Chapter - VIII :

FACTORS ASSOCIATED WITH THE VARIATIONS IN THE LEVELS OF STATE GOVERNMENT EXPENDITURES

The possible purposes of the studies on expenditure determinants are three-fold : "(i) to understand the observed pattern of government expenditure, (ii) to predict the future course of government, and (iii) to define standards of what governments should be doing".[1] In this chapter our aim is to understand the observed pattern of government expenditure by identifying the factors which explain variations in the levels of expenditure between states. We are not attempting to know what determines the levels of expenditure.

We have already seen that state government activities vary from state to state when measured in terms of per capita expenditure. In this chapter attempt is made to trace the temporal pattern of the determinants of state government expenditures. In that process we have attempted to identify the relative influence and joint effect of the independent

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1. Elliott R. Morss: Some Thoughts on the Determinants of State and Local Expenditures. National Tax Journal, March 1966, p.96.

variables in explaining inter state differentials in the per capita spending of state governments.

The absence of a generally accepted theory of the determination of state and local government expenditures has given rise to numerous attempts to identify statistically the determinants of the expenditures. In the words of Prof. Roy W. Bahl, "The rationale for such studies is traight forward: how communities actually reveal preferences for public goods in a context of varying or changing community characteristics is essentially an empirical question. Accordingly these statistical analyses usually have involved estimating a relationship between per capita local government expenditures and varying sets of socio-economic and demographic variables and elements of budget constraints and identifying those variables with statistically significant coefficients as determinants."[2]

As stated above political decisions, social conditions, economic factors, historical background of the states are the factors that determine the levels of public expenditure. Of these political decisions, social conditions and historical background are not precisely quantifiable. However Robert

2. Roy W. Bahl et al. : The Determinants of Local Government Police Expenditures: A Public Employment Approach. National Tax Journal, Vol.XXXI, No.1, p.67.

Harlow reported that, "the political variables do not eliminate the influence of economic variables."[3]

Very many variables have been considered as factors responsible for expenditure differentials. The first study on determinants was done by Solomon Fabricant with three explanatory variables namely Per capita income, urbanization and Density of Population.[4] Subsequently, percent of families with less than $12,000 income, Tax yield, Population Increase, Index of Party competition, Percent of Population over 25 with less than 5 years schooling,[5] State aid and Federal aid,[6] Area of States[7] Tax Effort, State role, Previous Expenditure,[8] Industrialization, Structure of Government[9] were considered

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3. Robert Harlow: "Factors Affecting American State Expenditures". Yale Economic Essays (Fall), 1967, p.271.
4. Solomon Fabricant: Trend of Government Activity in United States since 1900. (National Bureau of Economic Research, New York), 1952, pp.112-139.
5. Glenn W. Fisher, "Determinants of State and Local Government Expenditures: A Preliminary Analysis". National Tax Journal, XIV (December 1961), pp.349-355. Also see Glenn Fisher, 'Interstate Variations in State and Local Government Expenditure". National Tax Journal, XVII (March 1964), pp.57-74.
6. Seymour Sacks and Robert Haris: "The Determinants of State and Local Government Expenditures and Inter-Governmental Flows of Funds". National Tax Journal, XVII (March, 1964), pp.75-85.
7. Elliott R. Morss. op.cit., pp.96-100.
8. Ira Sharkansky: "Some More Thoughts About the Determinants of Government Expenditures". National Tax Journal, June 1967, p.179.
9. Robert Harlow: op.cit., pp.263-307.

along with Fabricant's 'classic' variables. Among these variables all but per capita Income, urbanization, Density of Population and Federal Aid were found to be not so relevant. Therefore we have selected the following six explanatory variables on the basis of the information provided by the previous studies and their possible relationship with the expenditure variables in our context. The selected explanatory variables* are :

1. Percapita State Income.
2. Urbanization. Urbanization is defined as the percentage of urban population to total population.
3. Density of Population per square kilometre.
4. Per capita Federal Transfers. The possibility for justifying the use of federal transfer as a determinant arises only if it stimulates the spending of the state governments. In the Words of Prof. Roy W. Bahl and Robert J. Saunders "If states view a federal grant at least partially as a complement to internal funds rather than as a substitute then federal aid could conceivably have a multiple effect on state expenditures".[10] Jack W. Osman defined 'stimulation'

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* Independent variables: 1. Appendix Table A.51 ; 2. Appendix Table A.52; 3. Appendix Table A.53; 4. Appendix Table A.54 5. Appendix Table A.39+6.Appendix Table A.55.

10. Roy W. Bahl and Robert J. Saunders: Factors Associated with Variations in State and Local Government Spending. The Journal of Finance, Vol.XXI, No.3, 1966, p.527.

(i) "as an increase in total expenditures on a particular category as a result of federal aid to that category"; and

(ii) "as an increase in state and local expenditures on a given function from their own resources as a result of federal aid to that function."[11]

It is open to question whether the federal transfers in India act as substitutes or stimulants. Prof. Roy W. Bahl and Velayundan Pillai have reported that, "the state government fiscal activity is stimulated by federal grant programmes in India. There is no evidence of a substitutive effect for any grant programme or for any expenditure category considered. Grants and shared taxes appear to account for this stimulative effect on the state governments' total expenditure and development expenditure levels.[12]

5. Per capita Debt Services : This variable includes interest payment on debt and appropriation for reduction or avoidance of debt revenue account.

