REGIONAL DISPARITIES AND STRUCTURAL CHANGE IN AN UNDERDEVELOPED ECONOMY: A CASE STUDY OF INDIA.

Mrs. Madhavi Majmudar

Ph.D Thesis submitted
to the Faculty of Arts,
University of Glasgow.

30th May, 1974.

Volume II

PAGE NUMBERS CLOSE TO THE EDGE OF THE PAGE. SOME ARE CUT OFF

Volume II

Table of Contents

CHAPTER VIII

Regional Policy in India: An analysis of Issues

Section I Regional Policy in India: A Statement of Issues

In Chapters III through VII we examined the degree and structure of regional disparities at various levels. We can conclude from this analysis that: (1) significant regional differences in economic structures exist and these are reflected in the overall regional levels of per capita and per worker income. (2) At sectoral level, high regional inequality exists in the aggregate value added per worker and at a disaggregated level in both manufacturing and agriculture. The existence of these disparities thus provides one ground to analyse the regional policy framework in India and consider the scope for policy measures to correct regional imbalances at the national level. In this context, we need to examine the relation between the national and regional goals and the possibilities of a conflict between these goals. In addition, we need to distinguish the regional policy framework in an economy undergoing structural change from that in more industrialised countries. We shall examine these issues in Section I. In Section II we relate the discussion of Section I to an examination of regional goals in Indian plans. Whether or not the plans specify the regional goals, regional allocation of resources is implicit in the national planning as the states account for a considerable proportion of the total government expenditure and, in addition, the central assistance is an important source of financing the state plans. Thus, for evaluating the regional framework in India, we need to empirically assess the regional resource allocation under planning in terms of size and pattern of state development expenditure and the direct central investments. We pursue this analysis in Chapter IX.

We can begin with a brief outline of the major issues with which regional policy measures in more industrialised countries are concerned, and distinguish the

factors that are likely to differ in the context of economies at a different stage of development. The specific policy measures adopted in the individual countries differ and we discuss here only the broad areas of policy. These relate to (1) the policy measures that are directed to stimulate the regional level of activity by way of measures that lead to "work to workers"; (2) the policy measures that are aimed towards " workers to work". This includes fiscal and pricing policy which aims at regional allocation by either altering the prices of inputs of production or the output at the commodity level; (3) specific policy measures that are aimed at minimising the regional differences in economic welfare.

Stillwell[1] sums up the controversy regarding the first set of issues as follows: To quote, "The primary argument relates to the loss of economic growth which is caused by interference with the location of industry. It is contended that only when given free choice will businessmen select the optimal location for their plant: and that any restriction on that choice will lead either to the plant not being established at all, being established in an inferior location with resulting loss of efficiency or being established in another country with no such restrictions. Reliance on labour mobility is said not to incur such economic costs because there is no interference with the location decisions of industry."

The advocates of measures of "work to workers" relate their arguments on three basic points. (1) In the case of many industries, costs vary little among alternative locations. (2) Firms do not necessarily make optimal location decisions. Hence, redirection of industry need not necessarily involve additional private costs. (3) The whole efficiency argument is couched in terms of private rather than social costs. The private and social costs are likely to diverge as the latter includes the congestion costs of further agglomeration and the costs of providing additional social capital. Depending on which of the two strategies or a combination of the two is adopted, the policy measures taken by way of price policy or specific direct controls will differ. The specific policy measures

1. See in this connection:
(1) Stillwell, J.B., "Regional Economic Policy; Macmillan Studies in Economics", The Macmillan Press Ltd., 1972.
(2) Brown, A.J. "Framework of Regional Economics in U.K.", 1972
(3) Richardson, H.W., "Regional Economics", op.cit.

will also depend on the classification of regions at which they are directed. These classifications may range from the depressed areas, problem areas, backward areas or congestion areas. By and large, the regional policy issues in the developed countries arise out of the inadequacy of a market solution to correct regional imbalances. Secondly, regional imbalances that persist affect a small part of the national area and population, but have acquired special priority due to the social acceptance of certain minimum goals of welfare regarding regional differences in unemployment rates and the standards of living.

We grant that the regional policy framework for an underdeveloped economy is likely to differ from that in the more developed countries which we have outlined above. The main factors in which the regional policy framework will differ in an underdeveloped economy undergoing structural change may be briefly summarised below.

(1) In an economy undergoing a process of structural change which involves rapid spatial shifts, the role of short-term corrective measures is limited. Examples of short-term corrective measures applied in the developed economies are the various financial and tax subsidies and grants that aim to influence the factor or product prices so as to attain a greater balance between the demand and supply of labour and capital. Another example of short-term measures is the government expenditure as a policy tool to influence the demand by budgetary surplus and deficits. Limitations of these measures as policy tools in the context of structural change are that the correction of regional disparity would involve creating conditions of higher regional growth in the low income regions and at the same time allow higher national economic growth to be attained by concentrating on the growth of established regions. Therefore the policy measures that are advocated for influencing the effective demand are less relevant, as the basic problem is that of creating additional productive capacity.

(2) We argued in Chapter I that the inter-regional and inter-sectoral mobility which played an important role in the developed countries has a restricted role in an under-developed economy, because of the rapid population growth and the rate of investment and employment growth being lower than the required rate of growth to draw the labour away from the low productivity regions or sectors. We also stated that the movements of private capital are likely to be disequilibrating. Hence, in this context the regional approach that emphasises the measures related to "work to workers" is more relevant.

(3) Under planning in India, national goals are adopted to attain higher national economic growth and also to attain more egalitarian distribution of income between different groups of people. Our analysis of Chapter III showed that the low income regions in India account for nearly 48 per cent of the total population. On the grounds of equity alone, however defined, the policy measures need to be directed towards raising their "development share" in the national economic development. Differences are likely to arise in defining the "minimum development share" or the development efforts of the low income regions. In addition, the political criteria of development share may differ from those based on economic criteria that attempt to take into consideration the needs and potentialities of the different low income regions.

(4) The experience of developed countries shows that the regional imbalances are not self-corrective. The post-war period in which the per capita incomes in many developed countries converged was also a period of active government intervention. The argument that, in the long run, at a higher stage of development growth will either spread to the backward regions or that more resources will be made available to the backward regions amounts, in the Indian context, to allowing nearly fifty per cent of the total population to slip into a long term stage of low income and low development. In addition, India has already undergone

a critical phase of national development and completed four Five Year Plans. Rapid strides at national level were attained during this period in terms of industrialisation, import substitution and also in agricultural progress. Hence, more emphasis can now be placed on spreading the economic growth to the low income regions. Emphasis in such an approach should be on manipulating the national policy variables to attain the desired spatial goals.[1] We consider that the above arguments establish the case for a national policy for regional development in India and other economies at a similar stage of development.

We can now proceed to examine the relation between the regional goals and the other goals of national economic development. The possibility of a conflict between the regional and other goals has led many writers to conclude that the regional goals are a luxury for the economy undergoing spatial shifts under the constraint of limited resources. The controversy on the relevance and form of regional goals has centred around several related aspects and we may consider some of these arguments here. It is argued that the goal of maximising national income growth is likely to come into sharp conflict with the objectives of reducing regional disparities, as the resources are limited and need to be concentrated in the regions of highest returns. Thus, Lefeber[2] concludes as follows: "Regions which have existing advantages can grow faster than others. In the process of growth, employment opportunities increase, a flow of labour from other regions is attracted which should have a beneficial effect

---

1. (a) See in this connection, Friedmann, John, "Regional Development Policy: A Case Study of Venezuela", MIT Press,1966, p.5. "It is by manipulating the national policy variables that the most useful contributions to the future of regional economies can be made." (b) See also Rodwin Lloyd, "Choosing Regions for Development", 'Regional Development and Planning:A Reader', Ed. Friedmann, John and Alonso,William, MIT Press,1968. (c) Alonso,William, "Urban and Regional Imbalances in Economic Development", Economic Development and Cultural Change,Vol.17, No.1, 1968.

2. Lefeber,L.,"Regional Allocation of Resources in India", in "Regional Development and Planning: A Reader", Ed.Friedmann, John and Alonso, William, p.645.

both on industrialising areas and on the stagnant regions. Furthermore, rapidly growing areas can yield surpluses for future investment. Such surpluses arise from the profits of expanding private and state enterprises and from increasing private incomes, which in turn lead to larger savings and taxes. Initially, a good part of the savings must be used to maintain growth in the vigorous centres; but as savings continue to increase and new investment outlets are needed, more and more resources can be channelled to the development of other areas which, in turn, will raise the living standards of the local population and create new surpluses and resources for continued development. The latter will manifest itself in the creation of 'growing points' in other previously stagnant or slowly moving areas. In good time, the number of growing areas should increase to a density adequate to the regional balance. It is a paradoxical conclusion that, for developing retarded areas, the growth of the more advanced regions must be encouraged. If the latter is stifled because of insufficient investment on an uneconomical scale, surpluses will be insufficient and stagnant regions which are unable to raise their own savings must be doomed to an even longer period of waiting and poverty." Thus, this argument amounts to recommending spatial goals that are aimed at higher growth in the regions with "existing advantage". Such an approach is not a rejection of regional goals in the period of rapid economic development but having goals that will aid or enhance the growth of the "best" regions so as to attain a better regional balance at some future date.

The EEC[1] Report makes the following observation on this issue. To quote, "The difficulty arises from the

---

1. "Location of Industrial Plants", EEC, 1968.

fact that in most cases the problem of industrial location is associated with drastic differences in income levels between regions. The economic logic demanding concentration of industrial investment in "best" regions is therefore challenged by very important social and political considerations. There are also economic arguments for the promotion of new industrial poles of growth in backward areas in developing countries." The EEC Report further states that "...the arguments presented above should not lead to the conclusion that the solution to regional problems in developing countries should be postponed or neglected. It is suggested that, in the initial stages of economic development of those countries, the regional problems are relatively less important." We may note from the above two quotations that, although the conflict between "efficiency" and "equity" is recognised in both approaches, they lead to different conclusions. Lefeber advocates planned expansion of regions with existing advantages while the EEC Report regards regional problems as relatively less important. Rahman[1] makes a further relevant point regarding the regional differences in the rate of saving. "As a general conclusion we may say that national income is not necessarily maximised by concentrating on the most productive region of a country if regional rates of saving are not identical. Whether a less productive region can offer a significantly higher rate of saving (more specifically a higher internal rate of growth) than a more productive region is a matter of specific enquiry for the country concerned. A priori, the rate of saving in a region does not have a direct connection with productivity. Saving is a function not only of income but also of social habits, institutions and, in a controlled economy, of the administrative and political ability of the central authority to squeeze saving out of the region. It is quite conceivable that, in a particular country, a less productive region may happen to offer a higher

---

1. See Rahman, M.A., "The Regional Allocation of Investment", "Regional Development and Planning", op.cit. p.667.

rate of savings. In this case, the possibility of switching the programme cannot be ruled out."

