64 and was not significant even at 10 per cent level. Hence it may be concluded that external demand factors are more responsible for causing instability in the country's exports than domestic prices.

SECTION III

Conclusions

The following conclusions emerge from the previous analysis.

a) Instability in the value of exports and imports has increased in 1966-67 to 1979-80 as compared to the period 1956-57 to 1965-66. The increase in instability is mainly due to the increase in the instability of respective unit value indices.

b) Though the instability of manufactured products was higher than that of primary products in the first period, instability in the exports of primary products considerably influenced the instability in total exports.

c) The commodity concentration for exports has decreased reflecting diversification in our exports. The import concentration has however increased in the second period. The increase in import concentration is due to the oil price hike since the seventies.

d) The mean coefficient of geographic concentration of exports in the second period is less than the mean coefficient of the first period. Declining trend in this coefficient has been witnessed over the two periods. However, the rate of decline is more pronounced in the second period as compared with that of the first period. The success of India's trade to penetrate into other new markets is mainly responsible for the decline in export GC coefficient.

e) The mean coefficient of geographic concentration of imports is less in the second period than that of the first period. There was an increasing trend in this coefficient in the first period and a declining trend in the second period.

f) Contrary to the view expected on *a priori* grounds, it is found that neither commodity concentration nor geographic concentration is a significant factor in influencing instability in exports. But commodity concentration and not geographic concentration of imports is a significant factor in both the periods in influencing import instability.

g) Fluctuation in domestic supply, as revealed by the fluctuation in wholesale prices, is not a significant factor in making exports receipts more unstable. External demand factors are mainly responsible for causing instability in export unit values and therefore export values.

Various export promotion schemes followed by the Government of India are seem to act towards reducing export fluctuation and enhancing export earnings. The diversifying of exports by developing new products and new markets provided the economy with greater flexibility in adapting the structure of exports to changes needs in foreign markets. Diversification can reduce instability in export receipts so long as trade in different commodities and with different countries does not change in unision, i.e. the intercorrela-

tion in the movements of trade is not positive. The effect of diversification is greatly reduced, if it were so. To reduce fluctuations in primary commodity exports, the country may enter into international commodity agreements of schemes as it is already doing in respect of certain commodities. Another measure to maintain the export demand of primary commodities is through the maintenance of buffer stocks.

Table 1

Trend Equations for Exports and Imports

Sr. No.	Item	Period I : 1956-57 to 1965-66	Period II : 1966-67 to 1979-80
(1)	(2)	(3)	(4)
1.	Total Exports (E)	$\log E = 2.2048 + 0.5571 \log t$ (5.257) $\bar{R}^2 = 0.77$ D.W. $= 1.744$ SEE $= 0.0261$ Mean $= 2.84$	$\log E = 0.5708 + 2.3522 \log t$ (12.727) $\bar{R}^2 = 0.92$ DW $= 1.34$ SEE $= 0.0767$ Mean $= 3.40$
2.	Export Unit Value Index (EUVI)	$\log EUVI = 1.6523 + 0.1355 \log t$ (2.121) $\bar{R}^2 = 0.56$ DW $= 1.35$ SEE $= 0.0157$ Mean $= 1.81$	$\log EUVI = 0.6388 + 1.2691 \log t$ (8.701) $\bar{R}^2 = 0.84$ DW $= 1.78$ SEE $= 0.0605$ Mean $= 2.17$
3.	Export Volume Index (EVI)	$\log EVI = 1.3507 + 0.4776 \log t$ (4.044) $\bar{R}^2 = 0.66$ DW $= 1.16$ SEE $= 0.029$ Mean $= 1.89$	$\log EVI = 0.8558 + 1.0337 \log t$ (15.267) $\bar{R}^2 = 0.94$ DW $= 1.07$ SEE $= 0.0281$ Mean $= 2.10$

Table 1 (Contd.)

Sr. No.	Item	Period I: 1956-57 to 1965-66	Period II: 1966-67 to 1979-80
(1)	(2)	(3)	(4)
4.	Total Imports (I)	$\log I = 2.3096 + 0.6513 \log t$ (5.099)	$\log I = 1.0309 + 2.0454 \log t$ (6.368)
		$\bar{R}^2 = 0.76$ DW = 1.682 SEE = 0.0314 Mean = 3.05	$\bar{R}^2 = 0.75$ DW = 1.424 SEE = 0.133 Mean = 3.49
5.	Import Unit Value Index (IUVI)	$\log IUVI = 1.7669 + 0.0667 \log t$ (6.44)	$\log IUVI = 0.1839 + 1.6714 \log t$ (5.764)
		$\bar{R}^2 = 0.52$ DW = 1.917 SEE = 0.0112 Mean = 1.84	$\bar{R}^2 = 0.71$ DW = 1.58 SEE = 0.120 Mean = 2.20
6.	Import Volume Index (IVI)	$\log (IVI) = 1.1224 + 0.6977 \log t$ (9.371)	$\log IVI = 1.6132 + 0.3425 \log t$ (2.562)
		$\bar{R}^2 = 0.92$ DW = 2.26 SEE = 0.0183 Mean = 1.92	$\bar{R}^2 = 0.54$ DW = 1.04 SEE = 0.055 Mean = 2.03

Figures in the bracket indicate t-statistics.

Table — 2

Instability Index (II)

	Exports			Imports		
	Total Value (EXII)	Unit Value Index (EXUVI)	Volume Index (EXVI)	Total Value (IMII)	Unit Value Index (IMUVI)	Volume Index (IMVI)
	(1)	(2)	(3)	(4)	(5)	(6)
Minimum						
I	3.17	1.27	2.49	1.51	1.43	1.34
II	2.39	1.95	1.67	3.03	2.97	1.19
III	6.57	1.36	2.39	3.03	5.22	10.45
Maximum						
I	9.00	4.73	9.04	11.21	5.36	8.04
II	35.15	25.30	10.17	36.20	62.09	17.60
III	16.92	12.12	8.79	26.49	19.89	15.65
Mean						
I	5.34	3.03	5.06	5.62	3.87	4.02
II	14.43	11.12	5.88	21.50	22.58	10.84
III	9.81	6.78	5.64	13.48	13.86	13.20
Standard Deviation						
I	1.71	1.03	2.37	3.02	1.35	2.36
II	9.53	7.46	2.55	14.45	17.24	5.12
III	4.44	3.84	2.95	8.65	9.52	2.43
Coefficient of Variation (in %)						
I	32	34	43	54	35	50
II	66	67	43	67	76	47
III	45	57	52	64	69	18

Note: I Period 1956-57 to 1965-66
II Period 1966-67 to 1979-80
III Period 1975-76 to 1979-80

Table — 3

Percentage Share of India's Exports (in value terms) 1956-57 to 1979-80

Year	Primary Goods					Manufactured Goods				Total
	Food and Live Animals	Beverages and Tobacco	Crude materials, Inedible, except fuels	Mineral Fuels, Lubricants and related materials	Animal and Vegetable Oils	Chemicals and Related Products @	Manufactured Goods @	Machinery and Transport Equipment @	Miscellaneous Manufactured Articles @	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1956-57	24.70	5.34	14.07	7.18	3.89	0.35	41.77	0.81	1.89	100
1957-58	27.40	3.62	18.90	4.76	2.16	0.49	39.09	1.23	2.35	100
1958-59	27.22	3 20	19.09	2.45	2.45	0.57	40.80	1.62	2.60	100
1959-60	31.56	2.34	18.44	1.25	2.50	0.78	38.28	1.56	3.29	100
1960-61	30.94	2.49	17.45	1.09	1.56	1.12	41.00	1.12	3.33	100
1961-62	32.42	2.27	17.88	0.91	0.91	1.18	40.85	0.72	2.86	100
1962-63	34.01	2.77	16.20	0.88	2.04	1.14	38.91	0.94	3.11	100
1963-64	31.53	2.90	16.65	1.26	2.65	0.87	40.26	0.89	2.99	100
1964-65	32.42	3.23	17.02	1.49	0.87	1.27	40.58	1.14	1.98	100
1965-66	29.50	2.69	16.52	1.10	0.61	1.40	42.00	1.37	4.81	100
1966-67	30.83	1.79	17.88	1.07	0.25	1.28	42.39	1.39	3.12	100
1967-68	30.19	3.00	16.18	0.75	0.33	1.33	42.62	1.83	3.77	100
1968-69	26.90	2.50	15.61	0.88	0.88	1.77	44.26	3.31	3.99	100

Table 3 (Contd.)

Percentage Share of India's Exports (in value terms) 1956-57 to 1979-80

Year	Primary Goods					Manufactured Goods				
	Food and Live Animals	Beverages and Tobacco	Crude materials, Inedible, except fuels	Mineral Fuels, Lubricants and related materials	Animal and Vegetable Oils	Chemicals and Related Products @	Manufactured Goods @	Machinery and Transport Equipment @	Miscellaneous Manufactured Articles @	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1969-70	24.49	2.34	16.35	0.64	0.35	2.12	44.59	3.96	5.16	100
1970-71	26.91	2.15	16.42	0.85	0.46	2.35	40.13	5.41	5.32	100
1971-72	27.11	2.80	14.99	0.76	0.50	2.18	41.36	4.73	5.57	100
1972-73	26.89	3.25	12.89	1.62	1.32	2.03	41.40	4.41	6.19	100
1973-74	26.91	2.81	14.35	0.59	1.27	2.30	39.67	4.68	7.42	100
1974-75	30.43	2.46	12.95	0.60	1.02	3.12	34.79	6.37	8.26	100
1975-76	30.99	2.45	13.46	0.92	0.92	2.25	34.36	6.43	8.22	100
1976-77	25.28	2.00	11.70	0.64	1.01	2.31	41.21	5.87	9.98	100
1977-78	28.77	2.18	9.05	0.52	0.46	2.31	40.60	6.24	9.87	100
1978-79	25.29	2.04	8.96	0.35	0.31	2.72	40.94	6.97	12.42	100
1979-80	26.17	1.80	10.33	0.37	0.81	3.22	37.15	6.95	13.20	100

Source : 'Report on Currency and Finance' and 'Economic Survey'.
@ Mutually exclusive

Table — 4

Instability Index of Primary and Manufactured Exports

Item	Period-I (1956-57 to 1965-66)	Period-II (1966-67 to 1979-80)
(1)	(2)	(3)
Primary Exports		
(i) Total Value	4.63	16.31
(ii) Unit Value Index	2.85	13.60
(iii) Quantum Index	3.66*	4.40
Manufactured Exports		
(i) Total Value	7.81	11.72
(ii) Unit Value Index	5.35	8.52
(iii) Quantum Index	7.26*	8.04

* This index covers the period 1960-61 — 1965-66.