6. Per capita Debt Services on Revenue Account plus discharge of permanent debt. The debts raised by the states

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11 Jack W. Osman: The Dual Impact of Federal Aid on State and Local Government Expenditure. National Tax Journal, Vol.XIX, No.4, (December, 1966) pp.362-373.

12 Roy W. Bahl and Velayudan Pillai : "The Allocative Effects of Inter-governmental Flows In Less Developed Countries: A Case Study of India". Public Finance, Vol.XXXI, No.1, 1976, pp.83-85.

are often used for meeting deficits in the revenue account.[13] Hence discharge of permanent debt has been included to know its impact on expenditure of the states.

Per capita expenditures on various functional heads have been picked up as dependent variables. Since they are the outlays on goods and services. Total per capita expenditures charged to revenue and capital accounts of the states are considered separately. Seven expenditure heads have been selected as the variables to be explained.

1. Per capita Revenue expenditure, that is, per capita total expenditure on revenue account net of debt services. The per capita revenue expenditure includes the expenditure on other functional categories and the transfer payments such as grants and subsidies to local bodies. The grants and subsidies to local bodies are included because they form a significant portion of state expenditures even though it is the recipients who spent on goods and services. But debt services are excluded because the quantum of interest payment and appropriations for reduction of debt are determined already.

2. Per capita expenditure on Education.

3. Per capita expenditure on Medical and Public Health.

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13 S.C. Patnaik: Orissa Finances in Perspective.(People's Publishing House, Bombay),1970, p.200.

4. Per capita expenditure on Agriculture and Allied Services.

5. Per capita development expenditure.

6. Per capita expenditure on Administrative Services.

7. Per capita total expenditure*: That is per capita expenditure charged to revenue and capital accounts net of debt services and repayment of loans to the centre and the redemption of permanent debt.

As mentioned earlier the differences in expenditures between the states may also be the consequences of various current and past political decisions. As, "the political variables do not eliminate the influence of economic variables", it is possible for both to frame hypothesis and test them. In this context one can think of two types of hypotheses: (i) those which are resource oriented, and (ii) those which are need oriented. The former tend to relate differences in per capita expenditure to the resources which a state has at its command while the latter tend to relate differences in per capita expenditure to the needs of a state.

The first hypothesis is that state per capita expenditure is a function of per capita ability to pay.

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* Sources: Data for dependent variables 2 to 6 - Appendix Tables for the respective functions. Dependent variable 1 and 7 Appendix Tables A.56 and A.57 respectively.

Per capita per sonal income is used as a proxy variable to represent the level of economic development. A state whose per capita income is higher than other states is better placed as it has the scope for raising the necessary resources and spending them on various activities. Hence the higher the income of the state the higher will be the level of per capita expenditure. This hypothesis belongs to the first group.

The second hypothesis is that the per capita expenditure is inversely related to per capita debt services. If a state has to earmark a large part of its revenues for payment of interest and the reduction of debt it would be left with a smaller amount of revenue to defray on other categories. Hence the higher the per capita expenditure on debt services the lower would be the per capita expenditure on social consumption. This hypothesis is also a resource oriented one. Here the resources net of commitment on account of debt services is considered whereas the total resources which a state could raise, given the level of its income was referred regarding the previous hypothesis.

The third hypothesis could be that expenditure levels and federal transfers are positively associated. Higher the federal transfers the higher will be the capacity of the State concerned to spend. This one also belongs to the first

group as we have already mentioned that federal transfers induce the states to raise their esources.

The fourth hypothesis is that percapita expenditure and density of population have positive relationship. Population is supposed to lead to what is called as 'cost of concentration' consequent of this health and welfare expenditures may tend to increase. As such this is need oriented hypothesis. But this supposition is liable to be questioned as density of population may give rise to what is known as 'spatial' economies of scale and this implies inverse relationship with per capita expenditure.

The expenditure levels may be affected by the conditions of urban areas also. So the fifth hypothesis relates urbanization and state expenditure. The urban population concentrations boosts up problems which lead to larger state spending per-capita. Hence positive association is hypothesised between percapita spending and urbanization. This is also a need oriented hypothesis.

Methodology

Ann Horowitz adopted simultaneous equations technique to identify the determinants of state expenditures.[14] Since the

14 Quoted by Wernerz Hirsch in The Economics of State and Local Government (McGraw-Hill Book Co.,London),1970, p.174.

multiple regression is the most commonly employed statistical device in this type of study in United States of America and Canada[15] we also have employed the same technique.