We may now take these three arguments for further discussion. In examining the conflict between "efficiency" and "equity" we need to consider the meaning of concepts more clearly. In the discussion of investment criteria, we make a distinction between the various maximising goals of national economic development. Both the rate of investment and its sectoral allocation would differ in accordance with the specific maximisation goal that is adopted. For example, various maximising goals of "efficiency" or "growth" can be spelled out in terms of goals such as "maximisation of current income", "the maximisation of growth rate over a short period of time" and "maximisation of a long term growth rate of economy". It is asserted in planning literature that planning implies adopting a long term strategy towards economic growth in which returns to investment are not necessarily measured or specified with reference to either a single year or a short term plan period. Similarly, the conflict between "efficiency" and "equity" can be viewed in relation to these goals being phased out over a period of time rather than as goals of short term maximisation.

The following points are relevant in easing the conflict between the goals as phased out over a time period. Firstly, viewed over a longer time period,[1] the efficiency goal includes opening new resource frontiers or what is termed as "the extension of periphery". Secondly, raising the rate of investment in low income regions in the infrastructure investment may be regarded as building ahead of demand. Over a longer period of time, the factors outlined by Rahman may be particularly relevant and thus government policy may be directed towards attaining the desired rate of saving. Thirdly, the "equity" interpreted in terms of equalisation of regional incomes or equalisation of personal incomes is a proposition that may conflict with the efficiency objective over any time span considered. In the

1. By longer time period we mean simply that the goals and the resultant allocations are based on projections of "costs" and "returns" that stretch beyond the given plan period as it is applied in the sectoral allocation of national resources.

regional analysis, the "equity" goals can be expressed in terms of various trade-offs and time spans in accordance with society's preferences. It is extremely difficult to lay down the equity goals that would suit societies and economies at different stages of development. Evaluation of regional policy goals in different countries suggests that regional goals are expressed more in terms of bringing those below the national average nearer to the average rather than creating convergence by reducing the positive deviation of high income regions. Thus, equity goals may be expressed in terms of goals to be attained over a time span and as efforts to create long term conditions of economic growth in low income regions. When the concept of "equity" is viewed in this context, it appears to be less sharply in conflict with the long term efficiency objectives. Fourthly, we may argue that the degree of conflict between the "efficiency" and "equity" objectives needs to be distinguished with reference to different forms of investment. Investments in public health education and other social services need to be diffused in relation to a uniform measure such as per capita need or in relation to some other measure. In other sectors such as transport, power and communications which involve bulky long gestation investments, the investment has to be concentrated at strategic points. However, here it is possible to visualise the conflict between the need to concentrate these strategic investments in the high growth regions which have an existing higher demand for them or to allocate them to the regions with low levels of infrastructure by building ahead of demand. In the other sectors of manufacturing and agriculture also, the degree of conflict between the "efficiency" and "equity" is likely to vary. Existence of such regional differences in the degree of conflict between the "efficiency" and "equity" objectives give some grounds for considering these objectives not merely in exclusive terms but as those with varying trade-offs both with reference to time span involved as well as the form of investment.

Lastly, we need to distinguish several factors that may act towards reducing the returns from public investment in the

high income regions. The location decision of an individual firm is governed by the objectives of maximization of the profit or net returns based on the estimates of private costs. These do not include the diseconomies arising out of further congestion, the extra demand for social services arising due to a given location or the environmental costs of further agglomeration. In considering the returns to public investment on the basis of social costs and benefits, the inclusion of the above costs may reduce the profitability gap between the high productivity regions and low productivity regions.

We conclude that the regional policy is crucial in India because of the following considerations:-

(1) The nature of the development process in India indicates a limited role of inter-regional migration of labour force. As the capital flow can be expected to be disequilibrating, the regional imbalances can be corrected only by measures to raise income and productivity levels in the low income regions. On equity grounds alone, since low income regions account for nearly 46 per cent of the total population, the regional development needs of such a large population cannot be neglected.

(2) The experience of more developed countries shows that time by itself cannot act as a corrective process.

(3) Finally, regional allocation decisions are implicit in the national planning decisions as the national planning operates through multi-regions. Whether or not the regional allocation under planning was directed to raise the development share of low income regions is a matter of empirical substantiation. In the federal multi region set-up, the political case for regional policy cannot be overemphasised. However, we shall keep these arguments separate and examine their relevance later on.

SECTION II

REGIONAL GOALS IN INDIAN PLANNING

We can now discuss the regional goals in Indian planning. India recognised the existence of regional problems from the early years of planning. Regional goals are specified in the Second and Third Five Year Plans in some detail. To quote the Second Five Year Plan[1], "In any comprehensive plan of development, it is axiomatic to say that spatial needs of less developed areas should receive due attention. The pattern of investment must be so devised as to lead to balanced regional development. The problem is particularly difficult in the early stages when total resources available are very inadequate in relation to needs; but more and more as development proceeds and larger resources become available for investment, the stress should be on extending benefits of investment to the underdeveloped regions. Only thus can a diversified economy be built up." The Second Five Year Plan also lays down the specific policy variables in this regard. These are (i) through decentralised industrial production; (ii) in the location of new enterprises, public or private, consideration should be given to the need for developing a balanced economy for different parts of the country. The Third Five Year Plan[2] further emphasised the role of public sector projects. To quote, "The benefits of a large project accrue in greater measure to the population of the region in which it is located if certain related or complementary programmes are undertaken. Therefore,as an essential feature of planning, every major project should be regarded as the nucleus for integrated development of the region as a whole." The Third Five Year Plan also emphasises the need for spatial dispersal of the public sector projects. To quote,

---

1. Second Five Year Plan, Government of India, Planning Commission, 1956, pp. 36, 37.
2. Third Five Year Plan, Government of India, Planning Commission, 1961, Chapter IX.

"From the decisions which have been reached so far, it is apparent that there will be a fair measure of dispersal and various regions will have a significant share in industrial development. As examples, the following may be cited: expansion of oil refinery fertiliser plant and use and distribution of natural gas in Assam; expansion of fertiliser capacity and construction of shipyard in Kerala; the synthetic drug factory; Vishakhapatam,Andhra Paper Mills in Andhra, expansion of Nepa Mills; the Bhibi Steel Plant and Heavy Electrical project in Madhya Pradesh; the antibiotics factory, fertiliser factory, refractories plant and expansion of precision instruments in Uttar Pradesh; development of copper deposits in Rajasthan; a machine tool factory in Punjab; surgical instruments plant; raw film project, pilot iron and steel plant, Niveli lignite high temperature carbonisation plant in Orissa; teleprinter factory and steel rolling mills in Madras; oil refinery in Gujarat and a cement factory in Jammu and Kashmir."

We may note from the above quotations that the plan documents recognise the need for regional balance as well as the instruments through which these can be achieved. However, the plans do not specify what is to be "balanced" and over what time period. Regional goals are expressed in terms of the "needs of backward areas" without laying any specific criteria for measuring the needs. We may refer to the various committees that assessed the needs of different areas either for areas within the state or for identifying the states.

The planning commission study group at the time of formulation of the Fourth plan requested state governments to pay special attention to the backward areas within the state. The backward areas within the state were classified into five categories in accordance with their needs and potential for development: (i) desert areas; (ii) chronically drought affected areas; (iii) hill areas including tribal areas; (iv) areas with high concentration of tribal population; (v) areas with high density of population, low levels of income, employment and living standards. The study group

suggested 15 indicators to identify the areas within the state that need special attention.[1]

The task of identifying less developed states creates difficult theoretical and conceptual problems. In the regional policy, per capita income is taken as an important indicator as it enables classification of the regions in terms of the differences in economic structures. In the Indian plans the classification by per capita income and other related measures created problems as CSO does not publish state income data. Up to the end of the Third Plan, the plan documents do not classify States by the level of development. In the criteria of central assistance to the states, also, the income variables or other economic variables are not specified in determining the quantum of central assistance to each state.[2]

---

1. These 15 indicators may be summarised below: (1) total population and density of population; (2) number of workers engaged in agriculture; (3) cultivable area per agricultural worker; (4) net area sown per agricultural worker; (5) percentage of net area sown more than once to total net area sown; (6) percentage of irrigated area to net sown area; (7) per capita gross value of agricultural output; (8) number of manufacturing establishments using electricity; (9) number of workers per 100,000 of population employed in registered factories; (10) number of commercial vehicles registered in the district; (11) surface roads per 100 square miles and 100,000 population; (12) percentage of literate population; (13) percentage of school going children in 6-11 and 11-14 years age groups; (14) number of places per million population for technical training; (15) hospital beds for 100,000 of population.

2. We shall discuss these issues in more detail in Chapter IX.

At the meeting of the Committee of the National Development Council in 1968, two working groups were set up to study the problem of regional imbalances. One working group[1] was to recommend the criteria for identification of backward states and the second study group[2] was to recommend fiscal and other financial incentives for starting industries in the backward areas. We shall take up the recommendations of these two groups for further discussion in the next chapter. We may summarise here the criteria used by the committee to identify industrially backward states and union territories.

The following criteria were used to identify industrially backward states;:(i) Total per capita income. (ii) per capita income from industry and mining. (iii) number of workers in registered factories. (iv) Per capita annual consumption of electricity. (v) Length of surfaced road in relation to area and population. (vi) railway mileage in relation to area and population.