Table — 5

Commodity Concentration Coefficient

Year	Exports	Imports
(1)	(2)	(3)
1956-57	27.97	23.17
1957-58	30.60	23.39
1958-59	28.52	22.79
1959-60	28.20	24.10
1960-61	27.93	23.66
1961-62	32.10	23.07
1962-63	28.14	23.67
1963-64	30.08	17.35
1964-65	19.00	22.63
1965-66	19.17	23.17
1966-67	27.56	25.18
1967-68	26.34	28.13
1968-69	25.23	27.23
1969-70	23.48	28.69
1970-71	21.91	26.40
1971-72	23.65	26.55
1972-73	21.42	26.69
1973-74	20.17	28.07
1974-75	19.70	32.29
1975-76	19.89	35.10
1976-77	18.71	32.88
1977-78	20.96	28.97
1978-79	20.80	26.50
1979-80	19.38	31.91

Table — 6

Trend Equation of Commodity/Geographic Concentration

	Period-I 1956-57 to 1965-66	Period-II 1966-67 to 1979-80
	(1)	(2)
Commodity Concentration		
i) Exports	$Y = 32.1275 - 0.9010\,t$	$Y = 22.6009 - 0.6870\,t$
ii) Imports	$Y = 23.8467 - 0.2085\,t$	$Y = 26.0505 + 0.3804\,t$
Geographic Concentration		
i) Exports	$Y = 34.9047 - 0.5314\,t$	$Y = 31.3719 - 0.8552\,t$
ii) Imports	$Y = 29.3639 + 1.0833\,t$	$Y = 39.5526 - 1.4734\,t$

Table — 7

Commodity/Geographic Concentration Index

	I Period (1956-57 to 1965-66)			II Period (1966-67 to 1979-80)		
	Mean	SD	CV	Mean	SD	CV
	(1)	(2)	(3)	(4)	(5)	(6)
Commodity Concentration						
1. Exports	27.17	4.48	16	22.10	2.75	12
2. Imports	22.70	1.33	9	28.90	2.97	10
Geographic Concentration						
1. Exports	31.98	1.70	5	24.96	3.86	15
2. Imports	35.32	3.52	10	28.50	6.67	23

SD = Standard Deviation
CV = Coefficient of Variation (%)

Table — 8

Mean and Variance of Unit Value Index of Exports

(1968-69 = 100)

Commodity Group	I Period (1956-57 to 1965-66)			II Period (1966-67 to 1979-80)		
	Mean	SD	CV	Mean	SD	CV
(1)	(2)	(3)	(4)	(5)	(6)	(7)
I. Food	63.50	2.64	4	161.86	71.58	44
II. Beverages and Tobacco	49.90	3.07	6	140.21	51.78	40
III. Crude Materials	80.20	6.61	8	146.29	48.85	33
IV. Mineral Fuels	70.40	6.40	9	255.87	199.82	78
V. Animal and Vegetable Oils	57.80	8.72	15	214.71	118.98	55
VI. Chemicals	56.00	11.77	21	133.50	47.00	35
VII. Manufactured Goods	57.10	4.89	9	166.93	65.43	39
VIII. Machinery and Transport Equipment	98.90	10.95	11	138.43	44.30	32
IX. Miscellaneous Manufactured Articles	57.67	6.24	11	139.86	45.10	32

SD = Standard Deviation
CV = Coefficient of Variation (in percentage)

Table — 9

Mean and Variance of Quantum Index of Exports

(1968-69 = 100)

Commodity Group	I Period (1960-61 to 1965-66)			II Period (1966-67 to 1979-80)		
	Mean	SD	CV	Mean	SD	CV
(1)	(2)	(3)	(4)	(5)	(6)	(7)
I. Food	100.00	8.60	9	132.14	37.18	28
II. Beverages and Tobacco	118.17	29.05	25	137.14	38.20	28
III. Crude Materials	76.67	14.15	18	115.36	16.29	14
IV. Mineral Fuels	102.17	24.94	24	78.36	30.35	39
V. Animal and Vegetable Oils	160.67	104.85	65	83.50	55.79	67
VI. Chemicals	61.00	20.30	33	209.14	110.10	53
VII. Manufactured Goods	82.33	9.37	11	110.64	26.20	24
VIII. Machinery and Transport Equipment	13.67	7.20	53	243.93	156.27	64
IX. Miscellaneous Manufactured Articles	53.67	10.65	20	329.00	242.80	74

SD = Standard Deviation CV = Coefficient of Variation (in percentage)

Table — 10

Geographic Concentration Coefficient

Year	Exports	Imports
(1)	(2)	(3)
1956-57	33.85	32.71
1957-58	34.65	30.69
1958-59	33.31	31.52
1959-60	33.43	34.37
1960-61	32.01	33.37
1961-62	31.07	35.54
1962-63	30.55	35.33
1963-64	30.71	39.61
1964-65	30.03	39.40
1965-66	30.21	40.68
1966-67	30.97	41.20
1967-68	29.13	38.31
1968-69	28.50	34.24
1969-70	27.53	33.26
1970-71	27.56	30.64
1971-72	27.40	26.03
1972-73	27.19	27.11
1973-74	24.54	27.37
1974-75	23.94	29.31
1975-76	19.70	29.16
1976-77	19.94	20.95
1977-78	20.23	20.26
1978-79	21.45	20.32
1979-80	21.33	20.87

Table — 11A

Percentage Share of India's Exports to Newly Developed Markets

Year	UAR	Czecho-slovakia	Yugo-slavia	Rumania	Poland	Iran	Kuwait	Saudi Arabia
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1966-67	2.10	2.55	1.21	0.42	1.55	1.02	0.94	0.48
1967-68	1.45	2.42	1.23	0.44	1.97	1.46	1.35	0.76
1968-69	—	2.25	2.22	0.49	1.62	1.68	1.15	0.94
1969-70	0.26	1.78	2.61	0.86	1.38	1.73	1.02	1.02
1970-71	0.44	1.86	1.74	0.75	1.16	1.41	0.80	0.71
1971-72	0.49	2.39	0.82	0.82	2.08	1.40	0.86	0.77
1972-73	0.59	1.78	0.91	0.72	2.05	1.31	0.70	0.78
1973-74	1.44	1.95	0.77	0.57	2.18	4.34	1.18	1.16
1974-75	1.50	0.95	0.91	0.91	2.40	7.97	0.93	1.43
1975-76	2.31	0.69	0.69	1.09	1.76	2.91	1.89	1.37
1976-77	2.65	0.51	0.59	0.56	1.37	2.27	1.94	1.87
1977-78	2.11	0.45	0.83	0.51	1.26	2.07	1.87	2.88
1978-79	1.77	0.31	0.79	0.37	0.92	1.94	1.61	2.58
1979-80	1.96	0.35	0.72	0.42	1.03	2.15	1.80	2.88

Table — 11B

Percentage Share of India's Exports to Traditional Markets

Year	USA	UK	Canada	Australia	France	West Germany
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1966-67	17.08	19.48	2.38	2.37	1.34	1.69
1967-68	16.80	16.19	2.31	2.10	1.33	2.05
1968-69	17.84	11.81	2.08	1.68	1.65	2.07
1969-70	13.61	11.65	1.80	1.66	1.22	2.22
1970-71	16.62	10.20	2.64	1.78	1.37	2.18
1971-72	15.23	9.84	1.64	1.49	2.15	3.03
1972-73	13.61	9.95	1.25	1.84	1.96	3.41
1973-74	13.05	9.87	1.41	2.11	2.29	3.13
1974-75	10.83	9.40	1.00	1.23	2.52	2.95
1975-76	9.88	8.14	0.87	0.99	1.86	3.15
1976-77	9.96	8.76	0.72	1.31	2.46	3.82
1977-78	10.25	6.52	0.69	1.28	2.48	3.71
1978-79	10.87	7.36	0.83	1.32	3.27	5.18
1979-80	10.61	6.44	0.78	1.27	3.11	5.50

Table — 12

Regression Analysis of Export/Import Instability

Sr. No.	Period	Equation	S.E.E.	Mean	$\bar{R}^2$	D.W.
1.	I	XII = 6.4089 + 0.0339 COMX (0.081)	5.83	7.32	0.28	1.46
2.	II	XII = —6.923 + 0.967 COMX (1.009)	9.52	14.43	0.24	0.96
3.	I	XII = —19.719 + 0.398 GEOX (0.522)	5.77	7.32	0.05	1.59
4.	II	XII = —12.479 + 1.078 GEOX (1.675)	8.93	14.43	0.35	1.09
5.	I	XII = 20.316 + 0.197 GOMX — 0.5689 GEOX (0.396) (0.635)	5.98	7.32	0.13	1.50
6.	II	XII = —3.9315 — 1.2779 GOMX + 1.8667 GEOX (0.707) (1.443)	9.12	14.43	0.29	1.30
7.	I	XII = 2.473 + 0.9462 XUVI (6.172)	2.85	7.32	0.73	1.21
8.	II	XII = 1.5337 + 1.1604 XUVI (7.523)	4.15	14.43	0.81	2.40
9.	I	XII = 5.976 + 0.252 XVI (0.354)	5.80	7.32	0.07	1.39

Table — 12 (Contd.)

Regression Analysis of Export/Import Instability

Sr. No.	Period	Equation	S.E.E.	Mean	$\overline{R}^2$	D.W.
10.	II.	XII = 5.431 + 1.531 XVI (1.558)	9.04	14.43	0.31	0.96
11.	I	MII = —50.2424 + 2.572 COMM (3.106)	8.33	11.52	0.40	2.11
12.	II	MII = —117.800 + 3.184 COMM (2.111)	16.18	25.79	0.21	1.56
13.	I	MII = —6.6208 + 0.5078 GEOM (0.578)	11.04	11.52	0.05	1.18
14.	II	MII = 7.255 + 0.650 GEOM (0.849)	18.41	25.79	0.02	0.98
15.	I	MII = —98.72 + 1.049 GEOM + 2.7629 COMM (2.232) (4.728)	5.78	11.52	0.71	2.27
16.	II	MII = 107.522 + 0.1793 GEOM + 2.9615 COMM (0.230) (1.685)	17.58	25.79	0.26	1.42
17.	I	MII = 3.323 + 1.1435 MUVI (5.895)	5.67	11.52	0.71	1.07
18.	II	MII = 5.633 + 0.8923 MUVI (5.468)	10.15	25.79	0.69	1.02

Table — 12 (Contd.)

Regression Analysis of Export/Import Instability

Sr. No.	Period	Equation	S.E.E.	Mean	$\bar{R}^2$	D.W.
19.	I	MII = 2.025 + 1.565 MVI (3.597)	7.76	11.52	0.48	1.49
20.	II	MII = 35.614 — 0.9069 MVI (0.914)	18.33	25.79	0.22	1.33

Notes :
I : Period 1956-57 to 1965-66
II : Period 1966-67 to 1979-80
XII = Export Instability
MII = Import Instability
COMX = Commodity Concentration of Exports
GEOX = Geographic Concentration of Exports
XUVI = Instability in Export Unit Value Index
XVI = Instability in Export Volume Index
COMM = Commodity Concentration of Imports
GEOM = Geographic Concentration of Imports
MUVI = Instability in Import Unit Value Index
MVI = Instability in Import Volume Index.
t — statistics are given in the bracket.

FOOT-NOTES

1. See Page No. 152.

2. Halder and Richards used the semi-log version for estimating the trend equation.

3. Let Xt equal the value of exports in year 't', 'N' be the number of years, 'm' be the arithmetic mean of the differences between the logarithm of X_t and X_{t+1}, X_{t+2} and X_{t+3} and so on. V log is the logarithmic variance of the series.

$$V \log = \frac{\Sigma\left(\log \frac{X_{t+1}}{X_t} - m\right)^2}{N-1}$$

Instability index = anti-log $\sqrt{V \log}$

4. Mac Bean, Alasdair I, (1964).

5. In this paper, primary goods are defined as those consisting of food and live animals, beverages and tobacco, crude materials, mineral fuels, lubricants and related materials and animal and vegetable oils. All other goods in the export basket are defined as manufactured goods.

6. It is worth noting that in this period, agro-based manufactured goods like cotton manufactures and jute manufactured goods assumed a considerable proportion in the exports of manufactured goods.

7. Domar, E.D. (1957).

8. Marcus Fleming, J. (1960).

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FINANCING OF CAPITAL FORMATION IN STATE GOVERNMENTS

K. S. Ramachandra Rao and **S. L. Narayana***

Introduction

State governments administration and their departmental undertakings, which are referred to as state governments in this paper, are important constituents of the public sector in implementing the planned programmes of the country. In order to run their administrative machinery, the state governments mobilise resources in the form of direct and indirect taxes from the public and obtain funds from the Union government through their share in Central taxes, loans and transfers. They also take recourse to financial institutions by selling their securities or by way of borrowings. All receipts and expenditures of the state governments are classified under the heads (i) 'Revenue or Current' and (ii) 'Capital' Accounts. Based on the current account, saving of the state governments is dervied as the excess of current income, including current transfers, over current expenditure. The capital account presents the saving, receipt of loans and other long-term obligations as incomings while the capital outlay on physical assets formation and acquisition of financial assets as outgoings. The expenditure on purchase of capital assets, such as, plant and machinery, and buildings, is designated as physical capital formation while acquisition of financial assets, like, shares and securities of various financial and non-financial institutions as also their deposit balances with banks, etc., as financial investment.