Interpretation of the results of statistical analysis of state expenditures is based largely on statistical significance of regression coefficients which has in turn been taken to imply the importance of the independent variables. If two independent variables are highly interrelated their standard errors tend to be large. Consequently only after a detailed consideration of the inter-correlations among the independent variables can an attempt be made to infer the true importance of any explanatory factor. For example Ernest Kurnow criticised the appropriateness of a linear regression model on the grounds

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15 For example :

a) Solomon Fabricant: op.cit., pp.112-139.

b) Glenn W.Fisher: op.cit., pp.349-355.

c) Warner S. Hirsch:"Determinants of State and Local Govt. Expenditure, A Preliminary Analysis". National Tax Journal, March, 1960, p.29.

d) Seymour Sacks and Robert Haris: op.cit.,pp.75-85.

e) Roy W.Bahl and Robert J.Saunders: "Determinants of Changes in State and Local Government Expenditure". National Tax Journal, Vol.XVIII,March 1965, pp.50-57.

f) Elliot R.Morss: op.cit., pp.96-100.

g) Ira Sharansky: op.cit., p.179.

h) Robert Harlow: op.cit., pp.263-307.

i) Roy W. Bahl and Robert J.Saunders: "Factors Associated with variations in State and Local Government Spending". Journal of Finance , Vol.XXI,No.3,Sept.1966,pp.523-534.

j) Roy W.Bahl and R.J.Saunders: "Fabricants determinants after Twenty years".American Economist,Spring,1966, 10(1),pp.27-41.

k) Ernest Kurnow: "Determinants of State and Local Expenditures Re-examined". National Tax Journal,XVI (Sept.,1963), pp.252-55.

that the levels of basic variables are interdependent, that is, the relationship between density and expenditures is not independent of the levels of income and urbanization. He replaced the additive (linear) model with a multiplicative form and was able to increase the explained variation. As the objective in our analysis is to trace the marginal explanatory power of each independent variable the additive model is employed after tracing inter-correlations among the independent variables in the year 1960-61. The following table presents the matrix of coefficient of determination between the independent variables.

Table VIII.1 : Matrix of Coefficient of Determination (R^2) for all possible pairs of Six Independent Variables: 1960-61.

Independent variables		x_1	x_2	x_3	x_4	x_5	x_6
Per capita Income	x_1	1	0.000084	0.1028	0.0081	0.0076	0.0856
Urbaniza-tion	x_2		1	0.0134	0.033	0.2028	0.1861
Density of population	x_3			1	0.4135	0.2977	0.0413
Federal Transfers	x_4				1	0.376	0.0115
Debt services	x_5					1	0.0134
Debt servi-ces plus Discharge of permanent debt	x_6						1

The table VIII-1 shows hardly any significant inter-dependence between most of the variables. The variables Density of Population and federal transfers seem to be related to each other. This relationship might have been due to the allocational policy of the Finance Commission and Planning Commission. Since major portion of the transfers are effected on the basis of population federal transfers and Density of population show relationship.

The relation ship between federal transfers and debt services may be due to the complementary effects between current and capital expenditures such that higher capital spending (occasioned by loans) ultimately result in higher maintenance and debt servicing costs. The state governments being aware of the existing principles governing the distribution of grants-in-aid inflate their proposed expenditures and show greater deficits as a tactic to get more federal funds. States with larger maintenance expenditures are capable of getting larger share of federal transfers. This may be the reason for the inter-relations between federal transfers and debt services.

The equation fitted in analysis is

$$\log y = \alpha + \beta_1 \log x_1 + \beta_2 \log x_2 + \beta_3 \log x_3 + \beta_4 \log x_4 + \beta_5 \log x_5 + \beta_6 \log x_6 + u$$

β_is are elasticity coefficients for y with reference to x_i

u - Error Term.

Total Revenue Expenditure :

Table VIII-2 presents the elasticity coefficients for the regression of percapita total revenue expenditure on the selected explanatory variables. The determinant structure shows that percapita income, urbanization and federal transfers are relatively important determinants. Of these three only federal transfers remains stable.

The regression resulted in a significantly positive partial association between percapita expenditure and per-capita income only from 1967-68 to 1973-74. This implies that high percapita income states spent more in terms of percapita expenditure than low income states during this period. We have seen that the percapita expenditure on Social and Community Services, Economic Services and Administrative Services increased rapidly in the developed states since 1967-68. This might have contributed for the positive partial association between percapita total revenue expenditure and percapita income.

Table VIII-2: Regression Equations for Regression of Percapita Total Revenue Expenditure on Selected Independent Variables.

Years	Constant Term	Percapita Income	Urbaniza-tion	Density of population	Federal Transfers	Debt services	Debt servi-ces+discharge of PD	R^2
1	2	3	4	5	6	7	8	9
1960-61	0.3826	0.1235	0.2627	0.0796	0.5177**	-0.0797	0.0353	0.532
1961-62	7.2237	-1.3324	0.4027	0.1564	0.4363	-0.5788	0.6592	0.234
1962-63	0.0618	-0.1229	0.3814	0.0427	0.757**	-0.0253	0.4817	0.786**
1963-64	-0.5255	0.0593	0.3166*	0.0622	0.8827*	-0.0706	0.1429	0.948*
1964-65	-2.2623	0.444	0.2507**	0.0644	0.728*	-0.062	0.141	0.955*
1965-66	-0.5677	0.1287	0.3146**	0.0156	0.882*	-0.2952	0.2706	0.9242*
1966-67	0.3298	-0.0631	0.3973**	0.0122	0.7652*	0.2145	0.0135	0.8756*
1967-68	-1.2179	0.3216*	0.3525*	0.0018	0.6839*	-0.0259	0.0315	0.973*
1968-69	-2.7763	0.9107*	0.25**	-0.1071	0.3976*	-0.2789	0.0903	0.8641*
1969-70	-3.2377	0.7498*	0.2383*	-0.0522	0.4773*	-0.2825	0.3912	0.9074*
1970-71	-2.8316	0.4824**	0.3749*	-0.0237	0.6814*	0.0516	0.1772	0.9328*
1971-72	-2.6725	0.9153*	-0.0698	0.0949	0.1036	-0.1795	0.2188	0.7759**
1972-73	-1.8395	0.4157**	0.3596*	-0.0043	0.4384**	-0.0197	0.2816	0.9505**
1973-74	-2.8962	0.5732*	0.2156**	-0.0236	0.7845*	0.0234	0.0227	0.9329*
1974-75	-2.0446	0.5995	0.2384	-0.066	0.4085**	0.0442	0.1705	0.8383*
1975-76	-1.1513	0.4189	0.2081	-0.0056	0.3245	0.4333	-0.0262	0.9157*