Besides the states of Assam, Jammu and Kashmir and Nagaland, the average percentage of the following states is lower than the national average: Andhra Pradesh, Bihar, Madhya Pradesh, Orissa, Rajasthan and Uttar Pradesh. These are the states which we classified as 'low income regions'. It may be noted here that broad classification of "high" and "low" and "more developed" and "less developed" states is not altered in the number of studies[3] which take different variables.for classifying regions. Thus, inclusion of various social and economic variables such as infant mortality, literacy and infrastructure variables does not shift the

---

1. Known as Pande Committee.
2. Under the chairmanship of Wanchoo.
3. See Introduction.Ch.1Some of these studies are (1) Mitra, Census of India, 1961; (2) Rao, S.K.; (3) Pal, M.N.

ranking of the low income states to a more favourable position. Rao, S.K.[1] in his factor analysis using productivity variables and some social and economic indicators suggested that the economic distance between the more developed and less developed remained virtually unchanged between 1950-51 and 1965-66. In our income analysis we considered several structural factors that may be regarded as significant in explaining deviations of regional per capita income and per worker income. Thus, we may conclude that the low income regions that we have identified may also be regarded as less developed when several other variables are included. The Planning Commission Study Group referred to above is the first official report to recognize per capita income as one of the indicators in classifying industrially backward states. Our discussion of regional goals in Indian planning shows that, although regional goals exist in Indian planning, these goals are not adequately specified in a number of aspects that we discussed in Section I. Secondly, there is a tacit assumption (as in the EEC Report) of the conflict between regional goals and the growth objectives. At the same time plans emphasise use of several policy instruments to attain regional balance. The long-term economic projections of Indian planning do not discuss the criteria of regional allocation of resources. In the short-term Five Year Plans, the emphasis on regional goals exists with reference

---

1. Rao, S.K., op.cit. Chapters 2 and 3. He classifies the states taking the distance from the richest to the poorest group as follows:

A Most Developed	B Not so Developed	C Least Developed
West Bengal Maharashtra Gujarat	Madras Mysore Punjab	Kerala, Andhra Pradesh, Rajasthan, Bihar, Assam, Orissa, Madhya Pradesh and Uttar Pradesh

He takes the following six indicators to measure the level of regional development in his study: (1) per capita crop output; (2) per capita output in large-scale industry; (3) workers in manufacturing other than household industry; (4) consumption of industrial power; (5) literacy rate and (6) infant mortality rate.

to a number of specific spheres. The issues such as location of public sector projects have received a lot of attention also because of their being political issues. An important area of policy is the size of state plans and the sectoral allocation of state plans. Under the federal set-up, states are a vital part of the overall planning process. An important part of the total plan expenditures is incurred through states and there is a clear division of the central and state government expenditure in each sector. The Third Plan recognises the role of state plans as follows. To quote, "With development on a scale larger and more comprehensive than in the recent past, the Third Plan provides extensive opportunity for the development of different parts of the country. Some of the most important programmes in the plan fall necessarily within the plans of states. In drawing up these plans, the broad objectives have been to enable each state to contribute its best towards increasing agricultural production; to secure the largest measure of increase in income and employment feasible, to develop social services, in particular elementary education, water supply and sanitation and health services in rural areas, and to raise the levels of living in less developed areas. Thus, state plans are intended to be oriented towards greater production and employment and the welfare of weaker sections of the population. Every effort has been made to propose outlays for different states considering their needs and problems, past progress and lags in development, especially in social services, communications and power likely to contribute to the achievement of national targets and potential for growth as well as the contribution in resources which they make towards financing of their plans. In assessing the needs and problems of different states, such factors as population, area, pressure on cultivated land, commitments carried over from the Second Plan projects and the state of technical and administrative services available have been taken into account. Thus, as far as possible, an attempt has been made to consider both national and state priorities. Taken as a whole, the

size and pattern of outlays in the states in the Third Plan are calculated to reduce the disparities in development of different states, although in the nature of things this is a process which must take time. This statement shows that state plans are recognised as an important policy variable to reduce regional disparities."[1] Table 1 gives the data on the proportion of total expenditure of the various sectors accounted for by the state expenditures. It can be seen from the table that the states accounted for 49 and 44 per cent of the total financial outlays in the Third and Fourth Five Year Plans.

In the Third Plan, the states accounted for 86, 98, 87, 52 and 66 per cent of the total expenditure in agriculture and community development, major and medium irrigation, power, village and small industries and social services respectively. The states' share in the outlays on organised industry and minerals and transport and communications is 5 and 10 per cent only. Thus the size and pattern of state outlays needs to be analysed in greater detail. In the next chapter we shall attempt an empirical evaluation of state development expenditure and its relation to regional income change. We will also recapitulate our earlier conclusions on the role of public sector investment and discuss the measures to induce private investment in the low income regions. In the sectoral allocation of the state plan expenditures, inter-regional allocations in agriculture and major and medium irrigation are very important policy variables. Regional allocations in these sectors need to be examined closely. Finally, an empirical evaluation of the policy variables should enable us to give some guidelines on the national policy of regional development.

---

1. Third Five Year Plan, Government of India, op.cit., p. 147.

TABLE 1

FINANCIAL OUTLAYS OF STATES AND CENTRE IN THIRD AND FOURTH FIVE YEAR PLAN OF INDIA (IN RS CRORES)

Sector	States	Percentage	Union Territories	Centre	Percentage	Total Percentage
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Agriculture and Community Development	919	86	24	125	13	100.0
Major and Medium Irrigation	630	98	2	18	2	100.00
Power	880	87	23	109	12	100.00
Village and Small Industries	137	52	4	123	48	100.00
Organised Industry and Minerals	70	5	ny	1450	95	100.00
Transport and Communications	226	10	35	1225	90	100.00
Social Services and Misc.	863	66	87	350	34	100.00
Inventories	-	-	-	200	-	
TOTAL	3725	49.5	175	3600	49.0	100.00

(continued)

TABLE 1 (continued)

(FOURTH PLAN)

	States	Centre	Centrally Sponsored	Total
	(8)	(9)	(10)	(11)
Agriculture and Allied Sectors	1425.51	1104.26	126.83	2728.18
Irrigation and Flood Control	1050.39	23.50	-	1086.57
Power	1919.07	424.72	22.0	2447.57
Village and Small Scale Industries	783.06	148.65	5.10	293.13
Industry and Minerals	183.06	3150.86	-	3337.71
Transport and Communications	482.54	2622.00	42.00	3237.26
Education	499.89	241.00	30.00	822.66
Scientific Research		140.26	-	140.26
Health	185.75	53.50	176.50	435.03
Family Planning	-	-	315.00	315.00
Water Supply and Sanitation	167.10	3.80	2.00	405.79
Housing, Urban and Regional Development	167.10	48.60	-	237.63
Welfare of Backward Classes	77.43	0.50	59.50	142.38
Social Welfare	10.54	27.43	2.00	41.38
Labour Welfare	27.02	10.00	-	39.90
Other Programmes	92.54	90.68	-	192.31
TOTAL	6606.47	8089.76	780.93	15902.16
Percentage	44	55	1	100

Source: Third Five Year Plan, Government of India, Planning Commission, 1961, p.58 and Fourth Five Year Plan, Government of India, Planning Commission, 1970, p.57.

CHAPTER IX

AN EMPIRICAL EVALUATION OF REGIONAL POLICY IN INDIA

In this chapter we shall examine the policy instruments empirically as they operated under planning. The size of state development expenditure is an important measure in the analysis of regional resource allocation under planning, as opposed to the vague statements of regional balance in the plan documents. Section I evaluates the role of state development expenditure in the regional income change. The state development expenditure does not include the direct central investments in manufacturing, transport, etc. In Section II we examine the role of public projects in regional development and the policy measures taken to promote private investment in industrially backward states. In the sectoral allocation of state development expenditure, the regional allocations in agriculture are of special significance because of agriculture's importance in the national and regional economies and also, as we saw in Chapter VII, high regional disparity exists in agriculture. We examine the regional allocation of investment in agriculture and irrigation in Section II. The Appendix at the end of the chapter discusses the regional sectoral allocations in the other sectors. In Section III, a few guidelines are given on the regional policy in India.

SECTION I

ROLE OF STATE DEVELOPMENT EXPENDITURE IN REGIONAL INCOME CHANGE

In the empirical evaluation of regional policy in India, the analysis of state development expenditure is of vital importance and it can be taken as a proxy for state development effort as it includes state expenditures in the important sectors such as agriculture and irrigation, flood control, power, education and other social infrastructures.[1] The state development expenditure excludes the direct central investments and also the non-development expenditure incurred by the state on non development activities.

1. See Chapter VIII, Table 1, for the proportions of total government expenditure in each sector incurred by the states.

development activities. If we take a given time period, we may then examine the relation between a region's growth of total income and the size of development expenditure. For measuring the total development effort, we may take accumulated development expenditure of an average, say three years; thus, if it is a five year period, we exclude the first and last year from the calculation of the accumulated development expenditure, and allow for some time lag between the accumulated development expenditure and the region's change in income.

The total expenditure of the state is financed from three sources: (1) the state's own revenue raising effort; (2) share in the divisible taxes and grants awarded by the finance commission and (3) central assistance in the form of planning grants and loans. We may point out here that although we are taking the accumulated development expenditure as an independent variable in analysing regional income change, it is likely to be positively related to the region's base level income, as richer regions can raise more resources of their own than the poorer ones. On the other hand, if there is substantial transfer of central resources to the low income regions so as to increase the size of their development expenditure, the relation between the accumulated development expenditure and the initial level of income may change. Similarly, it is possible to stipulate that the relation between a region's income change and the initial level of a region's income may change from a positive significant statistical association to a negative one, if the low income regions have a higher income change than the high income regions. Statistical non-significance of both the size of a region's income as well as the accumulated development expenditure would mean that the other factors not specified in these two variables or the random factors such as weather may be more important.in influencing a region's income change.