State governments' resources in the form of saving are not sufficient to meet their expenditure on capital formation. The difference between saving and capital formation is the 'resources gap' and this is financed through their borrowings or transfers from external sources, such as, the Union government. This financing aspect of the capital formation of state governments is analysed in this paper through flow of funds approach. In brief, the flow of funds accounts comprise non-financial flows and financial flows. The former part presents the saving, capital formation and capital transfers. The balancing entry of this part is the resources gap. The financial flows depict the borrowing and the lending of states from/to other sectors of the economy. The excess of

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borrowing over their lending is the 'financial deficit'. The financial deficit shown from financial flow accounts matches with the resources gap of the non-financial flows.

The paper is organised in four sections. It discusses, in Section I, the contribution of the state governments towards the net product, saving and capital formation of the public sector. Section II presents receipts and expenditure classified under current and capital accounts. Section III deals with identifying the resources gap and its financing with special reference to sources and modes of finance. The last Section concludes the paper giving its main findings.

The study covers the period from 1961-62 to 1980-81.

Section I

Net Product of State Governments

State governments[2] including their departmental commercial undertakings contribute a significant share towards the Net Domestic Product (NDP). The net value added by the administrative departments as measured by the compensation paid to employees (i.e., salaries and wages and pension payments) while that by the departmental commercial undertakings is obtained as the sum of the compensation of employees and the operating surplus.

The net product of the state governments, at current prices, increased by 12.9 per cent per annum during 1961-62 to 1965-66. Though the growth in net product declined in the second period, it picked up in the later two periods, respectively by 14.1 per cent and 15.7 per cent per annum (Table 1).

Table 1: Average Annual Growth Rates in NDP

Period	NDP*	Net product from public sector	Net product from state governments
I (1961-62 to 1965-66)	9.4	14.1	12.9
II (1966-67 to 1970-71)	10.8	12.8	11.5
III (1971-72 to 1975-76)	12.8 (3.1)	18.1 (..)	14.1 (7.2)
IV (1976-77 to 1980-81)	11.4 (3.3)	13.6 (..)	15.7 (12.4)

* At factor cost, current prices. Figures in brackets are growth rates at 1970-71 prices.

(..) Denotes not available.

It may be seen that the net product of the state governments increased throughout the period at consistently higher rates than the NDP. Compared with the public sector as a whole, growth rates were lower except in the last period. The growth rate in the net domestic product at current prices would also reflect the price increase apart from the rise in product in **real** terms. The net product of the state governments is available at 1970-71 prices from 1970-71 onwards. For public sector, such data are available only for gross product. At 1970-71 prices, the state governments have recorded higher growth rates at 7.2 per cent and 12.4 per cent during 1970-71 to 1975-76 and 1976-77 to 1980-81, respectively, as compared to 3.1 per cent and 3.3 per cent registered by the NDP. Even when the NDP declined in 1972-73 (1.5 per cent) and 1979-80 (5.5 per cent), the net product from state governments has risen by 3.3 per cent and 14.7 per cent, respectively. During the last three years of the period i.e., 1978-79 to 1980-81, the net product, at 1970-71 prices, of the state governments grew impressively at 14.6 to 16.1 per cent, recording the highest rates in Seventies.

The state governments' share in total NDP at current prices has risen from 2.8 per cent to 3.8 per cent during the four quinquennial periods of the study though at constant (1970-71) prices it is less at 3.0 per cent in the last period. However, its share in net product of public sector declined from 23.0 per cent to 19.0 per cent during the same period (Statement 1).

Estimates of Saving

Saving of the state governments showed a gradual increase during the study period excepting for a few years, namely, 1965-66, 1969-70 and 1972-73, when the saving declined over the levels of the previous years. In these years, the economy experienced drought conditions leading to a fall in the agricultural output and necessitating additional non-developmental expenditure by state governments. The year, 1979-80 was, however, an exceptional year which recorded a significant increase (27 per cent) in the saving despite a substantial fall (15 per cent) in the agricultural output. Saving of the state governments rose from Rs. 850 crores in 1974-75 to Rs. 1,259 crores in 1975-76 (Statement 2) and further to Rs. 2,026 crores in 1979-80 but declined to Rs. 1,657 crores in the next year.

It may be observed from Table 2 that the saving of the state governments has risen at a higher rate of 32.0 per cent in period II (1966-67 to 1970-71) as compared to 16.9 per cent in the previous period (1961-62 to 1965-66). The saving further rose by

37.8 per cent during period III (1970-71 to 1975-76). However, the saving growth rate declined to 14.3 per cent during period IV (1976-77 to 1980-81). As against this, saving of the public sector and the net domestic saving increased by 10.2 per cent and 13.2 per cent, respectively, during period II compared to 14.4 per cent and 17.8 per cent during period I. The saving of the public sector recorded the lowest rise (1.5 per cent) during period IV because of the dissaving of central government administration, and losses incurred by the non-departmental non-financial undertakings of the government.

Table 2 : Average Annual Growth Rates in Saving

Period	Net domestic saving	Net saving of	
		Public sector	State governments
I (1961-62 to 1965-66)	17.8	14.4	16.9
II (1966-67 to 1970-71)	13.2	10.2	32.0
III (1971-72 to 1975-76)	20.6	29.4	37.8
IV (1976-77 to 1980-81)	13.6	1.5	14.3

The faster growth in saving of the state governments compared to that of the total public sector resulted in an increased share in the latter and also in aggregate saving (Statement 2). State governments' share in net domestic saving rose from 6.0 per cent to 9.7 per cent during the period under review while in public sector's saving, the share moved up from 22.1 per cent to 44.0 per cent in period II and further to 53.9 per cent in period IV.

Estimates of Capital Formation

The average rate of growth of net capital formation of the states was low compared to that of net saving (Table 3). The net capital formation recorded the lowest growth rates during period II, when there was a significant increase in saving. States' capital formation increased at comparatively lower rates vis-a-vis the public sector except in period II and period IV. The lowest rise in net capital formation was also registered by the public sector

and the economy as a whole during 1966-67 to 1970-71 when NDP rose moderately.

Table 3: Average Annual Growth Rates in Net Domestic Capital Formation (at current prices)

Period	Net domestic capital formation	Net capital formation in	
		Public sector	State governments
I (1961-62 to 1965-66)	12.5	14.6	12.8
II (1966-67 to 1970-71)	10.6	3.7	4.5
III (1971-72 to 1975-76)	18.5	24.5	18.9
IV (1976-77 to 1980-81)	16.7	12.7	19.7

The net capital formation of state governments increased significantly during Seventies which was also reflected in public sector and at national level. However, the estimates of net capital formation in state governments and public sector are not available at 1970-71 prices to measure their real growth.

More than a quarter of the net capital formation in public sector is shared by the state governments throughout the period excepting for a few years when it ranged between 22 — 25 per cent (Statement 3). Over the four quinquennial periods the share has risen from 26.6 per cent to 29.9 per cent. The state governments' share in net domestic capital formation declined from 17.2 per cent in period I (1961-62 to 1965-66) to 14.4 per cent in period II and then risen to 15.7 per cent in period IV.

Viewing the net capital formation of the states by broad asset groups, almost the entire capital formation is in fixed assets (Statement 4). The share of inventories was about 7 to 9 per cent of the net capital formation in the public sector during Sixties which sharply increased to 21.5 per cent during 1971-72 to 1975-76 and then declined to 14.8 per cent in late Seventies. The inventory built-up was very large during 1973-74 to 1980-81 except in 1977-78, reaching

peak at 30.4 per cent in 1975-76. The large increase in inventories of public sector could, perhaps, be attributed to the food procurement operations of the Government. Even in net domestic capital formation, the inventories formed about 13 to 14 per cent in Sixties and about 22 to 25 per cent in Seventies (Statement 5).

The growth in net fixed asset formation of state governments rose from 9.3 per cent in period I to 21.3 per cent in period IV though it grew at a lower rate of 7.3 per cent during period II. In absolute terms, the net fixed capital formation increased from Rs. 1,973 crores in 1961-62 to 1965-66 to Rs. 13,352 crores in 1976-77 to 1980-81. While the administrative departments and the departmental enterprises share the net capital formation almost equally during Sixties, the share of the former increased to 56 per cent during 1971-72 to 1975-76 but declined to 49 per cent in the last period.

Section II

Tax revenues formed about 61.9 per cent of the total revenue receipts of the states in period I and this share has increased to 63.5 per cent in the next period; but declined marginally in period IV to 63.2 per cent. The states' share in Central taxes[4], as a proportion of the former's total revenue receipts, rose from 16.3 per cent in 1961-62 to 1965-66 to 19.1 per cent in 1966-67 to 1970-71 and further rose to 20.9 per cent in 1976-77 to 1980-81. In absolute magnitudes, their revenue from Central taxes has increased from Rs. 1,195 crores in the first period to Rs. 12,636 crores in the last period, registering a multi-fold rise (Statement 7). As a proportion of total Central taxes which are shared by the states, allocation to states has increased from 25.5 per cent in period I to 38.5 per cent in period IV. A sudden spurt in the states' share from about 30 per cent to 46.3 per cent is observed in 1979-80 over its preceding year.[5] Besides the above, the receipts of current grants from the Union government have marginally risen from 16.8 per cent to 17.7 per cent of states' total revenue receipts between the first two periods, but the share stood at 17.4 per cent during late Seventies. Thus, the state governments received about a third of their revenues from the Union government and this share has risen to 38 per cent in late Seventies.

Revenue Receipts[3]

The share of tax receipts in total revenue declined marginally by 0.3 percentage point to 63.2 per cent in the last period due to the larger growth in non-tax revenue receipts compared to the rise

in tax receipts except in period II. Similarly, the states' share in Central taxes also rose faster than the rise in the revenue from states' taxes in period II and IV as may be seen from the following table.

Table 4: Average Annual Growth Rates in Revenue Receipts

Period	Total revenue receipts	Tax Revenue			Non-tax Revenue	
		Total	Revenue from states' taxes	Share in Central taxes	Total	Of which, grants from centre
I (1961-62 to 1965-66)	12.9	12.5	13.8	9.0	13.7	23.3
II (1966-67 to 1970-71)	12.8	15.4	12.7	23.1	8.5	11.5
III (1971-72 to 1975-76)	18.7	17.7	18.5	16.5	21.2	17.7
IV (1976-77 to 1980-81)	15.5	15.4	13.2	21.3	16.7	18.0

The rate of growth in tax collections increased from 12.5 per cent to 17.7 per cent during the periods 1961-66 to 1971-76 but declined to 15.4 per cent in the last period. Growth of revenue receipts has increased from 12.9 per cent per annum in Sixties to 18.7 per cent in the first half of Seventies but declined to 15.5 per cent in the second half of Seventies.

Revenue Expenditure

The revenue expenditure of states is grouped into developmental and non-developmental expenditure. The developmental expenditure formed about 57.7 per cent of total revenue expenditure in period I. It has risen to 70.0 per cent in period IV. The share of non-developmental expenditure during the same period has correspondingly declined. Of the developmental expenditure, 66 per cent was utilised for social and community services during period I, while the remaining was for economic services. The share of the former declined to 56.9 per cent in the last period. Interest payments of the states as a percentage to total revenue expenditure has declined from 12.8 per cent and 15.9 per cent in the first two periods, respectively, to 8.7 per cent in late Seventies.

Comparing the growth rates of revenue expenditure with that of revenue receipts, the former has risen at a faster rate in the first

and the last periods while the reverse is the case for the other two periods. This difference in growth rates is consistent with the growth rates in net saving of the states. The growth in saving was maximum during the periods II and III, i.e., 1966-71 and 1971-76, when the revenue receipts have increased at 12.8 per cent and 18.7 per cent per annum in the same periods and the growth of expenditure was lower at 12.4 per cent and 15.6 per cent, respectively. The revenue account revealed large amounts of surpluses from 1974-75 onwards (Statement 9) which might be due to huge inflow of grants from the Union government and also the increased share in Central taxes.