* Significant at 1% level
** Significant at 5% level

Though the partial association of the expenditure variable with urbanization is positive it became significant only from 1963-64.This means that states with higher urbanization spent more than others. The significant positive partial association might have been due to thehigher level of spending by the highly urbanized states like Gujarat, Haryana, Karnataka, Maharashtra, Tamil Nadu, West Bengal and moderately urbanized states like Jammu & Kashmir and Kerala. Our analysis shows that Density of Population is not a relevant variable.

The cross-sectional evidence reveals that only per-capita federal transfers has consistently positive relation with percapita revenue expenditure. The significant positive partial association with percapita inter-governmental revenue purports that federal financial support did have the intended stimulating effects and states receiving larger percapita federal transfers tend to allocate a relatively larger portion of their available resources for state government activities. Hence the hypothesis that bigher the level of percapita federal grants higher will be the percapita expenditure holds good. But who receive larger share in federal transfer is a relevant question here. It has been informed that the principles adopted for the devalution of transfers by the Finance Commissions and Planning Commission tend to be

in favour of developed states and not in favour of reducing regional disparities.[16] Hence inter-state disparity in per-capita spending persists.

The explanatory variable Debt services was negatively associated with percapita revenue expenditure upto 1973-74 and positively since then. But both the types of associations are not significant.The other variable Debt services plus discharge of permanent debt has partial positive association but the elasticity coefficients are not significant. This means that financial constraints do not have much relevance with spending decisions. The states Gujarat, Haryana, Jammu & Kashmir, Karnataka, Kerala, Maharashtra, Punjab, Tamil Nadu and West Bengal had higher percapita expenditures on debt services and on other functions also. Rajasthan, a weaker state had higher percapita debt services and possessed percapita expenditure levels above the all state average level in functions like Education, Medical and Public Health etc. In the previous chapter it was observed that the increase in debt services was not at the cost of other developmental services and this has been statistically proved here. Therefore, the existence of high spending on other services along with higher percapita debt

16. K.N.Reddy: "How far Federal-Finance Operations in India Result in Reduction of Regional Disparities". Artha-Vikas, Vol.VIII, No.1, Jan.1972. Also see Raja Chelliah et al.: Trends and Issues in Indian Federal Finance.(Allied Publishers, Bombay), 1981, pp.47-71.

services connotes that spending decisions are primarily made on the strength of demand for governmental services regardless of financial constraints of the states.So the hypothesis that higher the percapita expenditure on debt services the lower would be the percapita expenditure on social consumption has not been supported by our study.

When the percapita revenue expenditure was replaced with percapita total revenue and capital expenditure the determinant structure exhibits identical results and is presented in Table VIII-3. As such percapita income, urbanization and federal transfers seems to be the factors that account for the inter-state spending differentials regarding total expenditure. Among these three variables only federal transfers consistently showed positive influence over the period.

It is to be remembered that the total state expenditures merely represent a numerical aggregate of many component budget items for which allocation decisions have been idependently made. Therefore the way the explanatory variables influence state spending can be more clearly observed if the cross-sectional analysis is taken up for each specific expenditure category.

Table VIII-3 : Regression Equations for Regression of Percapita total Revenue and Capital Expenditure on Selected Independent Variables.