A region's income change may be measured by several variables. Some of these are average growth rate, percent-

age increase in the region's income and the absolute additional regional NDP over the relevant time period. Where possible, average growth rate was tried but its results were found to be statistically non-significant. The use of regional percentage increase in NDP or net industrial output creates difficulties due to very unequal base level incomes so that for some states small increases in output will result in very large percentage changes. We recognise that even in taking additional absolute values, we cannot overcome all the problems arising from the unevenness of base level incomes. Limitations in our approach also arise because of the limitations of basic data themselves. In our simple model, because of the data difficulties we cannot include variables such as regional export base and direct central investment. However, we consider the empirical testing of the role of development expenditure in regional income change crucial in understanding the regional resource allocation under planning in India. We distinguish our approach from the estimates of regional multiplier by some writers.[1] Although the concept of regional multiplier is useful, the basic limitations in the context of many underdeveloped economies arise because the basic data[2] required to estimate the regional leakages are not available. An estimate of regional multiplier on the basis of national parameters has very little operational value. In our simple model here, we may attempt to measure income elasticity of state development.expenditure for the various time periods considered here, and draw some conclusions from it within the general limitations of the data. On a priori grounds we may say, however, that we can expect some regional differences in the income elasticity of development expenditure in the high income and low income regions.[3]

---

1. See Hug,M., "A Study of Government Expenditure - with Special Reference to Economic Development in Pakistan", an unpublished M.Litt.Dissertation,University of Glasgow, 1972. "Regional Multiplier in East Pakistan", Appendix to Chapter I.

2. Basic data required to estimate regional multiplier consist of regional values of propensity to save, import and tax.

3. As we examined in Chapter 6 the agglomaration of private investment in high income regions means that both in terns of existing demand for social capital and the response of private sector's investment to the given increases in government expenditure are likely to be higher than in the low income regions.

THE METHODOLOGY AND SOURCES OF DATA

The major source of data on Indian state finances in the Bulletin of the Reserve Bank of India, which annually reviews the state finances since I95I-52. As the state boundaries have changed since I95I-52 some problems arise in choosing the appropriate state units. In analysing state income data we used the data on I4 major states after the reorganisation. NCAER state income data for I950-5I andI955-56 are in terms of these reorganised states. Here also we shall use a similar procedure and convert the state expenditure data for the period I95I-52 to I955-56 in terms of reorganised states. For the states of Maharashtra and Gujarat which were formerly the state of Bombay, we will keep the reorganised Bombay State for I950-5I and I955-56. This reorganised Bombay State was bifurcated in I959-60 to form the separate states of Maharashtra and Gujarat. Table I gives the formulae used in computing the expenditure levels in terms of reorganised state boundaries. Since we are concerned with the state's total development effort, we shall take development expenditure which is arrived at by deducting non-development expenditure from the total expenditure. Non-development expenditure consists of items such as civil administration, debt services, collection of

TABLE 1

FORMULA FOR ESTIMATING STATE EXPENDITURE (FOR THE POST REORGANISATION STATES) FOR 1951-52

State	Add	Deduct
Andhra Pradesh	(1) 35% of composite Madras (2) 54.3% of Hyderabad State	-
Bombay	(1) Saurashtra (2) 35.8% of pre-1956 Madhya Pradesh (3) 25.5% of Hyderabad	(1) 14.5% of pre-1956 Bombay State
Kerala	(1) Travancore-Cochin (2) 8.3% of composite Madras	-
Madhya Pradesh	(1) 64.2% of pre-1956 Madhya Pradesh (2) Madhya Bharat (3) Bhopal State (4) Vindhya Pradesh	-
Mysore	(1) 14.5% of pre-1956 Bombay State (2) 20.2% of Hyderabad State (3) 5.1% of Composite Madras (4) Coorg (5) Pre-1956 Mysore	-
Punjab	(1) Pepsu State (2) Punjab	
Rajasthan	(1) Ajmer State (2) Rajasthan	
Madras	-	(1) 35% included in Andhra (2) 8.3% included in Kerala (3) 5.1% included in Mysore

Source: Reserve Bank of India Bulletin, June 1966

taxes, etc. In computing development expenditure, we have combined the development expenditure both on current and capital account in a given year to arrive at the total development expenditure. This total development expenditure excludes all central investments in organised industry and minerals, transport and communications as well as in other sectors. We do not have data to include a specification of this component of total regional investment, although we analysed the data on these items for a few planning years in Chapter VI. As we mentioned earlier, the state's development effort measured in this way is financed from various sources. Appendix 1 at the end of the chapter examines these sources. Among the other sources, it includes the central loans and grants, which is one of the main factors in determining the size of total development expenditure in the low income states.

The estimates of increase (or additional) in NDP over the relevant time periods is calculated from the NCAER and IIPO data for the three time periods for which data are available, viz., 1950-51, 1955-56, 1955-56 to 1960-61 and 1960-61 to 1967-68. The estimates of additional net industrial output are also calculated from the same sources.

ESTIMATING MODEL: We may now specify our simple model and the estimating equations of the regression analysis. In the regression analysis we use two types of variables. In accordance with that, we may divide the regression analysis into two parts, as follows:

Part I. We may regard additional NDP or industrial output as a function of two variables, viz. the accumulated development expenditure (a three-year average) and the initial level of region's output. Thus,

$$\Delta y = f(\Sigma DE, y_{ito})$$

As dependent variables of Δy we use additional NDP in ith region (i...13 or 14) and alternatively additional net industrial output over the relevant time period in ith region (i.e. 1....13 or 14).

y_{ito} = Base level regional NDP (or net industrial output) in the beginning of each time period. We expect multicolinearity between the ΣDE and y_{ito}. However, an

assessment of these two factors separately and together can reveal an interesting pattern of relationship between the following variables: (a) Δy and ΣDE; (b) Δy and y_{ito} and (c) y_{ito} and ΣDE. It is possible to visualise that this relationship will change over the relevant time periods. We attempt regression analysis of individual time periods as well as pooled regressions. We also estimate the income elasticity of development expenditure for different time periods and for pooled regressions.

In the second part, we attempt to overcome the multicolinearity problem by looking at the relation between the regional change and development expenditure as proportions of base level income, i.e.

$$\Delta y/y_{ito} = f(\frac{\Sigma DE}{y_{ito}}) .$$

We then add state dummy variables to include the state effect not specified in the above variable. We regard such an analysis as important in evaluating the size of state development expenditure as the policy variable. However, we need to point out again that the conclusions from the empirical results need to be drawn, keeping the limitations of the basic data in mind. The results of regression analysis may now be presented as follows:

The following notations are used in the regression analysis for the various dependent and independent variables:

X_1 = Additional NDP in the time period t in Rs. 100,000, in ith region.

X_2 = Additional net industrial output in the time period t in ith region, in Rs. 100,000.

X_3 = Accumulated development expenditure in Rs.100,000 in ith region.

X_4 = y_{ito} - the NDP in the beginning of the time period in Rs. 100,000.

X_5 = The net industrial output in the beginning of the time period (t = 0) in ith region, in Rs. 100,000.

REGRESSION ANALYSIS: PART I

Table 2 gives the regression results on these variables for the individual time periods. Table 3 gives the results of pooled regressions.

TABLE 3

POOLED REGRESSIONS: 1950-51 to 1967-68

No. of Equation	f-Test	Dependent Variable	Constant	Independent Variables X_3	X_4	X_5	R^2	N
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)
12	29.I3 (2,37)	X_1	807.00	0.433 (2.68)	0.110* (3.04)*		0.52	40
13	29.I3 (2,37)	X_2	-1197.04 (-I.3I)	0.074 (1.54)		0.288* (5.32)*	0.61	40

(Figures in Brackets are f-ratios; * gives significance at 0.05 level)

We may draw the following conclusions from Tables 2 and 3:

(1) The significance of ΣDE alone has varied over the different time periods and between X_1 and X_2.

(2) When ΣDE is considered alone, the ΣDE is significant for all the three time periods. However, only in the period 1955-56 to 1960-61 does ΣDE alone give a high R^2.

(3) When ΣDE and y_{ito} are introduced together, the regression coefficient of ΣDE is rendered statistically non-significant. The y_{ito} variable is significant in 1950-51 to 1955-56 and 1955-56 to 1960-61. It is not significant in the last period with reference to the X_1 variable. We consider, therefore, that the random factors such as bad harvest are more important during this period.

(4) The statistical fit with reference to the X_2 variable also varies for different time periods. ΣDE alone is significant

TABLE 2

REGRESSION ANALYSIS OF REGIONAL INCOME CHANGE IN INDIA, 1950-51 to 1967-68

Equation Number	Dependent Variable	Constant	Regression Coefficients of Independent Variables X_3	X_4	X_5	R^2	N	F Test
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
			1950-51 to 1955-56					
1	X_1	3243.89 (0.79)	1.02 (2.13)*			0.29	13	4.57 (I, II)
2	X_1	4503.13		0.0918 (2.38)*		0.34	13	5.68 (I.II)
3	X_2	-145.11	-0.138 (-1.62)		0.040 (7.92)*	0.92	13	62.85 (2, 10)
	X_2	= 1229.95 (- 1.01)	0.403 (3.08)*			0.52	13	13.49 (I,II)
			1955-56 to 1960-61					
4	X_1	-18547.50 (-2.79)	2.318 (5.92)			0.73	13	35.13 (I, II)
5	X_1	-7392.77 (-1.28)	(0.188) (0.27)	0.252 (3.42)*		0.86	13	40.53 (2, 10)
6	X_2	-7869.09 (-1.72)	0.753* (2.80)			0.36	13	7.87 (I,II)
7	X_2	-2959.17 (-0.74)	0.0459 (0.141)		0.499 (2.84)*	0.61	13	10.57 (2, 10)
			1960-61 to 1967-68					
8	X_1	10146.10	0.519 (1.60)*			0.10	14	
9	X_1	14273.28 (1.15)	0.113 (0.16)	0.082 (0.65)		0.063	14	1.43 (2,II)

(continued)

TABLE 2 (continued)

Equation Number	Dependent Variable	Constant	Regression Coefficients of Independent Variables X_3	X_4	X_5	R^2	N	F Test
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
			1960-61 to 1967-68 (continued)					
10	X_2	-1077.54 (-0.56)	0.218 (3.67)*			0.49	14	I3.49 (I.I2)
11	X_2	97.79 (0.058)	0.111 (1.68)*		0.132 (2.42)*	0.69	14	I2.45 (2,II)

Notes: Figures in backets give t ratios; * give significance at 0.05 level.

in all the three time periods but is rendered non-significant when introduced with y_{ito}. y_{ito} is significant in all the three time periods.