Capital Account

The capital account of the state budgets provides the capital receipts on one hand, covering borrowing from external sources, transfers from the Union government, deposits from local bodies, inter-state settlements and various funds maintained by them; on the other, the capital expenditure comprises capital outlay, repayment of internal debt, disbursement of loans, financial investment in shares and securities and other transfer payments.

The capital outlay shown in the budgets includes also their financial investment besides the capital formation. However, break-up into these categories is not readily available. The total capital outlay of state governments has increased its share in total capital expenditure. The capital outlay has risen from Rs. 320 crores in 1961-62 to Rs. 3,200 crores in 1980-81 recording ten fold increase in two decades, the rise being sharper after 1972-73. Similar trend was noticed in capital formation of the state governments.

The capital disbursements excluding the capital outlay represents the financial transactions, namely, repayment of internal debt (market loans and loans from Centre, etc.), disbursement of loans and advances and others. These transactions shared about 67.9 per cent of the capital disbursements during 1966-67 to 1970-71 and declined sharply to 57.7 per cent in the last period. The composition of these financial uses as also of the financial sources of funds is further analysed in the next Section.

State governments obtained their funds through their current and capital accounts from i) Union government, ii) their own resource mobilization and iii) external sources, such as, Reserve Bank of India (RBI), commercial banks, Life Insurance Corporation of India and households, etc. While half of the total funds received by the states

are through their own revenues, a little less than half of the resources came from the Union government which (the share) did not increase much during the last two decades. Precisely, the share of the finances provided by the Union government declined from 46.5 per cent to 44.3 per cent between the first and third periods but moved up to 46.1 per cent in the last period. It may also be seen that the share of state governments in total market loans floated by both the Union and State governments has declined to 9.8 per cent during second half of Seventies from 32.2 per cent, during 1966-67 to 1970-71. Thus, states received only about 4.0 per cent of their total resources from financial institutions and household sector (Statement 10). In absolute terms, Centre's total assistance increased from Rs. 701 crores in 1961-62 to Rs. 9,015 crores in 1980-81; states' own resources increased from Rs. 700 crores to Rs. 9,881 crores during the same period.

Section III

The national income accounts provide the data on State governments' income, saving, investment and the composition of investment. The excess of investment over saving is the 'income deficit' or the 'resources gap'. This gap, adjusted for capital transfers, is met by the net increase in their borrowing from other economic units. The flow of funds accounts present all these transactions in a systematic manner. The accounts can be presented in the following table.

Flow of Funds Accounts

Receipts	Disbursements
A. Non-Financial	
(1) Current Account	
(i) Current revenue	(iv) Current expenditure
(ii) Current transfers (net)	(v) Saving
(iii) Total current receipts	(vi) Total current expenditure
(2) Capital Account	
(i) Saving	(iv) Capital formation (Investment)
(ii) Capital transfers (net)	
(iii) Resources gap	

Receipts	Disbursements
B. **Financial**	
(v) Borrowing	(vii) Resources gap (financial deficit)
	(viii) Lending
(vi) Total sources (capital nature A(2)+B)	(ix) Total uses (capital nature)
Total sources (non-financial **plus** financial)	Total uses (non-financial **plus** financial)

The discussion in this Section is restricted to the capital account part of non-financial flows and financial flows. We have the identity from the above table that the sum of saving, capital transfer receipts (net) and borrowing is equal to the total of capital formation and lending. The resources gap, which is the link between financial and non-financial flows, is the net amount required from external sources.

Financing of Capital Formation

The flow of funds accounts representing the above transactions are given below for the four quinquennial periods of the study. It may be seen from Table 5 that the financing of capital formation from internal sources has significantly increased from 27.6 per cent in the first period to 61.6 per cent in the last period, thus, maintaining a steady increase in its share over the period. Further, the state governments received capital transfers (grants) for capital formation from the Union government and such transfers recorded a jump from 2.5 per cent to 13.8 per cent of the net capital formation between the first two periods and further increased to 20.2 per cent in the last period. A phenomenal shift is, thus, noticed in the borrowing of states from external sources to finance their capital formation. This borrowing has steeply declined from 69.9 per cent in the first period to 18.2 per cent in the last period. In addition to their borrowing from other sources, the state governments also perform the financial intermediation by giving loans and investing in shares and securities of different institutions. The deficit derived from financial flows, as sources **minus** uses, differs from the resources gap, mainly because of the non-availability of complete information on capital transfers.

Table 5: Flow of Funds of State Governments

(Rs. crores)

Item/Period	1961-62 to 1965-66	1966-67 to 1970-71	1971-72 to 1975-76	1976-77 to 1980-81@
1. Saving*	555	1,202	3,450	8,101
	(27.6)	(40.5)	(55.1)	(61.6)
2. Capital transfers (net)	50	409	976	2,653
	(2.5)	(13.8)	(15.6)	(20.2)
3. Capital formation*	2,010	2,966	6,254	13,154
	(100.0)	(100.0)	(100.0)	(100.0)
4. Resources gap	1,405	1,355	1,828	2,400
	(69.9)	(45.7)	(29.2)	(18.2)
5. Financial sources	2,571	3,384	5,036	10,637
6. Financial uses	1,194	1,817	3,002	8,416
7. Financial deficit (5-6)	1,377	1,567	2,034	2,221
8. Discrepancy (4-7)	+28	—212	—206	+179

Figures in brackets are percentages to capital formation.
* Net of depreciation.
@ Provisional.

Considering the financing aspect of the resources gap or the financial deficit, banking and government sectors provided the funds to the states with their respective shares at 46.1 per cent and 27.3 per cent in the last period (Table 6). The Central government, which financed the entire deficit on capital account during the first period, could provide funds by way of loans, etc., to the extent of 67.2 per cent and 29.6 per cent in second and third periods. The banking sector stepped up its finances to the states from 16.2 per cent of their deficit in 1961-62 to 1965-66 to 45.0 per cent in 1971-72 to 1975-76 and further to 46.1 per cent in the next period. The finances provided by the RBI, as may be seen from Statement 11 fluctuated over the period. The finances provided by other financial institutions also fluctuated during the period of study. Household sector which was a net borrower of funds, emerged as a lender, financing the gap to the tune of 30.2 per cent; basically in the form of state provident funds and state government insurance fund.

Financing of Resources gap

Table 6: Financing of the Resources Gap* of State Governments

(Rs. crores)

Item/Period	I (1961-62 to 1965-66)	II (1966-67 to 1970-71)	III (1971-72 to 1975-76)	IV (1976-77 to 1980-81)
Total financial deficit financed by	1 374 (100.0)	1,566 (100.0)	2,087 (100.0)	2,221 (100.0)
A. **Sectors**				
1. Banking	222 (16.2)	360 (23.0)	916 (45.0)	1,024 (46.1)
2. Other financial institutions	176 (12.8)	151 (9.7)	602 (29.5)	498 (22.4)
3. Government	1,483 (107.9)	1,052 (67.2)	603 (29.6)	605 (27.3)
4. Private corporate business	—87 (—6.4)	—97 (—6.2)	—189 (—9.3)	—640 (—28.8)
5. Households	—151 (—11.0)	68 (4.3)	—50 (—2.5)	671 (30.2)
6. Unclassified	—268 (—19.5)	31.4 (2.0)	55 (2.7)	63 (2.8)
B. **Instruments**				
1. Currency & deposits	—31 (—2.2)	—15 (—0.9)	390 (19.2)	363 (16.3)
2. Securities	249 (18.1)	114 (7.2)	72 (3.5)	—539 (—24.2)
3. Loans & advances	1,185 (86.2)	1,074 (68.6)	941 (46.2)	937 (42.2)
4. Provident & state insurance funds	104 (7.6)	287 (18.3)	594 (29.1)	1,298 (58.4)
5. Others	—133 (—9.7)	106 (6.8)	40 (2.0)	162 (7.3)

Figures in brackets are percentages to total financial deficit.
* Derived from the financial flow accounts.

State governments' main form of capital resources seem to be in the form of direct loans rather than floatation of securities. Loans (net) constituted about 86.2 per cent of the deficit in 1961-62 to 1965-66. This ratio declined to 42.2 per cent in the last period. The provident funds as a source of capital receipts improved their share remarkably from 7.6 per cent of the deficit in 1961-62 to 1965-66 to 58.4 per cent in the second half of Seventies.

Financial Sources of Funds

The main instrument through which the state governments received their funds was the 'loans' from the Union government and from other sources which may be seen from Statement 11. The share of loans has declined from 93.0 per cent of total sources in 1961-62 to 1965-66 to 68.2 per cent in 1971-72 to 1975-76 but has risen to 77.4 per cent in the second half of Seventies. At the same time, the share of marketable securities of states doubled from 8.1 per cent in 1961-62 to 1965-66 to 19.2 per cent in 1971-72 to 1975-76 before falling steeply to 9.0 per cent in the last period. Direct borrowing of states from households through provident funds has significantly increased from 4.1 per cent in the first period to 12.2 per cent in the last period.

Financial Uses of Funds

Although the state governments draw funds from external sources to meet their capital formation, they also re-lend their funds in the form of loans and financial investments to the state electricity boards, government companies, local bodies, co-operatives and households (only loans). The re-lending operations of the state governments are given in Statement 12. Their main use of funds was in the form of loans and advances, which was about 86.7 per cent during 1976-77 to 1980-81, though it had a higher share in early Seventies. More than half of these loans were lent to the state electricity boards. Their investment in shares and securities formed 17.6 per cent of their uses in 1976-77 to 1980-81, though it stood at 29.8 per cent in the first half of Seventies. The cash balances of the states were over-drawn throughout Seventies except in 1978-79.

Section IV

The following observations emerge from the discussion presented in the foregoing sections.

1. The state governments improved their share in net domestic product and net domestic saving of the economy during the period of study. However, state governments' share in public sector's net product has declined though their share in saving of the public

sector has increased. The states' share in public sector's net capital formation has increased but their share in net domestic capital formation in the economy has decreased during the period of study.

2. The states' share in Central taxes, namely, the income tax (other than corporation tax), estate duty and union excise duties, as a proportion of the former's tax revenue, has increased by 7 percentage points to 33.0 per cent by 1980-81.

3. The revenue from states' share in Central taxes together with the current grants received from the Union government, formed an increasing proportion of the total revenue receipts of state governments, the rise being from 33.1 per cent in 1961-62 to 1965-66 to 38.2 per cent in 1976-77 to 1980-81.

4. It appeared that the large revenue surpluses of the states after 1973-74 were mainly because of the Centre's assistance through current grants.

5. The financing of the capital formation of the states through their own resources, namely, saving, has increased significantly. Besides, the rise in capital transfers received from the Union government also enabled the state governments to depend less on external borrowing to finance their capital formation during the period of study.

6. The central government was the main source of finance to the state governments in meeting their resource gap in Sixties whereas the banking institutions emerged as prime financiers to bridge the gap in Seventies.

7. The state governments opted direct borrowings instead of issuing securities to mobilise external resources. Further, inflow of capital receipts from households in the form of provident funds have increased the resource mobilization in meeting the financial deficit.

8. Even among external resources, the state governments' loan receipts from the Union government were financing nearly two thirds of the capital formation; this not considering the capital transfers from the Union government, which in Seventies financed 15 to 20 per cent of capital formation of states.

It is suggested that the Central Statistical Organization may publish the data on net product and net capital formation of state governments at 1970-71 prices for the period prior to 1970-71 which would be useful for further analytical studies. Although a few states are preparing the 'Economic and Functional Classification' of their budgets, its availability for all states on a more up-to-date basis would throw light on the classification of the budgetary transactions for a more meaningful interpretation.