Years	Constant Term	Percapita Income	Urbaniza-tion	Density of population	Federal Transfers	Debt Services	Debt Servi-ces+Disch-arge of PD	R^2
1	2	3	4	5	6	7	8	9
1960-61	0.5346	0.1499	0.4083	0.0028	0.6143	-0.1164	-0.0765	0.5042
1961-62	3.1162	-0.4153	0.3562**	-0.0155	0.6623*	0.0198	0.1975	0.8459*
1962-63	2.3016	-0.411	0.4256*	0.0597	0.879*	0.0267	0.0479	0.8868*
1963-64	1.6228	-0.2217	0.2929*	0.0184	0.8047*	0.0143	0.1939	0.9587*
1964-65	-1.3122	0.4998	0.0621	0.0213	0.4502	0.0508	0.2373	0.9215*
1965-66	1.1827	-0.2361	0.3706**	-0.0565	0.9263*	-0.2745	0.3242**	0.9466*
1966-67	2.2998	-0.3139	0.3678**	-0.0404	0.779*	0.4935	-0.1708	0.8908*
1967-68	-0.6439	0.3488**	0.3648*	-0.0418	0.682*	0.1218	-0.1972	0.9353*
1968-69	-0.9489	0.6215**	0.2826**	-0.0934	0.4431*	-0.1635	-0.0292	0.8745*
1969-70	-2.309	0.6264*	0.3161	-0.088	0.5568*	0.1491	-0.0008	0.9184*
1970-71	-1.968	0.4645**	0.2755**	-0.057	0.6318*	0.2763	0.0224	0.9083*
1971-72	-2.5839	0.679*	0.0615	-0.0313	0.3387**	0.1375	0.3144	0.8978*
1972-73	-1.7351	0.435*	0.2707*	-0.0193	0.5862*	0.0705	0.1359	0.9598*
1973-74	-3.036	0.658*	0.0991	-3.3811	0.8258*	0.0938	-3.0368	0.9156*
1974-75	-1.131	0.563	0.2161	-0.1412	0.4234**	-0.1494	0.3597	0.8498*
1975-76	0.3943	0.2327	0.2189	-0.0567	0.2676	0.4908**	0.0568	0.9174*

* Significant at 1% level
** Significant at 5% level

B. Cross-Sectional Analysis of Selected Expenditure Categories :

Education. Table VIII-4 presents the result of cross--section regression on education expenditure. It shows that percapita income, Density of Population and Debt Services are not significant factors.

The insignificant association with percapita income suggests that state governments spent on education irrespective of their economic conditions. The states Gujarat, Haryana, Maharashtra and West Bengal are better placed in their percapita income levels but their percapita expenditure levels on education are lower than that of Kerala and Jammu & Kashmir. The percapita expenditure on education is above the all state average level in Assam and Rajasthan though their percapita income levels are lower. Further Karnataka and Tamil Nadu have higher levels of percapita education expenditure while their percapita income levels are just equal to all state average percapita income. Moreover among all the functional categories percapita expenditure on education is higher in all the states irrespective of their levels of economic development. Hence the partial association of percapita education expenditure with percapita income though positive was not significant. Therefore education expenditure is not a function of state income.

Table VIII-4 : Regression Equations for Percapita Education Expenditure on Selected Independent Variables.

Years	Constant Term	Percapita Income	Urbaniza-tion	Density of population	Federal Transfers	Debt Services	Debt servi-ces+Discharge of PD	R^2
1	2	3	4	5	6	7	8	9
1960-61	-3.1307	0.2927	0.5356**	0.2328	0.3997	-0.2779	-0.0197	0.5013
1961-62	-2.3005	0.2868	0.3010	0.1148	0.2956	-0.2928	0.3207	0.5916
1962-63	-1.1513	-0.2502	0.6165*	0.0956	0.6814**	-0.427**	0.5197	0.7968**
1963-64	-3.1655	0.3157	0.3535**	-0.0337	0.5661**	-0.5671**	0.7779*	0.8374*
1964-65	-3.8061	0.107	0.6708**	0.1545	1.3783**	-0.3568	-0.1797	0.7783**
1965-66	0.7297	-0.9865	0.7035**	0.3145	1.1531**	-0.3322	0.5169	0.6463
1966-67	-2.095	-0.5376	0.7595*	0.2402**	1.1053*	-0.392	0.7561	0.8013*
1967-68	-4.9937	0.2425	0.5738*	0.1949**	0.8477*	-0.1755	0.3805	0.8128*
1968-69	-5.0129	0.7286**	0.3993**	0.0663	0.5013*	-0.2895	0.2019	0.7457**
1969-70	-4.3826	0.6446	0.1572	0.0984	0.2535	-0.4826	0.7057	0.5823
1970-71	-4.9064	0.45	0.4285**	0.1428	0.662**	-0.1582	0.3118	0.7069**
1971-72	-3.574	0.6222	0.1409	0.0793	0.25	-0.3916	0.4837	0.6275
1972-73	-3.21	0.3584	0.3662**	0.1179	0.4819	-0.2945	0.3297	0.7012**
1973-74	-4.366	0.4221	0.1498	0.1659	0.8096**	-0.3764	0.3811	0.686
1974-75	-4.023	0.6838	0.0436	0.1076	0.406**	0.188	-0.0374	0.6638
1975-76	-3.6238	0.5379	0.1217	0.1475	0.4894	0.2097	-0.1033	0.6809

* Significant at 1 % level
**Significant at 5% level.

The positive partial association with urbanization might have been due to the higher percapita spending on education by the urbanized states like Gujarat, Haryana, Maharashtra, Tamil Nadu, West Bengal, Kerala, Jammu & Kashmir and Karnataka than others.

The expenditure variable's positive partial association with federal transfers suggest federal transfers exerted stimulating effect on education expenditure. But whose expenditure was stimulated much is a different question. We have already seen that the special grants provided by the Sixth Finance Commission, 1973, with a view to enhance the percapita primary education expenditure of certain states to all state average level has not accomplished its objective. This discloses that the federal grants are not enough to bring equality in expenditure levels and it continues to be infavour of the recipients of large shares who are generally developed states.