(5) In the pooled regressions, the multicolinearity problem is less acute as the regression coefficients of both the variables are statistically significant.

The multicolinearity problem between ΣDE and y_{ito} shows that the high income states have a higher total ΣDE. The pattern of relationship between the ΣDE and y_{ito} as well as between y_{ito} and Δy may also be analysed in terms of the simple correlations between these variables. The fact that the simple correlations between these variables change over different time periods is evidence of some shift of resources to the low income regions. Table 4 gives the simple correlations between the various variables. We may note the following points from Table 4.

(1) Although it may appear to start with that the introduction of the variable y_{ito} would only indicate that the region's income change is predominantly influenced by the initial conditions, the pattern of simple correlation together with the regression analysis shows that this is not entirely the case. Column (3) in Table 4 shows that thecorrelation between Δy NDP and y_{ito} is high and positive only for the 1955-56 to 1960-61 period.

(2) Column (2) shows that the positive significance between ΣDE and y_{ito} also declines. However, if we take $\Sigma DE/y_{ito}$ and Δy NDP (column (5)), then there is an inverse relation between the regional income change and $\Sigma DE/y_{ito}$ ratio. This is one indication that the low income states have increased their DE proportionate to their level of income. However, the regional income change continues to be higher in high income regions.

(3) The correlation between Δy industrial and y_{ito} also indicates positive and significant relation, but the value of the coefficient declines from 1950-51 to 1967-68.

Both the regression analysis and the pattern of simple

TABLE 4

SIMPLE CORRELATIONS BETWEEN THE ABSOLUTE NDP AND THE DEVELOPMENT EXPENDITURE

	$\frac{\Sigma \text{ DE and } y_{ito} \text{ NDP}}{X_3 \quad X_4}$	$\frac{\Sigma \text{ DE and } y_{ito} \text{ Industrial}}{X_3 \quad \text{and} \quad X_5}$
	(1)	(2)
1950-51 to 1955-56	+ 0.91*	0.80*
1955-56 to 1960-61	+ 0.91*	0.76*
1960-61 to 1967-68	+ 0.88*	0.65*

	Δy NDP and y_{ito} NDP X_1 and X_3	Δy Ind. and y_{ito} X_2 and X_5	Δy NDP and $\frac{\Sigma DE}{y_{ito}}$ X_1 and X_6
	(3)	(4)	(5)
1950-51 to 1955-56	0.58*	0.95 *	-0.21
1955-56 to 1960-61	0.94*	0.82 *	-0.50
1960-61 to 1967-68	0.45	0.78 *	-0.53 *

* gives significance at 0.05 level.

correlations show that the significance of ΣDE and the y_{ito} variable varied over different time periods and between the two variables considered here. From the regression analysis, we can also calculate the income elasticity of state development expenditure with reference to both the regional NDP and net industrial output. These are given in Table 5. If the value of elasticity is less than 1 it shows that a unit of state development expenditure results in a less than a unit change in income. The converse would be the case if income elasticity was more than 1. Income elasticity of government expenditure is more than 1 only in the period 1955-56 to 1960-61, the period in which the simple correlation between ΣDE and y_{ito} was found to be the highest. The last period in which there was some evidence of a greater shift of resources to low income regions has an income elasticity of only 0.55 with reference to NDP. One explanation is that we can expect the income elasticity of government expenditure to be higher in high income regions, as they already have a high level of social infrastructures and concentration of private investment and higher levels of productivity in the industrial sector. However, the importance of these factors versus the influence of the random factors of bad harvest years in this period cannot be precisely quantified. If the role of government expenditure in low income regions is that of building ahead of demand, low elasticities may continue for some time. The above computations also show that the income elasticity of government expenditure is higher with reference to industrial output than with respect to net domestic product. Thus, the development expenditure is more elastic with reference to increase in net industrial output than with respect to additional regional NDP.

REGRESSION ANALYSIS: PART II

The importance of government expenditure can also be assessed by taking a slightly different model in which both the regions' income change and government expenditure are taken as ratios of the absolute level of the income in the beginning of the time period. Thus,

Table - 5

Elasticities of State Development Expenditure and the Initial Levels of Regional Income with reference to the Regional Income Change

I950-5I to I967-68

State Development Expenditure		X_3
I950-5I to I955-56	Elasticity of X_I with reference to elasticity of X_2 with reference to	0.7I I.42
I955-56 to I960-6I	Elasticity of X_I with reference to Elasticity of X_2 with reference to	2.00 2.77
I960-6I to I967-68	Elasticity of X_I with reference to Elasticity of X_2 with reference to	0.56 I.09

Pooled Regressions	X_3	X_8 NDP Yito	X_5 Industrial
I950-5I to I967 -68 Elasticity of X_I with reference to	0.40	0.53	-
Elasticity of X_2 with reference to	0.32	-	0.80

Notes Table - 5

I. Elasticity of dependent variable (X_I or X_2) with reference to independent variable = regression coefficient of Independent variable

$$\text{X } \frac{\text{Mean of Independent Variable}}{\text{Mean of Dependent Variable}}$$

2. The elasticities of X_I and X_2 with reference to individual time periods are estimated from the equations that specify the government expenditure alone. In pooled regressions, in which the multicolinearity problem was found less acute they are estimated from the equations as given in Table 3.

3. We have estimated the elasticities with reference to Yito variables only in the pooled regressions because of the multicolinearity problem.

$$X_1/X_4 = f(X_3/X_4)$$

i.e. $$\Delta y/y_{ito} = f(\Sigma DE/y_{ito})$$

and $$X_2/X_5 = f(X_3/X_5)$$ '

i.e. $$\frac{\Delta y}{y_{ito}} \text{ Industrial } = F\left(\frac{\Sigma DE}{y_{ito}}\right) \text{Industrial}$$

Here we can overcome the problem of multicolinearity between the y_{ito} and ΣDE as both sides are ratios. It is then interesting to examine the relation between the expenditure-income ratio and the change in income at the level of the individual state. To allow for the influence on income change of the quantitative and qualitative factors that vary among states but are not specified in the expenditure-income ratio, we can specify the 'state effect' in our formulation. Thus, we exclude one state which forms our basis of comparison and then measure the state effect of being in a particular state when other state effects are zero. The state variables can be included in our pooled regressions. Tables 6, 7 and 8 give the regression results of individual time periods and the pooled regressions. We may draw the following conclusions from Tables 6, 7 and 8.

(1) $\Sigma DE/y_{ito}$ is positively related to Δy NDP$/y_{ito}$, except in the first time period. The significance of $\Sigma DE/y_{ito}$ varies in the different time periods. The regression coefficient of $\Sigma DE/y_{ito}$ is significant in the period 1955-56 to 1960-61 and in the pooled regressions. The significance of DE/y_{ito} also varies with reference to $\frac{\Delta y}{y_{ito}}$ industrial for different time periods. It is

TABLE 6

REGRESSION ANALYSIS OF REGIONAL INCOME CHANGE AND STATE DEVELOPMENT EXPENDITURE AS PROPORTIONS OF THE INITIAL LEVELS OF INCOME: 1950-51 to 1967-68

Time Period	Equation Number	Dependent Variable	Regression Coefficients of Independent Variable			R^2	N
			Constant	X_3/X_4	X_3/X_5		
1950-56	14	X_1/X_4	0.158 (1.97)	-0.019 (-0.026)		-0.09	13
"	15	X_2/X_5	0.172 (3.92)*		-0.0029 (0.068)	0.09	13
1955-1960-61	16	X_1/X_4	-0.087 (-1.13)	+1.620 (4.43)*		0.60	13
"	17	X_2/X_5	0.287 (3.10)*		-0.0037 (-0.082)	-0.090	13
1961-68	18	X_1/X_4	0.173 (1.25)	+0.393 (0.98)		-0.0029	14
"	19	X_2/X_5	0.131 (1.65)*		+0.108 (4.33)*	0.61	14
Pooled Regression	20	X_1/X_4	0.0798 (2.14)	+0.716 (4.67)*		0.34	40
	21	X_2/X_5	0.124 (3.13)*		+0.096 (5.58)*	0.43	40

Figures in the brackets give t-ratios. * gives significance at 0.05 level.

TABLE 7

Equation No. 22 Dependent Variable X_1/X_4

	Independent Variable	Regression Coefficient	T-Value
	Constant	0.190	3.57
X_2/X_5	X_2/X_5	0.643	5.10
Andhra	D_1	-0.140	-2.00
Assam	D_2	0.102	1.41
Bihar	D_3	-0.940	-1.34
Kerala	D_5	-0.163	-2.32
Madhya Pradesh	D_6	-0.0750	-1.07
Madras	D_7	-0.666	-0.95
Mysore	D_8	-0.166	-2.37
Orissa	D_9	-0.162	-2.288
Rajasthan	D_{10}	-0.187	-2.58
Punjab	D_{11}	-0.97	-1.39
Uttar Pradesh	D_{12}	-0.151	-2.21
West Bengal	D_{13}	-0.144	-2.07

State missed out is Bombay

R Squared Adjusted 0.59

R Squared Unadjusted 0.73

F Test (13.25) = 5.25* N = 39

* Significant at 0.05 per cent level

TABLE 8

Equation No. 22 Dependent Variable X_2/X_5

	Independent Variable	Regression Coefficient	T-Value
	Constant	0.328	4.50*
X_2/X_5	X_2/X_5	0.114	5.11
Andhra	D_1	-0.316	-2.99*
Assam	D_2	-0.412	-3.94*
Bihar	D_3	-0.201	-1.99*
Kerala	D_5	-0.305	-3.00*
Madhya Pradesh	D_6	-0.185	-1.82*
Madras	D_7	-0.144	-1.42
Mysore	D_8	-0.264	-2.60*
Orissa	D_9	-0.208	-1.95*
Rajasthan	D_{10}	-0.174	-1.54
Punjab	D_{11}	-0.354	-3.23*
Uttar Pradesh	D_{12}	-0.330	-3.23*
West Bengal	D_{13}	-0.252	-2.50*

R Squared Adjusted 0.601
R Squared Unadjusted 0.738
F Test (13.25) 5.42*

* Significant at 0.05 per cent level

significant in the third time period and in the pooled regressions in Table 6. The overall low $\bar{R}^2$ in the pooled regressions can be attributed to varying significance of $\Sigma DE/y_{ito}$ in different time periods and the exclusion of the state effect.