Statement — 1: Net Product of State Governments*
(at current prices)

(Rs. Crores)

Year	Net Domestic Product (NDP) at factor cost	Net Product of		Percentage Share of State Governments in	
		Public Sector	State Governments@	NDP	Net Product of Public Sector
1	2	3	4	5	6
1961-62	14085	1602	383	2.7	23.9
1962-63	14903	1836	422	2.8	23.0
1963-64	17089	2133	486	2.8	22.8
1964-65	20148	2381	538	2.7	22.6
1965-66	20801	2743	629	3.0	22.9
1966-67	24078	3068	694	2.9	22.6
1967-68	28312	3465	793	2.8	22.9
1968-69	28862	3939	891	3.0	22.6
1969-70	31877	4471	965	3.1	21.6
1970-71	34519	5007	1072	3.1	21.4
1971-72	36864	5621	1222	3.3	21.7
1972-73	40572	6214	1324	3.3	21.3
1973-74	50749	7228	1526	3.0	21.1
1974-75	59737	9526	1798	3.0	18.9
1975-76	62324	11374	2065	3.3	18.2
1976-77	66987	13379	2390	3.6	17.9
1977-78	75769	14526	2654	3.5	18.3
1978-79	81279	16136	3065	3.8	19.0
1979-80	88219	18458	3594	4.1	19.5
1980-81	106209	21448	4282	4.0	20.0
1961-62 to 1965-66	87026	10695	2458	2.8	23.0
1966-67 to 1970-71	147648	19950	4415	3.0	22.1
1971-72 to 1975-76	250246	39963	7935	3.2	19.9
1976-77 to 1980-81	418463	83947	15985	3.8	19.0

* Includes their departmental undertakings.

@ Derived.

Statement — 2: Net Saving of State Governments*

(Rs. Crores)

Year	Net Domestic Saving (NDS)	Net Saving of Public Sector	Net Saving of State Governments	Percentage Share of State Governments in	
				NDS	Net Saving of Public Sector
1	2	3	4	5	6
1961-62	1281	363	49	3.8	13.5
1962-63	1544	408	117	7.6	28.7
1963-64	1825	539	117	6.4	21.7
1964-65	2023	611	175	8.7	28.6
1965-66	2562	592	97	3.8	16.4
1966-67	3112	407	190	6.1	46.7
1967-68	2939	355	217	7.4	61.1
1968-69	3011	522	251	8.3	48.1
1969-70	4129	645	221	5.3	34.3
1970-71	4566	804	323	7.1	40.2
1971-72	5099	762	484	9.5	63.5
1972-73	5100	739	324	6.4	43.8
1973-74	8369	1081	533	6.4	49.3
1974-75	9127	1971	850	9.3	43.1
1975-76	10800	2493	1259	11.7	50.5
1976-77	13357	3114	1459	10.9	46.9
1977-78	14543	2888	1379	9.5	47.8
1978-79	17972	3292	1580	8.8	48.0
1979-80	17447	3215	2026	11.6	63.0
1980-81	20024	2513	1657	8.3	65.9
1961-62 to 1965-66	9235	2513	555	6.0	22.1
1966-67 to 1970-71	17757	2733	1202	6.8	44.0
1971-72 to 1975-76	38495	7046	3450	9.0	49.0
1976-77 to 1980-81	83343	15022	8101	9.7	53.9

* Includes their departmental undertakings.

Statement — 3 : Net Capital Formation of State Governments*
(at current prices)

(Rs. Crores)

Year	Net Domestic Capital Formation (NDCF)	Net Capital Formation (NCF) in		Share of State Governments in	
		Public Sector	State Governments@	NDCF	NCF in Public Sector
1	2	3	4	5	6
1961-62	1626	1016	307	18.9	30.2
1962-63	1984	1287	362	18.2	28.1
1963-64	2265	1511	361	15.9	23.9
1964-65	2623	1742	418	15.9	24.0
1965-66	3161	1999	562	17.8	28.1
1966-67	4035	1874	465	11.5	24.8
1967-68	3776	2019	586	15.5	29.0
1968-69	3427	1831	616	18.0	33.6
1969-70	4370	1871	629	14.4	33.6
1970-71	4960	2324	670	13.5	28.8
1971-72	5577	2649	828	14.9	31.3
1972-73	5397	3014	1129	20.9	37.5
1973-74	8761	4088	1443	16.5	35.3
1974-75	9780	4959	1331	13.6	26.8
1975-76	10683	6831	1523	14.3	22.3
1976-77	12048	7513	1762	14.6	23.4
1977-78	13078	6283	2008	15.4	32.0
1978-79	18100	8336	2543	14.0	36.5
1979-80	18027	10205	3112	17.3	30.5
1980-81	22424	11693	3729	16.6	31.9
1961-62 to 1965-66	11659	7555	2010	17.2	26.6
1966-67 to 1970-71	20568	9919	2966	14.4	29.9
1971-72 to 1975-76	40198	21541	6254	15.6	29.0
1976-77 to 1980-81	83677	44030	13154	15.7	29.9

* Includes their departmental undertakings.

@ Derived.

Statement — 4: Capital Formation of State Governments by broad asset groups and type of authority

(Rs. Crores)

Year	Net Fixed Capital Formation (NFCF) in			Change in Stocks			Net Capital Formation in		
	Administrative Depts. (ADS)	Departmental Enterprises (DES)	TOTAL (2+3)	ADS	DES	TOTAL (5+6)	Admn. Depts. (ADS)	Dept. Enterprises (DES)	TOTAL (8+9)
1	2	3	4	5	6	7	8	9	10
1961-62	169	155	324	—18	1	—17	151	156	307
1962-63	177	168	345	5	12	17	182	180	362
1963-64	184	194	378	—17	—	—17	167	194	361
1964-65	218	216	434	—19	3	—16	199	219	418
1965-66	250	242	492	55	15	70	305	257	562
1966-67	306	221	527	—76	14	—62	230	235	465
1967-68	288	232	520	65	1	66	353	233	586
1968-69	307	273	580	27	9	36	334	282	616
1969-70	330	290	620	—	9	9	330	299	629
1970-71	369	327	696	—33	7	—26	336	334	670
1971-72	499	375	874	—62	16	—46	437	391	828
1972-73	704	496	1200	—60	—11	—71	644	485	1129
1973-74	882	547	1429	14	—	14	896	547	1443
1974-75	635	573	1208	93	30	123	728	603	1331
1975-76	711	697	1408	90	25	115	801	722	1523
1976-77	827	1025	1852	—80	—10	—90	747	1015	1762

Statement — 4: Capital Formation of State Governments by broad asset groups and type of authority (Concld.)

(Rs. Crores)

Year	Net Fixed Capital Formation (NFCF) in			Change in Stocks			Net Capital Formation in		
	Administrative Depts. (ADS)	Departmental Enterprises (DES)	TOTAL (2+3)	ADS	DES	TOTAL (5+6)	Admn. Depts. (ADS)	Dept. Enterprises (DES)	TOTAL (8+9)
1	2	3	4	5	6	7	8	9	10
1977-78	958	1181	2139	—158	27	—131	800	1208	2008
1978-79	1298	1333	2631	—127	39	—88	1171	1372	2543
1979-80	1516	1535	3051	39	22	61	1555	1557	3112
1980-81	1907	1772	3679	49	1	50	1956	1773	3729
1961-62 to 1965-66	998	975	1973	6	31	37	1004	1006	2010
1966-67 to 1970-71	1600	1343	2943	—17	40	23	1583	1383	2966
1971-72 to 1975-76	3431	2688	6119	75	60	135	3506	2748	6254
1976-77 to 1980-81	6506	6846	13352	—277	79	—198	6229	6925	13154

Statement — 5: Share of Change in Stocks in Net Domestic Capital Formation (NDCF)

(at current prices)

(Rs. Crores)

Year	Aggregate			Public Sector		
	NDCF	Change in Stocks	Share of Col. (3) in Col. (2)	NDCF	Change in Stocks	Share of Col. (6) in Col. (5)
1	2	3	4	5	6	7
1961-62	1868	270	14.45	1016	40	3.94
1962-63	2119	387	18.26	1287	133	10.33
1963-64	2528	380	15.03	1511	119	7.88
1964-65	2957	410	13.87	1742	124	7.12
1965-66	3198	295	9.22	1999	170	8.50
1966-67	3914	715	18.27	1874	88	4.70
1967-68	4149	623	15.02	2019	319	15.80
1968-69	3854	164	4.26	1831	56	3.06
1969-70	5561	578	10.39	1871	69	3.69
1970-71	5127	1039	20.27	2324	379	16.31
1971-72	6012	1337	22.24	2649	363	13.70
1972-73	5857	460	7.85	3014	—12	—0.40
1973-74	8329	2323	27.89	4988	805	19.65
1974-75	10983	3579	32.59	4059	1392	28.07
1975-76	12372	3170	26.62	6831	2077	30.41
1976-77	13192	2402	18.21	7513	1465	19.50
1977-78	13613	1402	10.30	6283	—247	—3.93
1978-79	17284	4132	23.91	8336	1273	15.27
1979-80	19492	5143	26.39	10205	1822	17.85
1980-81	22472	6418	28.56	11693	2186	18.69
1961-62 to 1965-66	12670	1742	13.75	7555	586	7.76
1966-67 to 1970-71	22605	3119	13.80	9919	911	9.18
1971-72 to 1975-76	43553	10869	24.96	21541	4625	21.47
1976-77 to 1980-81	86054	19497	22.66	44030	6499	14.76

Statement — 6: Revenue Receipts and Expenditure of State Governments

(Rs. Crores)

Year	Total Revenue Receipts (5+6)	Tax-Revenue			Total Non-tax Revenue	of which:
		Revenue from State Taxes	Share in Central Taxes	Total (3+4)		Grants from Centre
1	2	3	4	5	6	7
1961-62	1073	484	179	663	411	195
1962-63	1284	570	224	794	490	209
1963-64	1490	681	258	939	551	229
1964-65	1635	765	258	1023	612	270
1965-66	1850	842	276	1118	732	330
1966-67	2135	938	368	1306	830	397
1967-68	2433	1079	407	1486	947	453
1968-69	2817	1221	487	1708	1108	494
1969-70	3053	1356	625	1981	1072	531
1970-71	3371	1528	756	2284	1087	566
1971-72	4045	1695	942	2637	1407	852
1972-73	4912	1929	1061	2990	1923	926
1973-74	5552	2306	1162	3468	2084	937
1974-75	6432	2881	1228	4109	2322	1022
1975-76	7938	3546	1599	5145	2793	1219
1976-77	9031	4043	1680	5723	8324	1505
1977-78	9931	4349	1806	6155	3776	1838
1978-79	11647	4970	1953	6923	4724	2473
1979-80	13629	5669	3408	9077	4557	2086
1980-81	16293	6616	3789	10405	5888	2623
1961-62 to 1965-66	7332	3342	1195 (26.3)	4537 (61.9)	2796	1233 (16.8)
1966-67 to 1970-71	13809	6122	2643 (30.2)	8765 (63.5)	5044	2441 (17.7)
1971-72 to 1975-76	28879	12357	5992 (32.7)	18349 (63.5)	10529	4956 (17.2)
1976-77 to 1980-81	60531	25647	12636 (33.0)	38273 (63.2)	22260	10525 (17.4)

Statement — 6: Revenue Receipts and Expenditure of State Governments (Concluded)

(Rs. Crores)

Year	Total Revenue Expenditure (9+12)	Developmental Expenditure			Total Non-Developmental Expenditure	of which : Interest Payments
		Total (10+11)	Social & Community Services	Economic Services		
1	8	9	10	11	12	13
1961-62	1121	660	438	222	461	100
1962-63	1261	720	477	243	541	153
1963-64	1412	798	534	264	614	198
1964-65	1585	913	610	303	672	207
1965-66	1892	1103	711	392	789	269
1966-67	2194	1213	783	430	981	356
1967-68	2440	1369	967	402	1071	376
1968-69	2794	1563	1126	437	1231	433
1969-70	3101	1630	1153	477	1472	499
1970-71	3390	1844	1312	532	1546	546
1971-72	4039	2156	1522	634	1883	624
1972-73	4982	3349	2079	1270	1532	470
1973-74	5669	3743	2327	1416	1867	552
1974-75	6037	4103	2425	1678	1862	674
1975-76	6967	4709	2798	1911	2183	688
1976-77	7940	5369	3138	2231	2478	757
1977-78	8911	6126	3545	2581	2682	822
1978-79	10511	7378	4118	3260	3003	953
1979-80	12081	8601	4865	3736	3303	942
1980-81	14808	10515	5957	4558	4088	1226
1961-62 to	7271	4194	2770	1424	3077	927
1965-66		(57.7)	(66.1)			(12.8)
1966-67 to	13919	7619	5341	2278	6301	2210
1970-71		(54.7)	(70.9)			(15.9)
1971-72 to	27694	18060	11151	6909	9377	3008
1975-76		(65.2)	(61.7)			(10.9)
1976-77 to	54251	37989	21623	16366	15554	4700
1980-81		(70.0)	(56.9)			(8.7)

Notes:

(1) Figures in brackets in columns 5 and 7 are percentages to total revenue receipts and those under column (4) are with respect to total tax revenue.