Though urbanization and federal transfers are positively related with education expenditure they are not consistently significant from 1971-72 and the coefficient of determination is also not significant since then. This obviously implies that the education expenditure is largely influenced by socio-political conditions of the states rather than by economic factors.

Medical and Public Health.

The cross-sectional regression on Medical and Public Health expenditure presented in Table VIII-5 shows that the expenditure variable has significant positive partial relationship with percapita income from 1969-70. It can be seen that the percapita expenditure on this function in the developed states like Gujarat, Haryana, Maharashtra, Tamil Nadu and West Bengal was less than that of Jammu & Kashmir, Kerala and Rajasthan whose per capita income levels are lower. Punjab had lower percapita expenditure levels than these states upto 1972-73. This pattern of expenditure might have caused the association with percapita income in significant upto 1969-70. But since 1969-70 the percapita expenditure levels in the developed states increased while the weaker states Assam, Bihar, Orissa, Madhya Pradesh and Uttar Pradesh continued to lie below the all state average percapita level. This trend might have influenced the positive partial association with percapita income significantly since 1969-70.

The elasticity coefficient provides scattered evidences of positive partial association between the expenditure variable and the explanatory variables urbanization and federal transfers. The scattered positive partial correlation with urbanization may be due to higher level of spending in the

Table VIII-5 : Regression Equations for Regression of Percapita Medical and Public Health Expenditure on Selected Independent Variables.

Year	Constant Term	Percapita Income	Urbaniza-tion	Density of population	Federal Transfers	Debt Services	Debt servi-ces+Discharge of PD	R^2
1	2	3	4	5	6	7	8	9
1960-61	-0.8785	0.0023	0.3091	0.0704	0.1706	-0.2538	0.1551	0.4111
1961-62	-1.7071	0.2435	0.2512	-0.0005	0.2123	-0.3147	0.1472	0.5183
1962-63	-2.8968	0.1091	0.413**	0.1044	0.8375**	-0.3432**	-0.0248	0.6977
1963-64	-2.5231	0.1759	0.1441	-0.0092	0.6662**	-0.4085**	0.4788	0.7327**
1964-65	-1.4991	-0.0655	0.4121	-0.0038	0.8248	-0.0816	-0.0514	0.6913
1965-66	1.3848	-1.1762	0.5979**	0.2581**	1.1686*	0.1382	0.2429	0.7875**
1966-67	0.7093	-0.814	0.8385	-0.0163	0.7335	-0.2967	0.7394	0.2732
1967-68	-3.2163	0.1386	0.5651*	-0.0016	0.7101**	0.0945	-0.0361	0.7043**
1968-69	-2.7305	0.4337	0.4352**	-0.0595	0.2934	-0.2284	0.0815	0.6332
1969-70	-5.0757	0.6759*	0.3645*	-0.0392	0.5724*	-0.2037	0.0957*	0.8289*
1970-71	-4.7321	0.5081	0.4463*	-0.0598	0.5094*	-0.118	0.2728	0.8657*
1971-72	-3.9542	0.6783**	0.1473	-0.0869	0.1898	-0.359	0.4994**	0.7747**
1972-73	-3.0172	0.4614**	0.423*	-0.0545	0.1511	-0.0068	0.1816	0.8444*
1973-74	-6.0489	0.6606*	0.2547**	-0.0018	0.7397*	-0.5024	0.4782	0.898*
1974-75	-4.5348	0.6864	0.2789	0.0292	0.3849**	0.8188**	-0.7305	0.8088*
1975-76	-6.2874	0.8081**	0.3197	0.0468	0.6105**	0.384	-0.432	0.848*

* Significant at 1% level.
** Significant at 5% level.

urbanized states. Only from 1973-74 federal grant is consistently positively associated. The coefficient of variation for the percapita expenditure on this function increased from the 1957-58 level and so one may conclude that federal transfers have not brought equality in the expenditure levels. In Chapter IV we have seen that the Sixth Finance Commission's (1973), special grant has not brought up the percapita expenditure levels of Andhra Pradesh, Assam, Bihar, Madhya Pradesh, Orissa and Uttar Pradesh to the all state average level. The federal transfers continues to be in favour of developed states. The explanatory variables Density of Population and debt services are not significant. Even the statistically significant variables percapita income, urbanization and federal grants report scattered evidences of positive regression relationship. Further it may be noted that the coefficient of determination became consistently significant from 1969-70 only. All these regression evidences show that the inter-state expenditure differentials are not entirely due to the economic variables. The expenditure on this function is decisively influenced by the non-economic factors. It seems that decisions for state public welfare programmes are determined primarily by the need for such programmes.

Agriculture and Allied Services.

The determinant structure for state government expenditure on Agriculture and Allied services did not show any consistent pattern.Table VIII-6 reveals that none of the explanatory variables are significant enough to account for the spending differentials among the states though federal transfers exhibits partial positive relationship for a few years in a scattered form. This confirms our findings in Chapter V that the expenditure on Agriculture and Allied Services differs from state to stateowing to the need for food materials, interest of the states, availability of irrigation facilities, availability of resources like forests, fisheries, livestock and the importance given to them in five year plans.

Developmental Expenditure.