(2) Inclusion of the 'state effect' in Tables 7 and 8 improves the statistical fit, and in both equations of 7 and 8 the regression coefficients of $\Sigma DE/y_{ito}$ are significant. The $\bar{R}^2$ is much higher in these equations.

To summarise briefly, our main findings of the empirical test, we can emphasise first the limitations of our simple model in three aspects:

(1) We have been able to include only state development expenditure in our analysis. This excludes the central investments in the states in manufacturing, transport and communications and the other sectors.

(2) We recognise the two-way relationship that exists between expenditure-income. We justified the use of development expenditure as an independent variable.

(3) We have basically applied a model in which the regional income change is regarded as a function of the size of development expenditure, initial conditions, the state effect and the random factors. We therefore had to introduce the base level absolute income (y_{ito}) as one of the variables. This created some multicolinearity problems. In addition, since the base level absolute regional incomes are very unevenly distributed, any measure of regional change magnifies the unequal bases statistically. These limitations do not undermine the conclusions that we can draw from our empirical test.

The importance of state development expenditure

versus the other factors in explaining regional income change varied over the three time periods considered.

(1) In the first period of 1950-61 to 1955-56, the y_{ito} variable is significant in explaining the NDP change and the change in the industrial output. ΣDE is not significant in this period.

(2) In the second period of 1955-56 to 1960-61, both ΣDE as well as y_{ito} are significant. However, since ΣDE is positively and significantly correlated to the y_{ito}, the ΣDE is rendered statistically non-significant when both the variables are introduced together.[1]

(3) In the last period, the correlation between ΣDE and y_{ito} NDP declines. However, in this period the random factors are predominant in influencing the change of NDP. The random factors are not predominant in the equations on the change of the net industrial output.

(4) In the pooled regressions, the regression coefficients of ΣDE and y_{ito} are both significant and the multicolinearity problem is less serious.

(5) The income elasticity of state development expenditure varies in accordance with the varying significance of ΣDE versus other factors in different time periods. In pooled regressions the income elasticity of government expenditure with reference to the change in NDP and industrial output is less than 1. Income elasticity of development expenditure is more than 1 with reference to NDP change only in the time period 1955-56 to 1960-61. We consider two main

---

1. Thus, in the Second Five Year Plan of India, which embarked on the rapid industrialization, the regional resource allocation through state development expenditure was highly favourable to the high income states.

factors relevant in the overall low income elasticity of government expenditure with reference to NDP. One is the importance of random factors such as a bad harvest year in influencing regional NDP change, in various time periods. The regression coefficients of DE and DE/y_{ito} are rendered statistically non-significant in the third period with reference to NDP but are significant with reference to net industrial output.

Secondly, income elasticities of development expenditure are likely to be different as between the high income regions and the low income regions. Income elasticity of development expenditure can be expected to be higher in high income regions because of several factors. For example, these regions already have been able to create conditions of higher internal growth and thus additional development expenditure merely enhances the process of expansion. In the low income regions, previous private and public investments are low and leakages by way of a propensity to import may be high. A lower income elasticity of development expenditure does not imply that it is not an important policy tool. If the objectives of increasing development expenditure in the low income regions are the creation of long term conditions of higher regional growth, a lower current elasticity may have to be accepted. The analysis of the state development expenditure up to 1967-68 showed that the size of the development effort of the states is positively and significantly related to the level of state income. Although there was some shift of resources towards low income regions in 1960-61 to 1967-68, it was not possible to evaluate the impact of this shift on regional change, as the regional change was affected by the two bad agricultural years.

In our simple model above, we have attempted to analyse the relation between the change in the regional NDP and net industrial output and the total size of the development effort. If the size of the development effort of low income states was more than proportionately raised through central assistance, we could expect to find a negative

correlation between the ΣDE and y_{ito}.[1] However, up to 1967-68, this does not appear to be the case. Since we do not have the state income figures for the later years it is not possible to extend our computations to the more recent years. We may, however, briefly review size of the state development outlays in the Fourth Plan. The Fourth Plan lays down several objective criteria by which quantum of central assistance to the states is determined in the Fourth Plan.[2] To quote, "It was decided that after providing for the requirements of Assam, Nagaland and Jammu and Kashmir, the central assistance to the remaining states for the Fourth Plan should be distributed to the extent of 60 per cent on the basis of their population, 10 per cent on their per capita income if below national average and 10 per cent on the basis of tax effort in relation to per capita incomes and another 10 per cent to be allotted in proportion to the commitments in respect of major continuing irrigation and power projects. The remaining 10 per cent, it was decided, should be distributed among the states in order to assist them in tackling certain special problems, e.g. those relating to metropolitan areas, floods, chronically drought affected areas and tribal areas." The Fourth Plan further states that "Hitherto the plan schemes under different heads of development had their own patterns of assistance and the states could draw on grants or loans accordingly. Outlays under certain heads of development, as also were some of the specified schemes, were earmarked and could not be diverted to other heads of development or schemes." In the Fourth Plan central assistance would not be related to any specific scheme or programme under state plans, but would be given to the states through block grants and loans. Each state would get a fixed proportion (30%) of central assistance in the form of a grant and the balance (70%) by way of loans. In order to ensure that the overall priorities of the plan were adhered to,

---

1. Although ΣDE is significantly and positively correlated to the y_{ito} NDP in the three time periods considered here, there is a negative correlation between Δy NDP and $\Sigma DE/y_{ito}$, and this works out to be -0.53 for the period 1960-61 to 1967-68.
2. Fourth Five Year Plan of India, Government of India, Planning Commission, 1969, p.54-55.

outlays under certain heads of developments would be earmarked. The Fourth Plan further emphasises that "the decision that 60 per cent of the assistance should be distributed on the basis of population and that states in which per capita incomes are below the national average should get another 10 per cent of total assistance is a step towards the reduction of regional imbalances". Table 9 gives the relevant figures on states' resources, central assistance, total outlay and per capita outlay. The total outlay figures include development and non development expenditure. The appendix at the end of the chapter gives a comparative picture of the states' resources over various five year plans. The following points can be noted from the table:

(1) There is considerable inter-regional variation in the states' resources among the groups of low income and high income states. The states of Andhra, Bihar and Uttar Pradesh from the low income states have a higher proportion of their total outlay covered by their own resources. In the high income states Maharashtra, Gujarat, Tamil Nadu and Punjab have 27, 35, 39 and 34 per cent of their resources accounted for by central assistance. West Bengal is the only state which has 69 per cent of the total outlay accounted for by the central assistance.

(2) The resultant per capita outlay and per capita central assistance are unequally distributed. The correlation coefficient between state per capita income and per capita outlay in the Fourth Plan works out to be +0.65 and that between per capita income and central assistance is -0.20. Thus, the development effort of states in the Fourth Plan will continue to be higher in high income states.

We conclude, therefore, that contrary to the objectives laid down in the Third and Fourth Plans, regional development effort and regional income change will be greater in the high income regions. Inclusion of 10% of assistance on the basis of per capita income and 60% on the basis of population in the Fourth Plan did not result in a substantial reallocation of total outlays to low income regions. If we grant that the income elasticities of

TABLE 9

STATES' OUTLAYS IN FOURTH FIVE YEAR PLAN OF INDIA
(in Rs Crores)

State	States' Resources	Central Assistance	Total Outlay	% of Total Outlay accounted for by Central Assistance	Per Capita (in Rs) Outlay	Per Capita (in Rs) Central Assistance
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Andhra	180.50	240.00	420.50	57	101.2	57.8
Assam	41.75	220.00	261.75	84	177.6	149.3
Bihar	193.28	338.00	531.28	64	96.4	61.4
Gujarat	297.00	158.00	455.00	35	180.6	62.7
Haryana	146.50	78.50	225.00	35	236.8	82.6
Jammu & Kashmir	13.40	145.00	158.40	92	402.0	368.0
Kerala	83.40	175.00	258.40	68	127.3	86.2
Madhya Pradesh	121.00	262.00	383.00	68	98.7	67.5
Maharashtra	652.62	245.50	898.12	27	188.4	51.5
Mysore	177.00	173.00	350.00	49	125.0	61.8
Nagaland	5.00	35.00	40.00	88	95.2	83.3
Orissa	62.60	160.00	222.60	72	107.7	77.4
Punjab	192.56	101.00	293.56	34	210.6	72.5
Rajasthan	82.00	220.00	302.00	73	121.4	88.5
Tamil Nadu	317.36	202.00	519.36	39	136.0	52.9
Uttar Pradesh	439.00	526.00	965.00	55	111.1	60.5
West Bengal	101.50	221.00	322.50	69	75.7	51.9
	3106.47	3500.00	6606.47	53	128.9	68.3

Source: Compiled from "Fourth Five Year Plan", Government of India, op.cit.

development expenditure are likely to vary among these two groups of states, we must reach the conclusion that regional income disparities in the Fourth Plan will not be substantially reduced but may increase.[1]

SECTION II

AN EVALUATION OF REGIONAL POLICY INSTRUMENTS IN MANUFACTURING AND AGRICULTURE

In this section, we shall discuss the regional policy instruments in manufacturing and agriculture. Our quantitative analysis of regional disparities in these sectors (Chapters V, VI and VII) provides us with some understanding of the process of regional disparity in each sector. Hence, where possible, we shall draw on our earlier conclusions.