(2) Figures in brackets in columns 9 and 13 are percentages to total revenue expenditure and those under column (10) are with respect to total developmental expenditure.

(3) Owing to the non-availability of data on the 'compensation and assignments' into developmental and non-developmental expenditure, they are not included from 1972-73 onwards under columns 9 & 12 and therefore do not add-up to column 8.

Statement — 7: Share of State Governments in Central Taxes

(Rs. Crores)

Year	Central Taxes @	States' Share in Central Taxes	Percentage share of Col. (3) in Col. (2)
1	2	3	4
1961-62	659	179	27.2
1962-63	789	224	28.4
1963-64	993	258	26.0
1964-65	1074	258	24.0
1965-66	1176	276	23.5
1966-67	1349	368	27.4
1967-68	1481	407	27.5
1968-69	1706	487	28.6
1969-70	1980	625	31.6
1970-71	2240	756	33.8
1971-72	2607	942	36.1
1972-73	2964	1061	35.8
1973-74	3357	1162	34.6
1974-75	4115	1228	29.8
1975-76	5071	1599	31.5
1976-77	5443	1680	30.9
1977-78	5462	1806	33.1
1978-79	6558	1953	29.8
1979-80	7365	3408	46.3
1980-81	8023	3789	47.2
1961-62 to 1965-66	4690	1195	25.5
1966-67 to 1970-71	8754	2644	30.2
1971-72 to 1975-76	18114	5992	33.1
1976-77 to 1980-81	32851	12636	38.5

@ Includes income tax (other than corporation tax), estate duty and union excise duties.

Statement — 8: Capital Outlay of State Governments

(Rs. Crores)

Year	Total Disbursements	Capital Outlay			Other Capital disbursements*
		Total (4+5)	Developmental	Non-Developmental	
1	2	3	4	5	6
1961-62	669	320	315	5	349
1962-63	749	355	331	24	394
1963-64	914	363	350	13	551
1964-65	1033	401	401	—	632
1965-66	1324	491	404	87	833
1966-67	1145	357	421	—64	788
1967-68	1395	486	426	60	909
1968-69	1668	557	515	42	1111
1969-70	1687	511	500	11	1176
1970-71	1784	556	584	—28	1228
1971-72	2131	668	706	—38	1463
1972-73	2392	740	718	22	1652
1973-74	2592	984	953	31	1608
1974-75	2597	1110	1087	23	1487
1975-76	3493	1406	1382	24	2087
1976-77	3932	1655	1623	32	2277
1977-78	4447	1853	1818	35	2594
1978-79	5267	2287	2244	43	2980
1979-80	6008	2675	2626	49	3333
1980-81	7962	3200	3129	71	4762
1961-62 to 1965-66	4689	1930 (41.2)	1801 (38.4)	129	2759 (58.8)
1966-67 to 1970-71	7679	2467 (32.1)	2446 (31.8)	21	5212 (67.9)
1971-72 to 1975-76	13205	4908 (37.2)	4846 (36.7)	62	8297 (62.8)
1976-77 to 1980-81	27616	11670 (42.3)	11440 (41.4)	230	15946 (57.7)

Figures in brackets are percentages to total disbursements.

* Includes discharge of internal debt, repayment of loans to Centre, loans and advances to third parties and others.

Statement — 9: Overall Surplus/Deficit of State Governments

(Rs. Crores)

Year	Revenue Account			Capital Account			Overall Surplus (+)/ Deficit (—)
	Receipts	Expenditure	Net Surplus (+) or Deficit (—)	Receipts	Disbursements	Net Surplus (+) or Deficit (—)	
1.	2.	3.	4.	5.	6.	7.	8.
1961-62	1074	1121	—47	700	669	+31	—16
1962-63	1284	1261	+23	778	749	+29	+52
1963-64	1490	1412	+78	865	914	—49	+29
1964-65	1635	1584	+51	1038	1033	+5	+56
1965-66	1850	1892	—42	1309	1324	—15	—57
1966-67	2135	2194	—59	1224	1145	+79	+20
1967-68	2433	2440	—7	1348	1395	—47	—54
1968-69	2817	2794	+23	1486	1668	—182	—159
1969-70	3053	3101	—48	1836	1687	+149	—101
1970-71	3371	3390	—19	1700	1784	—84	—103
1971-72	4045	4039	+6	1828	2131	—303	—297
1972-73	4912	4982	—70	2875	2392	+483	+413
1973-74	5552	5669	—117	2483	2592	—109	—226
1974-75	6432	6037	+395	2171	2596	—425	—30
1975-76	7938	6967	+971	2596	3493	—897	+74
1976-77	9037	7940	+1097	2885	3932	—1047	+50
1977-78	9931	8911	+1020	3198	4447	—1249	—229
1978-79	11647	10511	+1136	5142	5267	—125	+1011
1979-80	13629	12081	+1548	4272	6008	—1736	—188
1980-81	16293	14808	+1485	5579	7962	—2383	—898
1961-62 to 1965-66	7333	7270	+63	4690	4689	+1	+64
1966-67 to 1970-71	13809	13919	—110	7594	7679	—85	—195
1971-72 to 1975-76	28879	27694	+1185	11953	13204	—1251	—66
1976-77 to 1980-81	60537	54251	+6286	21076	27615	—6541	—255

Statement — 10: Share of Centre's total assistance in total resources of State Governments

(Rs. Crores)

Year	Centre's total assist-ance†	States' own resources*	Borrowings from external sources	Total resources (2+3+4)
1	2	3	4	5
1961-62	701	700	103	1504
1962-63	824	851	81	1756
1963-64	1000	1123	—24	2089
1964-65	1016	1107	65	2188
1965-66	1215	1244	224	2683
1966-67	1505	1170	—22	2653
1967-68	1469	1573	124	3166
1968-69	1405	1835	289	3529
1969-70	1724	1897	404	4025
1970-71	1845	2049	414	4308
1971-72	2376	2250	463	5089
1972-73	3451	2926	—174	6203
1973-74	2990	3452	426	6868
1974-75	3094	4181	421	7696
1975-76	3689	5120	534	9343
1976-77	4252	5862	400	10514
1977-78	5325	6287	573	12185
1978-79	7659	7221	300	15180
1979-80	8265	8140	654	17059
1980-81	9015	9881	1071	19967
1961-62 to	4756	5025	449	10230
1965-66	(46.5)	(49.1)	(4.4)	(100.0)
1966-67 to	7948	8524	1209	17681
1970-71	(45.0)	(48.2)	(6.8)	(100.0)
1971-72 to	15600	17929	1670	35199
1975-76	(44.3)	(51.0)	(4.7)	(100.0)
1976-77 to	34516	37391	2998	74905
1980-81	(46.1)	(49.9)	(4.0)	(100.0)

† Includes i) states' share in Central taxes, ii) current transfers, iii) capital transfers and iv) loans from Union government.

* Includes states' tax revenue and non-tax revenue receipts excluding grants from Centre.

Statement — 11 : State Governments — Financial Sources of Funds

(Rs. Crores)

Year	Market Loans	Borrowings			Provident Funds+	Total Financial Sources @
		Total	Of which			
			Central Government	RBI		
1	2	3	4	5	6	7
1961-62	66	324	302	12	14	405
1962-63	68	351	362	—25	14	443
1963-64	—34	516	480	21	21	456
1964-65	40	496	447	31	27	512
1965-66	68	705	531	128	29	755
1966-67	60	541	641	—115	29	619
1967-68	63	553	512	31	40	636
1968-69	75	481	333	139	59	622
1969-70	105	430	423	—58	82	727
1970-71	114	569	366	201	77	780
1971-72	103	638	373	255	92	836
1972-73	168	796	1244	—492	98	1070
1973-74	164	756	633	107	124	1059
1974-75	228	632	583	6	136	1004
1975-76	304	614	533	—1	144	1067
1976-77*	187	732	727	—61	198	1127
1977-78*	185	1279	1121	169	214	1694
1978-79*	195	2172	2361	—246	261	2661
1979-80*	193	1979	1866	172	319	2520
1980-81*	195	2071	1564	23	307	2635
1961-62 to 1965-66	208 (8.1)	2392 (93.0)	2122	167	105 (4.1)	2571
1966-67 to 1970-71	407 (12.0)	2574 (76.1)	2275	198	287 (8.5)	3384
1971-72 to 1975-76	967 (19.2)	3436 (68.2)	3366	—129	594 (11.8)	5036
1976-77 to 1980-81*	955 (9.0)	8233 (77.4)	8326	57	1299 (12.2)	10637

Figures in brackets are percentages to total financial sources.

@ Total of columns (2), (3) and (6) do not add-up to column (7) because it includes other sources of funds.

\+ Includes state insurance fund.

* Provisional.

Statement — 12: State Governments — Financial Uses of Funds

(Rs. Crores)

Year	Cash Balances	Loans & Advances		Investments	Total Financial Uses
		Total	Of which, to Electricity Boards @		
1	2	3	4	5	6
1961-62	—1	127	59	—8	118
1962-63	11	138	65	22	171
1963-64	—15	229	119	53	267
1964-65	26	287	148	—4	309
1965-66	8	425	215	—104	329
1966-67	—19	333	194	55	369
1967-68	—31	314	175	27	310
1968-69	—9	272	139	110	373
1969-70	—11	254	165	60	303
1970-71	85	327	186	51	462
1971-72	—57	389	206	115	447
1972-73	—88	540	352	181	634
1973-74	—66	369	254	97	401
1974-75	—155	528	346	173	546
1975-76	—25	670	478	329	974
1976-77*	—42	932	658	220	1110
1977-78*	—99	1189	802	259	1349
1978-79*	361	1478	705	754	2593
1979-80*	—267	1726	843	395	1854
1980-81*	—317	1970	962	—143	1510
1961-62 to	29	1206	363	—41	1194
1965-66	(2.4)	(101.0)		(—3.4)	
1966-67 to	15	1500	859	303	1817
1970-71	(0.8)	(82.6)		(16.6)	
1971-72 to	—391	2496	1636	895	3002
1975-76	(—30.0)	(83.1)		(29.8)	
1976-77 to	—364	7295	3970	1485	8416
1980-81*	(—4.3)	(86.7)		(17.6)	

Figures in brackets represent percentages to total financial uses.
@ Includes housing boards upto 1969-70.
* Provisional.

Statement — 13: Financial Sources and Uses of Funds of State Governments — By Sectors

(Rs. Crores)

Sector/Period	1961-62 to 1965-66	1966-67 to 1970-71	1971-72 to 1975-76	1976-77 to 1980-81@
1	2	3	4	5
1. Banking	285.3	534.8	699.6	1060.9
2. Other financial institutions	175.5	157.9	611.2	591.4
3. Government	2115.9	2259.0	3367.8	7689.8
4. Private corporate sector	0.6	5.3	6.0	55.3
5. Households	105.0	304.2	267.4	1147.3
6. Others	—112.0	122.2	85.6	92.1
Total financial sources	**2570.3**	**3383.4**	**5037.6**	**10636.8**
1. Banking	63.2	174.3	—216.1	37.0
2. Other financial institutions	—	6.8	9.2	93.7
3. Government	633.2	1206.7	2765.1	7084.4
4. Private corporate sector	88.2	102.4	194.6	695.2
5. Households	255.9	236.1	217.2	476.6
6. Others	155.8	90.8	31.0	28.7
Total financial uses	**1196.3**	**1817.1**	**3001.0**	**8415.6**

@ Provisional.