The results of cross-section regression on development expenditure presented in Table VIII-7 indicates that the determinant structure remains unaltered and identical to that of total expenditure. The development expenditure has significant positive partial association with percapita income between 1967-68 and 1973-74. It is positively associated with urbanization and federal transfers contimuously. The development expenditure comprises expenditure on Social and Community

Table VIII-6 : Regression Equations for Regression of Percapita Expenditure on Agriculture and Allied Services on Selected Independent Variables.

Year	Constant Term	Percapita Income	Urbaniza-tion	Density of population	Federal Transfers	Debt Services	Debt Servi-ces+Discharge of PD	R^2
1	2	3	4	5	6	7	8	9
1960-61	0.3894	0.1087	-0.0471	-0.1007	0.4236	0.0451	-0.0009	0.6379
1961-62	-0.0258	0.4045	-0.257	-0.1477	0.3083	0.2164	-0.2407	0.6495
1962-63	0.0256	0.0056	-0.0299	0.044	0.6805**	0.2059	-0.3421	0.6379
1963-64	-1.7343	0.4801	-0.1441	-0.075	0.3294	0.2573	-0.0263	0.6566
1964-65	-0.8417	-0.1176	0.2507	0.0936	0.8154	0.2112	-0.1396	0.5217
1965-66	-1.1442	0.0936	0.1257	-0.0898	0.4323	0.1692	-0.0373	0.4782
1966-67	0.4757	-0.1896	0.1051	0.015	0.591**	0.6447	-0.3002	0.7118**
1967-68	-1.202	0.029	0.2699**	0.0288	0.6982*	0.1406	-0.1398	0.8021*
1968-69	-2.2543	0.5085	0.0926	-0.0088	0.3538**	0.199	-0.2563	0.7299**
1969-70	-2.2635	0.483	0.1053	-0.0896	0.3732	0.2695	-0.1728	0.6154
1970-71	-1.185	0.4435	0.0865	-0.1805	0.6378**	0.4855	-0.4703**	0.8764*
1971-72	-0.903	0.1568	0.0749	-0.1064	0.2657	0.476	0.078	0.7291**
1972-73	0.7353	-0.1475	0.2647	-0.0891	0.4285	0.1511	0.1389	0.7924**
1973-74	2.065	0.526	0.4499	-0.0979	0.8264	0.3875	-0.2296	0.7098**
1974-75	0.999	0.1209	0.463	-0.2368	0.2414	0.7035	-0.6123	0.7579**
1975-76	1.1785	-0.0334	0.3276	-0.1094	0.0922	1.0186**	-0.4862	0.7787**

* Significant at 1% level.
** Significant at 5% level.

Table VIII-7 : Regression Equations for Regression of Percapita Development Expenditure on Selected Independent Variables.

Years	Constant Term	Percapita Income	Urbaniza-tion	Density of population	Federal Transfers	Debt Services	Debt Servi-ces+Discharge of PD	R^2
1960-61	-0.5325	0.1479	0.2464	0.1377	0.5913**	-0.0889	0.069	0.5242
1961-62	1.7039	-0.2755	0.2044	0.056	0.7066**	0.0446	0.1642	0.6492
1962-63	0.941	-0.4916	0.4904*	0.1952**	1.1402*	-0.0649	-0.0305	0.8743*
1963-64	-0.6482	-0.0626	0.2909*	0.0947	0.9251*	-0.1278	0.3125**	0.9423*
1964-65	-2.613	0.3292	0.3136**	0.1158	0.9523*	-0.0739	0.0347	0.9211
1965-66	-0.0887	-0.2045	0.3872**	0.0838	1.0453*	-0.3714	0.4195**	0.9197*
1966-67	0.241	-0.1434	0.4059*	0.014	0.8052*	0.0074	0.2227	0.8892*
1967-68	-1.314	0.2569**	0.3404*	0.0039	0.7233*	-0.0667	0.1009	0.9581*
1968-69	-3.3998	0.6163	0.3633**	0.0841	0.5971*	-0.1107	0.0779	0.7361**
1969-70	-3.2655	0.736*	0.1983	-0.0581	0.3889**	-0.446	0.5878	0.8366*
1970-71	-3.5608	0.5398**	0.3556**	-0.0318	0.7237*	0.0257	0.208	0.9086*
1971-72	-2.9874	0.5628**	0.1148	0.0421	0.4443*	0.0856	0.292**	0.8999*
1972-73	-2.2679	0.4389**	0.3355*	-0.0043	0.4384**	-0.0197	0.2816	0.9476*
1973-74	-3.6624	0.6846*	0.1752	-0.0564	0.7836*	-0.0009	0.0567	0.9284*
1974-75	-2.1815	0.592	0.2044	-0.0809	0.3947**	0.0221	0.2529	0.8215*
1975-76	-1.5455	0.415	0.1899	0.0061	0.3302	0.4626	0.0059	0.9015*

* Significant at 1% level.
** Significant at 5% level.

Services and Economic services. We have seen that in all these services the richer states had higher percapita expenditures and the interstate spending differentials on both the services increased since 1967-68. At the disaggregate level the inter-state expenditure disparity widened since 1967-68 in Agriculture and Allied Services, Medical and Public Health, Transport and Communication and Water and Power Development. InIndustry and Minerals though there occurred marginal reduction in the inter-state expenditure variations the gap is still larger. This kind of expansion in the percapita expenditure of the developed states might have caused the significant partial positive association with percapita income from 1967-68 to 1974-75.