MANUFACTURING: The total state expenditure excludes direct central investments in manufacturing and transport. It includes, however, the state expenditure on the industrial development and village and small industries. The policy measures in manufacturing can be discussed under two headings, viz. (i) the measures to create a more diversified industrial base through direct public investment and (ii) the measures to promote private investment in the low income regions. The plan documents lay a great stress on the role of public sector projects in regional development. Various statements in the plans quoted earlier[2] emphasise the need for a "fair share" in the regional distribution of public investment. At the same time it is asserted in the plans that the location of public projects is largely determined by the techno-economic considerations. The feasibility studies[3] on the alternative locations of public sector investment are not published and hence we cannot discuss the criteria used in choosing the optimum location for a given project. The data on regional distribution of public investment are available for a few years and these were examined in Chapter VI. These data also classify the types of investment projects in each state. Background tables at the end of the chapter

1. Similar views are also expressed by various other writers. See (i) Vithal, B.P.R., "Central Assistance for State Plans: How Equitable Is It?", Economic and Political Weekly, June 14, 1969. (ii) Zaveri, N.J., "Transfer of Non-Plan Resources to States", Economic and Political Weekly, June 7, 1969.

2. See Chapter VI for a more detailed discussion on the regional distribution of public investment in India.

3. The feasibility studies on the location of all public projects are made by the Planning Commission but are not available for private research.

give the data on the regional distribution of public investment in 1968-69 and in the Fourth Plan. We pointed out in Chapter VI that a substantial proportion of total public investment in the Secondaand Third Plans went to Bihar,Orissa and Madhya Pradesh out of techno-economic considerations. However, this by itself need not lead to a creation of new growth centres in these regions. An application of the growth centre concept would require a number of inter-related public sector projects to be located in specific low income regions and the undertaking of additional policy measures to support regional development at these new growth centres. An examination of regional investment by projects in 1968-69 and for the Fourth Plan shows that nearly every state received some public sector projects. The number of projects and the total investments differ in each state. The low income states of Bihar, Orissa and Madhya Pradesh have received large public sector investments in steel and heavy industries. However, if we consider the number and amount of public investments in 1968-69 and those proposed in the Fourth Plan it becomes clear that additional public investments in Madhya Pradesh and Orissa either in additional investment in steel projects or other projects are much smaller than those in Bihar. Bihar has received a larger number of public projects in steel, coal and heavy engineering up to 1968-69. With additional large public investments in Bokaro in the Fourth Plan together with the location of other public projects in the Fourth Plan,Bihar can be placed as one of the low income states with the largest amount of accumulated public investment and thus has greater scope to respond to selective measures to induce private investment.[1] We may farther emphasise that there are economic advantages to be gained from concentration of locations of public sector projects at selected spatial points as far as these are permitted by the techno-economic considerations. Creation of new growth centres in the periphery need not mean "maximum dispersal" or "fair share". However, here the efficiency objectives are in some conflict with the political objectives of "balance".

---

1. The relative advantages anddisadvantages of the other low income states need to be examined at regional level in relation to their industrial structures and the size and pattern of the public investment.

The measures to channel private investment in the desired directions have taken various forms. These include (a) measures to reduce the monopolistic control of private industry by a few large industrial houses; (b) measures to promote decentralised industrial development away from large metropolitan centres; (c) measures to promote private investment in the industrially backward states. We stated in Chapter VI that,in analysing the trends in the private sector investment, we need to emphasise the role of the big industrial houses which exercise a monopolistic control over private investment in manufacturing. These industrial houses and the rest of the private sector have responded to the public sector investment in manufacturing by way of investment in the new growth industries. However, spatially these investments have occurred in the large metropolitan centres and in more industrialised states. We reviewed the evidence before the Licensing Committee in this regard. This evidence shows a continued trend towards further agglomeration in the metropolitan centres and in more industrialised states.

The U.N. Report[1] comes to the following conclusion regarding the decentralised industrial development. "The evidence of most of the countries in South East Asia seems to indicate that a decentralised urban industrial growth, i.e. away from large metropolitan centres, would require strong intervention. The experience of the Government of Maharashtra in India is illustrative in this respect. Some years ago the Government of Maharashtra offered a "package programme" of incentives to potential entrepreneurs who would consider industrial location away from over-congested Bombay area. The incentives included provision of land free or at a nominal cost, concessional water and power rates, exemption from sales tax and preferential treatment in the purchasing policy of the government. In addition, the government embarked on a programme of developing new land areas where basic urban facilities could be provided by the

---

1. "Regional Development: Experiences and Prospects, South East Asia", Vol. II, p. 219, Ed. Lefeber, L. and Datta - Chaudhri Mrinal, Geneva, 1970.

new industries. Judging by the poor response of entrepreneurs to the incentive scheme and by the continued high pace of growth in the Bombay-Thana area, it is clear that in the private profit calculations the risk-averting entrepreneur requires stronger incentives and deterrents to divert new industries away from the metropolis." The Pande and Wanchoo Committee reports[1] dealt with the identification of industrially backward states and the recommendation of the financial and other incentives measures to promote the private investment in the industrially backward states. In Chapter VI, an examination of available data on private investment showed that the private investment continued to concentrate at the established industrialised areas and did not respond to the large public sector investment in some of the low income regions. We can further conclude that in considering the impact of public investmant on attracting private sector investment, there is a need to examine the size and pattern of regional accumulated public investment and its relation to the regions industrial structure and then consider the possibilities of attracting private investment. The scope of various measures will differ among the various low income regions as the regional industrial structures and specialisation as well as the size and pattern of accumulated public investment differs. Ultimately, the extent of the success of the incentive schemes will depend on how far the profit calculations of private investors as a result of theiincentive and disincentive schemes are pursued by the regional governments.

---

1. See Section II, Chapter VIII for a classification of the industrially backward states by these reports.

AGRICULTURE: Our analysis of Chapter VII indicated that regional disparities in agriculture are as important as those in manufacturing. As we have analysed the extent and nature of regional disparities in agriculture up to 1967-68, we may concentrate here on the policy aspects and the new agricultural development strategy adopted since then under the Intensive Agricultural Development Programmes (IADP) and High Yielding Varieties Programmes (HYVP). We may analyse in this connection three interrelated issues: (1) The new agricultural development strategy since 1967-68 and the targets of agricultural production in the Fourth Plan did not specifically depend on or were aimed at raising the average productivity levels in agriculture in the low income states.

(2) The total outlays on agriculture and irrigation in the Fourth Plan were much lower in the low income regions in relation to their needs.

(3) At national level, adequate policy measures to raise the average productivity levels in the dry farming areas do not exist. This has regional implications for a few low income regions which do not have adequate resources to undertake programmes to protect and raise the productivity levels of large proportions of their area.

We may elaborate on these three points in greater detail. It is not possible to review all the literature on "Green Revolution" and on the IADB[1] and HYVP[2] Programmes. We have tried to list some of the literature on the new agricultural development strategy in the bibliography. This strategy concentrates on selecting areas of minimum risk and with existing irrigation facilities. The Fourth Plan lays down two main objectives in agriculture. The first one is to provide conditions necessary for a sustained increase in agricultural production of about 5 per cent per annum over the next decade. The second objective is to enable as large a

---

1. Intensive Agricultural Development Programme.
2. High Yielding Varieties Programme.

section of the rural population as possible, including the small farmer, the farmer in dry areas and the agricultural labourer to participate in development and share its benefits. In foodgrains production, the plan aims to increase the food production from 98 million tonnes in 1968-69 to 129 at the end of the Fourth Plan. Of this additional 31 million tonnes, 21 million tonnes is to come from HYVP. This is expected to be achieved largely by the extension of the programme from 9.2 million hectares in 1968-69 to 25 million hectares in 1973-74.[1] Various writers have expressed that inter-regional disparities in agricultural growth will persist and may also increase. V. Nath[2] comes to the following conclusion in this regard. He classifies the states by their performance in agriculture in High and Low states. This classification is similar to our classification of states into regions with existing advantages and disadvantages. To quote, "It is clear that half the states of India, having more than half of the total cropped area and the total value of agricultural output are not participating adequately in agricultural progress. The Fourth Plan, while it contains programmes for achieving rapid increases in some directions in some Low States such as rural electrification in Uttar Pradesh and Bihar or for meeting particular problems such as floods in Assam, will not substantially reduce inter-state differentials in growth rates of agricultural output and of increase of productivity of croplands. What is more important, it does not have an adequate content such as by way of HYVP for greatly accelerating agricultural growth in Low States. But persistence of a low growth rate over a large part of the country will make achievement of a high overall rate of growth of agricultural output very difficult. Moreover, persistent regional disparities in agricultural growth will lead to -a regional dichotomy in economic development and growth, which will complicate enormously the task of economic development.

---

1. See Fourth Five Year Plan, Government of India, Planning Commission, Chapter 7. Thus even by 1973 the percentage of total cultivated area covered under HYVP will be only 19 per cent.
2. Nath,V. "Agricultural Growth in 1970's: An Analysis", Economic and Political Weekly, Dec. 1970.

The causes of slow agricultural progress in Low States should be identified and remedial measures should be taken." Table 10 gives data on outlay on agriculture and irrigation by the states in the Five Year Plans. We may note the following points from the Table.

(1) The total all-India outlay on agriculture was low at Rs 877 crores in the Second Plan. The total outlay on agriculture increased to 4689 crores in the Fourth Plan. This amounts to more than four times increase in outlay on agriculture.

(2) Total per hectare outlay on agriculture was higher than the national average in the Second Plan in the following states: Kerala, Punjab, West Bengal, Tamil Nadu, Andhra, Bihar and Orissa.

(3) At national level her hectare outlay on agriculture and irrigation increased from Rs 65 in the Second Plan to Rs 114 in the Third Plan and Rs 167 in the Fourth Plan. We may note the position of individual states against this national average. Kerala increased the outlay from Rs 115 to 409 in the Fourth Plan, Assam from Rs 70 to Rs 246, Tamil Nadu from 81 to 240, Maharashtra from Rs 52 to 178, Gujarat from Rs 77 to 197 and Bihar from Rs 97 to 236. The states which remain below the national average are Madhya Pradesh from Rs 43 to Rs 98, Rajasthan from Rs 34 to Rs 69, Orissa from 79 to 106 and Andhra from Rs 84 to Rs 121. Among the low income states, Uttar Pradesh and Bihar are the only states with more than national per hectare outlay on agriculture.

(4) The overall position of the states is reflected in column (10) to column (14). From columns (13) and (14) we can see that there are several states which have received a higher share in total outlay than their respective area shares. These states are Assam, Bihar, Kerala, Gujarat, Tamil Nadu, Punjab and Uttar Pradesh.