FOOT-NOTES

1. See page No. 184.
2. The term, state governments hereafter include also their departmental commercial undertakings unless otherwise specified.
3. The presentation of Revenue and Capital accounts given in the budgets of the state governments has been revised from the year 1972-73 (Accounts) onwards. Due to this classificatory change, the broad interpretations made in the paper, however, would not be affected.
4. Relate to income tax (other than corporation tax), estate duty and union excise duties only.
5. According to the recommendations of the Seventh Finance Commission, the devolution of tax proceeds in respect of union excise duties has been doubled to 40 per cent from its share as per the Sixth Finance Commission, besides raising the states' share in income-tax by 5 points to 85 per cent. In absolute terms, of the total receipts of union excise duties amounting to Rs. 5,367 crores and Rs. 6,011 crores during 1978-79 and 1979-80, respectively, the states' share increased from Rs. 1,240 crores to Rs. 2,530 crores during the two years.

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BOOK REVIEW

Impact of Differential Rate of Interest Scheme, by O. P. Chawla, K. V. Patel and N. B. Shete (National Institute of Bank Management, Bombay-400 006, Pages XVI + 177, Price Rs. 55)

The book under review is a study on the impact of the Differential Rate of Interest (DRI) Scheme undertaken by some faculty members of the National Institute of Bank Management (NIBM), at the instance of the Banking Division of the Department of Economic Affairs, Ministry of Finance, Government of India. The main objectives of the study were (a) to ascertain whether the DRI lending was reaching the intended beneficiaries, (b) to evaluate whether the scheme was achieving the purpose of assisting these people to improve their socio-economic conditions and (c) to bring out strong and weak points of the DRI Scheme and the difficulties, if any, experienced in its implementation. The study was taken up by the NIBM team in 1981 and the Report containing its findings was submitted in December 1982.

The main findings of the NIBM study are both interesting as well as disheartening. For instance, the study team found that the DRI Scheme has penetrated in a large number of small and far-flung places in the country and made small people conscious of the efforts being made for their economic up-lifting by the Government and the banks. This can be seen from the spectacular growth in the number of borrowal accounts and the amount of DRI loan outstanding since the inception of the DRI Scheme in 1972 till December 1981. The average loan amount per borrowal account has also increased nearly three-fold over the period. The proportion of DRI loans to banks' total advances too has increased during the same period from 0.02 per cent to 1.17 per cent, thereby exceeding the target of 1 per cent set under the modified DRI Scheme. There is also an improvement in the coverage of scheduled castes/scheduled tribes under the scheme, the share of these categories of borrowers in total DRI advances of banks being 47.9 per cent in 1981, as compared to the target of 40 per cent set for such advances. Further, 73.2 per cent of the banks' DRI advances in 1981 were channeled through their rural/semi-urban branches, as compared to the target of two-thirds fixed for advances in these areas.

However, the NIBM study has highlighted some disturbing features in the working of the DRI Scheme, which were noticed in the course of the field survey. It was found that many people were not

aware of the DRI Scheme or about the benefits it conferred on the borrowers. Further, it was noticed that many ineligible borrowers had managed to secure loan assistance under the DRI Scheme by understating their family incomes. In a large number of borrowal accounts, the loan amount sanctioned, the amount actually needed for the activity/scheme, the loan terms and periodicity of repayments were mismatched, thus sowing the seeds of borrower delinquency and non-fulfilment of DRI objectives right from the beginning. The study team found that while the bulk of the DRI loan applications was sanctioned without any delay, in some cases the introduction of an intermediary like Government agencies tended to lengthen the loan sanctioning process rather than shortening it.

As regards repayment and overdues, the study notes that there has been a deterioration both in terms of amount of loan and number of borrowers. Secondly, the study team found that lending for different purposes yields different results and there are differences in repayment behaviours of various classes of borrowers. For instance, direct lending to borrowers without involvement of Government agencies resulted in better repayment. Similarly, repayment behaviour of Government subsidy recipients was worse than those who did not receive any subsidy. Inadequate or excessive loan amounts, inappropriate repayment periods and lax supervision of credit by the banks were some of the principal causes of poor repayment performance. In conclusion, the study observes that while some borrowers have recorded positive changes in their economic conditions as a result of DRI assistance, a large number of them have not.

Taking an overall view of the NIBM study, it could be stated without any hesitation that it is a commendable effort of the NIBM who completed the task in a relatively short period. It may be mentioned here that at least seven public sector banks have already completed their studies on the subject of DRI lending. However, the objective of their studies was limited viz., to evaluate their own performance in the area of DRI lending and in fulfilling various targets and sub-targets fixed. As against this, the NIBM study had wider objectives and, perhaps because of its independent status, it has been able to make various bold suggestions/comments on the DRI Scheme. For instance, the NIBM study observes that the Government agencies are anxious to identify borrowers and get the loans sanctioned to them from the banks, but thereafter their concern ends and the banks' concern begins ! About the recipients of the Government subsidy, the study poses a question : Should some families enjoy twin benefits of subsidy and DRI assistance, when there are others who are

not covered even under the DRI ? The study also makes a suggestion for raising the rate of interest of DRI loans from the existing 4 per cent to 7-8 per cent to motivate the banks to take more intensive action in the areas of loan supervision and recovery. In the end, it may be stated that the utility of the NIBM's study would have been further enhanced if the proformae of the questionnaires devised by them for interviewing bank branch managers, DRI borrowers and non-DRI borrowers had been appended to the study. This would have served as a guide to other banks intending to conduct similar studies individually in future.

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Inflation, Tax Rules and Capital Formation, by Martin Feldstein (National Bureau of Economic Research, USA, 1983, $ 25.49)

The book is a collection of research papers written by him and published in various journals between 1975-81. These papers stress the importance of the interaction between tax rules and interest rates in stationary situations. They reinterpret problems faced in the standard fiscal and monetary policies in achieving the central macroeconomic goal of growth avoiding inflation and unemployment and show how the standard Keynesian analysis is unsuitable in the modern economic environment when taxation affects asymmetrically households' aggregate demand and savings and firms' capital formation and the investment composition. The researches reported in this book analyse in considerable theoretical detail and by inclusion of explicit specification of the impact of tax rules on the working of various facets of economy in a simple macroeconomic equillibrium frame-work. This volume is divided into four parts. The first part is the most technical wherein the traditional neoclassical models of monetary growth are extended by including specific tax and debt management policies. The second part deals with these models and their implications. The subsequent parts present theoretical as well as empirical investigations of the interaction between inflation in United States in the 1960s and 1970s and the concurrent tax rules. In these papers, the impact of this interaction on effective tax rates, on market rate of interest, on the prices of common stock and other portfolio assets and on business investments in plant and equipment is assessed. The book contains 14 chapters, the first two are introduction to the subsequent chapters. A chapterwise review is given below.

James Tobin (1965) had drawn the famous conclusion that inflation increases capital intensity by analyzing an economy in which all taxes were assumed to be of a lumpsum variety. The one sector neoclassical economic growth model developed in Chapter III of the book departs from the Tobin model in two ways: (i) the saving rate depends on the net real rate of return earned by savers and (ii) there are personal and corporate interest income taxes as well as a lumpsum tax. The steady state of economy is characterized by an inflation rate π, a nominal interest rate i, and the real rate of interest $r = i - \pi$. For considering the effect of adjusting the tax treatment for the rate of inflation, separate tax rates for the real and inflation components have to be specified. Assuming that the personal income tax will tax real interest payments at Θ_1 and the inflation component at Θ_2, the net nominal rate of return work

to i_N — $(1-\Theta_1)$ r + $(1-\Theta_2)$ π. The model developed by the author consists of six equations. First relation assumes an aggregate production function with constant returns to scale. The second relation explains the demand for capital while the third the liquidity preference of the households. The fourth postulates the supply of savings, the fifth the growth equilibrium and sixth an identity. The exogeneous variables are the rate of population growth and the government policy variables Θ_1, Θ_2, the tax deductions of interest payments and the rate of growth in money supply. The model is based on two important assumptions (i) all corporate investment is financed by debt, equivalently, only debt finance is used at the margin so that the corporate income tax produces revenue for the government because it taxes the intra marginal equity income and (ii) firms use a correct measure of economic depreciation in calculating taxable profits, in particular, inflation does not reduce the value of depreciation allowances. Under these assumptions, the author had concluded that the most likely effect of an increase in the rate of inflation is a fall in the real net rate of interest received by savers and therefore a decrease in the capital intensity of production in the economy. In the subsequent chapter, the first assumption is relaxed, by assuming that firms finance investment by issuing both debt and equity. Since the interest rate and the equity yield that a firm must pay are increasing functions of the firm's debt-equity ratio, the firm can choose an optimal debt equity ratio that minimizes its total cost of capital. The debt equity ratio depends on the tax rate and on the rate of inflation. In this paper, a model of the growing economy and of the firm's financial behaviour is presented, and the author investigates the effects of inflation on the debt equity ratio and the real net yields to debt and equity. He discusses the nature of complete adjustment of the tax law to neutralize the effect of inflation and the effect of partial adjustment.

In Chapter V, the long run impact of fiscal policies on inflation and capital formation was studied by using an expanded monetary growth model in which the government finances its deficit by issuing both money and interest-bearing debt. One important conclusion of the paper is that a permanent increase in the government's real deficit in a fully employed economy must raise the rate of inflation or lower the capital intensity of production or both. The paper also determines the debt management policy (and the corresponding change in the interest rate) that would be required to maintain either a constant inflation rate or a constant capital-labour ratio. When the yield on capital becomes so low that individuals prefer to hold government bonds rather than the more risky claims to real

capital, the problem of "excessive saving" occurs. The author proves that there is no problem of excessive saving if (i) investors are willing to hold real capital even though the differential between its yield and that on government bonds is narrowed and (ii) the government reduces the interest rate on government bonds by expanding the money supply more rapidly than the stock of bonds. When these conditions are met, an increase in saving can be absorbed in greater capital intensity without any change in either inflation or the government deficit.

In Chapter VI, an explicit analysis of the effect of inflation on the equilibrium demand for housing capital is presented by considering a monetary growth model with taxation of nominal corporate and household income. The model of Chapter III & IV is extended to include both a general goods sector and an owner occupied housing sector. The earlier models are simplified by assuming that both savings and money demand are inelastic and that all investment is financed by debt. Within this framework, the analysis shows that an increase in the rate of inflation raises the amount of housing stock per person and reduces the amount of plant and equipment. If the saving rate is an increasing function of the real net of tax return, the total of both types of capital would be reduced but the change in the mix in favour of housing would remain.

Inflation distorts all aspects of the taxation of personal income but is particularly harsh on the taxation of capital gains. When corporate stock or any other asset is sold, the current law in U.S. requires that a capital gains tax be paid on the entire difference between the selling price and the original cost even though much of that nominal gain only offsets a general rise in prices of consumers goods and services. Taxing nominal gains in this way increases the effective tax rate on real price adjusted capital gains. In Chapter VII, this distorting effect was empirically estimated by collecting the information from the annual sample of tax returns for the year 1973. The results show that the distortion was greatest for middle income sellers of corporate stocks. Several alternatives to the current tax laws are examined in detail.

In the subsequent chapter, a detailed examination of the effect of inflation on the taxation of capital used in the non-financial corporate sector of the U.S. economy was done. With the existing tax laws in the country, inflation substantially increases the effective tax rate on capital income in the corporate sector, the principal reason for this being the calculation of depreciation by the method

of historic cost which causes a major overstatement of taxable profits. The present methods of inventory accounting adds further to the overstatement of profits. In contrast to the above relation between inflation and corporate profits, inflation implies that the nominal interest payments that corporations deduct in calculating taxable profits lower the effective tax rate. The return to suppliers of capital funds depend not only on the tax paid on corporate incomes but also on the tax paid by savers on the interest and dividend incomes. The empirical work of Chapter VIII indicates that as per the tax rules, the excess tax paid by lenders of capital funds is greater than that saved by corporate borrowers.