The partial positive relationship with urbanization might have been due to the higher spending on Education, Medical and Public Health, and Transport by highly urbanized states like Gujarat, Haryana, Karnataka, Maharashtra, Punjab, Tamil Nadu and West Bengal. Expenditure on Industry and Minerals is very high in Kernataka. The spending on Medical andPublic Health is relatively higher in Rajasthan and expenditure on education is highest in Kerala, though these two states are moderately urbanized. All these might have caused the significant positive partial association between percapita development expenditure and urbanization.

The positive partial regression association with federal grants indicates the desired stimulating effects and the states receiving larger percapita federal transfers tend to allocate higher percentage of the available resources for developmental purposes.

Administrative Services.

Table VIII-8 presents the cross-sectional regression results for the percapita expenditure on administrative services. Though the direction of association was positive with percapita income it became consistently significant after 1967-68 indicating that the richer states began to spend more. The weaker states Bihar, Madhya Pradesh, Orissa and Uttar Pradesh continued to have their percapita administrative expenditure lower than the all state average. But after 1965-66 the percapita expenditure on administrative services increased speedily in the developed states due to their increased expenditure on developmental functions as we have seen in Chapter III. This trend might have resulted in the significant positive partial relationship with percapita income.

It was observed that the percapita expenditure on administrative services is relatively higher in the border states namely Assam, Jammu & Kashmir, Punjab, Rajasthan and West Bengal obviously owing to higher spending on law and order

Table VIII-8 : Regression Equations for Regression of Percapita Expenditure on Administrative Services on Selected Independent Variables.

Years	Constant Term	Percapita Income	Urbanization	Density of population	Federal Transfers	Debt Services	Debt Services+Discharge of PD	R^2
1	2	3	4	5	6	7	8	9
1960-61	0.1010	0.0283	0.1643	-0.0838	0.5006	0.0909	0.2427	0.5145
1961-62	-3.9155	0.8813**	-0.0254	-0.086	0.4851**	-0.0014	0.0374	0.7976**
1962-63	-0.027	0.3932	0.3145	-0.083	0.6774**	-0.1244	0.1531	0.7618**
1963-64	-3.0547	0.5181	0.302	-0.0593	0.8196**	0.1337	-0.3935	0.8279**
1964-65	-5.881	1.4031**	-0.2525	-0.1546	-0.2705	-0.0995	0.6738*	0.8657*
1965-66	-5.4476	1.252	0.05	-0.2023	0.5249	-0.166	-0.113	0.8175**
1966-67	-2.9971	0.394	0.2805	-0.0193	0.6926**	0.6334	-0.4664	0.7237**
1967-68	-4.8349	0.7242*	0.3152**	0.0077	0.6084*	-0.1244	0.006	0.8401*
1968-69	-4.9854	1.4313*	-0.0492	-0.2368**	0.2195	-0.5485**	0.0434	0.8502*
1969-70	-6.5778	0.8974*	0.2483	-0.0363	0.8108*	0.0136	0.0264	0.8485*
1970-71	-3.9816	0.4766	0.3097**	0.0223	0.6677*	0.1002	-0.0515	0.8578*
1971-72	-4.477	0.7163*	0.1197	-0.0271	0.3497**	0.4414	-0.0508	0.8968*
1972-73	-3.9158	0.5929**	0.2121	-0.0089	0.4219	-0.212	0.2835	0.8459*
1973-74	-3.2579	0.363	0.1283	0.0709	0.8804*	-0.0094	-0.0015	0.7498**
1974-75	-5.48	0.8095**	0.2222	-0.0115	0.576*	0.0039	-0.0297	0.8312*
1975-76	-3.5143	0.5482**	0.0918	0.0032	0.3824**	0.1837	0.0658	0.9108*

* Significant at 1% level.
** Significant at 5% level.

necessitated by their proximity to hostile neighbours. We have further seen that the expenditure on law and order which forms the major portion of the administrative expenditures increased in response to the Indo-Chinese war (1962), Indo--Pakistani War (1965) and Bangladesh liberation war (1971) in the border states and due to increased law and order problems in other states. This growth trend must have rendered the relationship with urbanization insignificant though the urbanized states have higher spending levels. The positive partial association with federal grants shows that the states who received larger share of federal transfers allocated more for this service. As such we may conclude that expenditure on administrative services are also influenced by the demand for the services posed by internal and external pressures besides percapita income and federal transfers.

Conclusions :

(1) The cross-sectional determinant structure shows that percapita income, urbanization and federal transfers are the important factors which account for inter-state expenditure differentials, more particularly, in total expenditures.

(2) The variables debt services and debt services plus discharge of permanent debt do not influence the expenditure of the states. This implies that expenditure decisions are made irrespective of financial constraints.

(3) The cross-sectional determinant structure for education, Medical and Public Health and Administrative Services exhibit that though urbanization and federal transfers exert influence, the spending decisions are primarily made on the basis of the need for the services and the socio-political conditions of the states. For Agriculture and Allied Services the determinant structure did not indicate any factor considered here as determinant.