Macro economic studies on the effect of inflation on the rate of interest have implicitly ignored the existence of taxes and the problems of tax depreciation. Similarly, empirical studies of the incidence of corporate tax changes have not recognised that the effect of the tax depends on the rate of inflation and have ignored the information on the rate of return that investors receive in financial markets. For a common empirical problem, Chapter IX tries to build a bridge between the two approaches. This chapter can be treated as three different papers. The first section extends the previous theoretical studies of the interaction of taxes and inflation by making explicit calculations based on the actual tax rules of the past two decades. These calculations show how changes in tax rules and in inflation rates have altered the maximum nominal interest rate that firms could pay on a standard investment. The important conclusion of this section is that, the Fisherian conclusion that the nominal rate of interest rises by the expected rate of inflation, leaving the real rate of interest unchanged, is no longer valid when borrowers treat interest payments as a deductible expense and pay tax on profits net of accounting depreciation. The second section is an econometric analysis of the observed relation between inflation and the long term interest rate. The analysis used ARIMA (Auto Regressive Integrated Moving Average) process to derive predicted inflation variable. The long term interest rate is measured by an average of yields on new issues of high grade corporate bonds, adjusted to be comparable to the Aaa rate. The expected rate of inflation is defined in terms of the price of consumer goods and services as measured by the deflator of personal consumption expenditure in GNP. Two approaches are used to specify the expected future rate of inflation. The first one is the distributed lag approach of Irving Fisher : The interest rate (i) is related to expected inflation (π^*) according as

$$i_t = B_0 + B_1 \sum_{j=0}^{T} w_j \pi_{t-j}$$

with $\sum_{j=0}^{T} w_j = 1$.

Recognising that the above restriction may be invalid, an optimal ARIMA forecasting procedure of Box and Jenkins is used. With the inflation rates measured as deviations from the ten year sample means, this can be written as

$$\pi_t = \phi \pi_{t-1} + \epsilon_t - \Theta \epsilon_{t-1}$$

where ϵ_t is purely a random disturbance. The assumption that inflation rates follow stationary process, the specification implies that the optimal weights always add to less than one. It is found, on the basis of above two approaches, that the estimated interest rates based on the optimal Box-Jenkins forecast of future inflation is very much similar to the traditional distributed lag estimate. Since the estimated equation indicated an extremely high first order autocorrelation of the stochastic errors, the equation was reestimated with a first order auto-regressive transformation. The third section studies the effects of changes in tax rules and in pretax profitability. An attempt is made in this section to link the econometric estimate to the analytic method developed in section 1.

Chapter X discusses a crucial cause of the failure of share prices to raise during a decade of substantial inflation. The analysis indicates that the adverse effect of increased inflation on share prices results from basic features of the U.S. tax laws, particularly historic cost depreciation and the taxation of nominal capital gains. In the subsequent paper, the author extends the earlier ideas to provide a more realistic picture of the interaction of inflation and share prices. The new analysis recognises that firms borrow and that the existence of debt causes inflation to raise the firm's real after tax earnings available for equity owners. Secondly, in contrast to the assumption in the previous paper that firms distribute all earnings as dividends, the present analysis assumes a realistic ratio of retained earnings to dividends. From the calculations, the author concludes that rate of inflation would have depressed the price of equity shares and reduced the size of the equilibrium capital stock in the affected industries.

The next two papers deal with the relation between inflation, tax rules and prices of real assets and portfolio choice. The first paper

presents a simple theoretical model that offers an explanation to the positive relationship between the rate of inflation and relative prices of real assets (land and gold). This idea has been further explored in the subsequent paper which shows how an explicit portfolio choice framework can be applied to derive asset price equations and how in this framework the interaction of taxes and increased inflation causes a raise in the real value of land and fall in the real value of corporate equities.

Irving Fisher analysed the effect of inflation on financial markets and capital formation and concluded that each percentage point increase in the steady state of inflation rate eventually raises the nominal interest rate by 1 per cent, leaving the real rate of interest unchanged. Since the supply of savings depends on the real rate of interest and the demand for investible funds, a change in the rate of inflation would have essentially no effect on the economy's real equilibrium. James Tobin has shown that an increase in the nominal interest rate could cause households to substitute capital for money in their portfolios thereby reducing the real interest rate. The Fisher-Tobin analysis ignores the role of taxes levied on capital income. The author in this chapter shows how U.S. tax rules and a high rate of inflation interact to discourage investment. The nature of this interaction is complex and operates through different channels. The effect of inflation on the incentive to invest depends on balancing the change in the cost of funds (including equity as well as debt) against the change in the maximum potential return that firms can afford to pay. This explanation of investment behaviour which is close to Fisher's own approach is developed more precisely in this paper and then related to the observed variation of investment since 1955. The basic specification in the study relates the ratio of real net investment to real GNP (I^n/Y) to the real net rate of return (RN) and the Federal Reserve Board's measure of capacity utilization (UCAP). The author uses annual data and lag both regressors one year.

$$\frac{I^n}{Y_t} = a_0 + a_1 RN_{t-1} + a_2 UCAP_{t-1} + U_t$$

where U_t is random disturbance.

This equation was estimated for the sample period 1954-78 and based on the results several alternative forms were estimated (i) in the first difference form (ii) cyclically adjusting the net return (RNA) and (iii) at the gross level. The stability of coefficients in

different subperiods was tested and concluded that the hypothesis of equal coefficients cannot be rejected at 5% level of significance.

The fourth section deals with the relation of investment and the rate of return over cost; The difference between net nominal amount that firms can potentially afford to pay for funds (NPNR) and the actually net nominal cost of funds which depends on the marginal mix of debt and equity funds (COF) and the rate of capacity utilization are used to explain the rate of net investment

$$\frac{I_t^n}{Y_t} = bo + b_1 (MPNR - COF)_{t-1} + b_2 UCAP_{t-1} + Ut.$$

Annual data is used with lags in both regressors.

This equation was estimated in first differences also and was tested for the stability for coefficients over time.

In the last section it was shown that the traditional implementation of the flexible capital stock adjustment model has not given adequate attention to inflation and that any attempt to analyze the recent investment experience on the basis of that implementation would be misleading.

The book attempts a new explanation of the corporate investment behaviour which is highly promising. It would be a good research study if the empirical methods are applied to Indian data to see whether corporate behaviour in this country also correspond to that in U.S.

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Rural Industrialisation — Approaches and Potential, by Dr. T. S. Papola (Himalaya Publishing House, Bombay — 1982, Rs. 60)

The book is a study of 387 industrial units in Varanasi and Gorakhpur districts of Eastern Uttar Pradesh. The industrial units belonged to seventeen product categories which are traditional and modern, skill based and material based and which meet local and urban demand.

According to the author, rural industrialisation may be looked upon (i) as a process confined to the development of village industries (traditional crafts) and (ii) as an aspect of spatial diversification of industries by which modern industries would be introduced in rural areas. The author believes that both approaches would bring the industry, employment and incomes nearer to the people in rural areas. However, the structure of products and the quantum of these variables would differ. Hence the author prefers a mid-way approach — according to him, rapid economic development in rural areas can be possible only by linking the urban modern industries with the basic needs of the rural people and by producing a major part of their forward and backward linkages within the village economy. Here the author noted the absence of both linkages with the villages around in the case of traditional industries. No doubt the introduction of modern industries in rural areas has a direct bearing on rural employment and development but it would not generate abiding interest among the villagers unless their enthusiasm is aroused from the beginning. Besides this, the gradual thrust of modern industries in rural regions must recognize the rhythm of agricultural operations.

The author reveals that inspite of all the measures taken by the Government, "rural industrialisation has continued to be a marginal activity in rural areas and an inefficient and unlinked appendage of the industrial structure of the country". The rural industrial sector remained relatively stagnant. In order to stimulate the rural industrialisation, the author has suggested the reduction of absolute decline in the household sector and acceleration of the growth of the modern small scale sector so that it may absorb the labour displaced from the household sector.

After discussing the various aspects of an approach to rural industrialisation and programmes for industrial development of rural

areas, the author has examined whether it is caste or resources which determine occupation of a person and probed into the relationship between the size of rural industrial units and the mode of production along with the technology used in the industfial units. Then he has presented the relationship between the productivity in terms of output and the size of the indutsrial unit in terms of employment, capital and output in Chapter IV. After analysing the pattern of growth of different industrial units and highlighting the factors that facilitated/hindered such growth in Chapter V, the author has summed up the whole discussion of rural industries and rural industrialisation with some vital strategy alternatives in Chapter VI. The findings of the study are as follows :—

(i) Rural areas have a much more diversified structure of industries than is generally presumed. The activities of the non-traditional industries are economically more rewarding than the traditional ones. The industries have provided remunerative employment and shown relatively better growth potential.

(ii) The traditional industries in villages have been carried out on caste basis. The non-traditional industries seem to be capable of breaking the caste industries nexus and reducing regidities of social stratification in rural areas. However, the study reveals that many of the non-traditional activities have developed new castes and community affiliations (out of 387 units, 257 units belong to Scheduled castes and Scheduled tribes). Moreover, occupational and geographical mobility of most entrepreneurs is limited. The main reason, according to the author is that the activities are primarily on household basis and provide a source of employment to most family members at one place.

(iii) Since the activities are primarily on household basis due to lack of resources like land, capital, skill and education, a significant number of children are forced to work to supplement the family income especially in industries like bamboo basketry, handloom, hub-brush making, ring making, leather work, toy making and pottery.

(iv) Almost all the traditional industries (with the exception of black-smithy, carpentry and handloom) have limited capacity for generating even a subsistence income. New industries run on modern lines have brought prosperity and affluence to their entrepreneurs.

The findings of the study although revealing to some extent cannot be taken up for framing policies as the author has not taken a representative sample of industries and does not indicate the size of rural population depending on such industries. However, the author opines that the above mentioned tendencies may be broken only with a change in social values brought about by education and by technological and organisational transformation of activities. Besides this, the activities should be remunerative enough to induce others to enter in. It is undoubtedly true that education, formal and non-formal, can initiate a breakthrough. However, children and more so the parents have to be lured only by making the schools attractive enough by paying stipends to those who attend the schools. This would work as an incentive for the parents to send their children to schools. Once the learning process is initiated, other interventions viz., health, nutrition and environmental hygiene would be converged.

On the basis of his study, the author has sought to refute some of the basic assumptions underlying the official approach to rural industries more particularly that :—

(i) village industries which are mostly traditional type are mostly supplementary activities,

(ii) they offer only part-time employment,

(iii) they often face competition from urban products and

(iv) they serve only local consumption needs.

For the household and workers engaged in rural industries, their occupation in them is their sole or at least main source of income. Most of them do not even have another activity as a subsidiary occupation.

While analysing individual industrial units, the author finds that the growth performance of industries showing better income potential has not been very encouraging. Similarly, the traditional industries not only have low income generating potential but also have shown poor growth performance due to some inherent and inevitable constraints both in terms of demand and raw materials. The author recommends encouragement of such traditional and modern industries which have positive income elasticity of demand; he, however fails to identify any such industry.

The author has suggested changes in the present restrictive approach to rural industrialisation. More specifically, he has suggested that (i) the scope of promotional measures undertaken for the development of rural industries should be extended to cover all industries located in rural areas, (ii) the measures emphasising mainly the creation of a protected market should be matched by efforts to raise productivity even if it implies technological changes and an increase in the capital intensity of these industries (iii) the need for strengthening the productive potential of existing units should be given performance over the efforts to multiply the number of units in order to ensure that rural industrialisation does not result in the creation of a larger amount of unproductive employment without subsistence income for workers and (iv) the protective and promotional measures should aim at increasing the growth potential rather than mere survival of rural industrial units.

Though the book covers a wide range of issues with reference to rural industries, the reader is left with the feeling that the book has only limited validity in regions which have a relatively higher level of development and have different endowments as most of his observations are based on a sample study in particular areas. Moreover, the inter-relationships of different aspects viz., employment, output, productivity, capital, etc., have not come out with any perceptible forces.

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