We may further examine the position of the individual states in the total outlay on major and minor irrigation. Table 11 gives the outlay in these sectors. These figures

TABLE 10

PLAN OUTLAY ON AGRICULTURE AND IRRIGATION IN INDIAN STATES

State	Second Five-Year Plan			Third Five-Year Plan			Fourth Five-Year Plan			Overall Outlay in the Second, Third and Fourth Five-Year Plans				
	Total Estimated Expenditure (Rs crores) (1)	Outlay Per Hectare of Net Cultivated Area(Rs crores) (2)	Rank (3)	Total Estimated Expenditure (Rs crores) (4)	Outlay Per Hectare of Net Cultivated Area(Rs crores) (5)	Rank (6)	Total Estimated Expenditure (Rs crores) (7)	Outlay Per Hectare of Net Cultivated Area(Rs crores) (8)	Rank (9)	Outlay (10)	Outlay Per Hectare of Net Cultivated Area(Rs crores) (11)	Rank (12)	% of outlay in Each State (13)	% of Area in Each State to the Total Net Sown Area (1965-66) (14)
Andhra Pradesh	95	84	4	151	137	4	133	121	11	379	344	9	8.1	8.1
Assam	16	70	9	27	114	7	56	246	2	100	429	4	2.1	1.7
Bihar	81	97	2	144	173	2	197	236	4	422	506	2	9.0	6.1
Gujarat	73	77	7	111	116	6	187	197	5	371	390	6	7.9	7.0
Kerala	22	115	1	54	264	1	85	409	1	161	781	1	3.4	1.5
Maharashtra	93	52	12	167	92	11	316	175	8	576	318	10	12.3	13.3
Madhya Pradesh	70	43	13	118	71	11	162	98	13	350	212	12	7.5	12.1
Tamil Nadu	49	81	6	90	151	3	143	240	3	281	473	3	6.0	4.4
Mysore	60	58	11	103	102	8	156	156	10	318	318	10	6.8	7.4
Orissa	47	79	8	60	99	9	64	106	12	170	285	11	3.6	4.4
Punjab (including Haryana)	65	86	3	69	92	10	128	172	9	261	352	8	5.6	5.5
Rajasthan	46	34	14	130	92	10	98	69	14	274	194	13	5.8	10.4
Uttar Pradesh	96	55	10	201	116	6	317	183	7	614	354	7	13.1	12.8
West Bengal	45	82	5	81	149	5	102	188	6	229	419	5	4.9	4.0
Jammu & Kashmir	7	107		19	285		36	559		64	954		1.4	0.5
Union Territories	12	152		24	243		83	839		118	1207		2.5	0.7
Total	877	65		1547	114		2265	167		4689	345		100	100

Source: Compiled from Fourth Five Year Plan, op. cit. and Shivmagg, H.B., op. cit.

TABLE 11

OUTLAY ON IRRIGATION IN FOURTH PLAN, BY STATES

State	Outlay on Major and Medium Irrigation Programmes	Outlay per 1000 Hectares of Cultivated Area in the State	Rank	Outlay on Minor Irrigation Programmes	Outlay per 1000 Hectares of Cultivated Area in State	Rank
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Andhra Pradesh	6450	0.56	7	2800	0.24	10
Assam	571	0.25	14	1100	0.48	6
Bihar	9930	1.16	8	4600	0.54	3
Gujarat	10500	1.09	4	2922	0.30	9
Jammu & Kashmir	706	1.01		600	0.86	
Kerala	2675	1.31	2	950	0.47	7
Madhya Pradesh	6100	0.36	11	3000	0.18	12
Tamil Nadu	3000	0.50	9	3070	0.51	2
Maharashtra	12393	6.80	1	6500	0.36	6
Mysore	6800	0.65	6	3200	0.31	8
Orissa	1800	0.30	13	1075	0.18	11
Punjab	1600	0.42	5	2320	0.61	1
Haryana	2268	0.68		850	0.25	
Rajasthan	7400	0.51	8	800	0.06	13
Uttar Pradesh	9700	0.53	10	9600	0.52	4
West Bengal	1900	0.35	12	2674	0.49	5
All-India (including Union Territories)	885706	0.62		47568	0.34	

Source: Shivmaggi, H.B.
Economic and Political Weekly, Review of Agriculture, September 1969.

further highlight the unequal state expenditure in these sectors in various states. The largest outlay in major and medium irrigation was to be spent by Gujarat, Maharashtra, Bihar, Uttar Pradesh and Mysore. In terms of expenditure per 1000 hectares of cultivated area, the states with lowest expenditure are West Bengal, Orissa, Madhya Pradesh, Rajasthan and Andhra. In minor irrigation, also, the last five states by per hectare expenditure are Andhra, Orissa, Rajasthan, Madhya Pradesh and Gujarat. It may be argued that the outlays on irrigation in these states may be low because of the low irrigation potential of these states due to larger proportions of dry areas in these states. We may take the figures on ultimate irrigation potential of individual states as quoted by the Fourth Plan itself. Table 12 gives data on these aspects. The following points may be noted from the table.

(1) At the end of 1968-69, the percentage of irrigation with reference to ultimate irrigation potential (columns 4 and 7) works out to be very uneven for different states. Assam, Gujarat, Maharashtra, Madhya Pradesh, Orissa, Rajasthan and Uttar Pradesh have a low percentage. We can note that at the end of 1973-74 (Column 11) Gujarat and Maharashtra would have increased their irrigation ratio from 22.4 and 26.7 in 1968-69 to 38.7 and 42.9. The position of Madhya Pradesh, Rajasthan, Uttar Pradesh and Andhra would change only marginally as their irrigation ratio would change from 16.7 to 23.1, 32.4 to 41.6, 40.0 to 48.9 and 37.5 to 47.2 respectively. Punjab and Tamil Nadu would have 88 and 97 per cent of their irrigation potential realised.

(2) The utilisation of actual irrigation also differs and the utilisation is particularly low in Madhya Pradesh, Rajasthan, Uttar Pradesh, Maharashtra, Mysore and Bihar. Actual utilisation is high in Kerala, Punjab, Madras and Orissa. We may draw the following conclusions from our discussion of state outlays in agriculture and irrigation: (a) The New Agricultural Development strategy since 1967-68 and the Fourth Plan production targets rely heavily on the areas of minimum risk and with assured water supply. The production targets

TABLE 12

BENEFITS FROM MAJOR AND MEDIUM IRRIGATION SCHEMES
('000 Hectares gross)

State	Ultimate Irrigation Potential	Irrigation from pre-plan schemes	Benefits to end of 1968-69 from Plan Schemes		Potential to end of 1968-69 including Pre-Plan (Col.3 & 4)	% of pot. to end of 1968-69 w.r.t. ultimate irrigation potential	Estimates of Benefits during IV Plan		Pot. to end of 1973-74 including Pre-Plan Col.6 & 8)	% of pot. to end of 1973-74 w.r.t. ultimate irrigation potential
			pot.	utilisation			pot.	util-isation		
(0) (1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1 Andhra Pradesh	6480[1]	1676	751	572	2427	37.5	629	413	3056	47.2
2 Assam	970[2]	65	18	14	83	8.6	52	333	135	17.5
3 Bihar	4290[3]	590	1250	770	1840	43.1	1050	1020	2890	67.3
4 Gujarat	2150[3]	33	450	310	483	22.4	3350	350	833	38.7
5 Haryana	[5]	[5]	920	900	920	[5]	150	100	1070	[5]
6 Jammu & Kashmir	100[4]	43	20	18	63	63.0	16	10	79	79.0
7 Kerala	630[4]	158	179	179	337	53.5	119	111	456	72.3
8 Madhya Pradesh	5630[3]	513	430	172	943	16.7	360	313	1303	23.1
9 Maharashtra	2350[3]	279	350	200	629	26.7	380	310	1009	42.9
10 Mysore	1780[2]	308	490	400	798	44.8	95	125	893	50.1
11 Nagaland	N.A.	-	-	-	-	-	-	-	-	-
12 Orissa	2430[3]	455	635	600	1090	44.9	260	190	1350	55.5
13 Punjab	4140[4]	1656	685	681	2341	78.7	25	9	2366	83.0
14 Rajasthan	3150[2]	320	700	600	1020	32.4	290	210	1310	41.6
15 Tamil Nadu	1560[4]	1141	310	290	1451	93.1	70	70	1521	97.5
16 Uttar Pradesh	7610[2]	1991	1050	970	3041	40.0	680	450	3721	48.9
17 West Bengal	2310[2]	440	660	610	1100	47.6	240	180	1340	58.0
18 TOTAL	45580	9668	8898	7286	13566	40.7	4766	3894	23332	51.2

[1]State Government. [2]C.W. & P.C. [3]Relevant Reports on Techno-Economic Survey - National Council of Applied Economic Research

[4]On the basis of figures furnished by the C.W. & P.C. with marginal adjustments in the Planning Commission.
[5]Included in Punjab.
[6]Haryana's figures included.

Source: Fourth Five-Year Plan, Government of India, Planning Commission, 1971.

of the Fourth Plan in food production are expected to be met largely through HYVP. These programmes cannot lead to a reduction of regional disparities in agriculture.[1]

(b) The plan outlays in agriculture in the Second, Third and Fourth Plans have increased substantially in high income states. The total outlay on agriculture in Madhya Pradesh, Orissa, Rajasthan and Andhra in the Fourth Plan remain low mainly because their total resources are very limited. We saw in Section I that as compared to Madhya Pradesh, Andhra, Rajasthan and Orissa, Bihar and Uttar Pradesh have larger total outlays in the Fourth Plan.

(c) Among the various low income regions the percentage of dry area to total cultivated area differs. Rajasthan has the highest proportion of dry area to total area. At the national level, out of 138 million hectares of cultivated area nearly 47 million or 37 per cent of the total area receive rainfall below 750 millmetres and consequently often suffer from drought. The other states with large areas with insufficient rain are Punjab, Tamil Nadu, Maharashtra, Gujarat, Madhya Pradesh and Andhra. The first four states are well placed in terms of their own resources to undertake some special efforts to protect dry areas and also to undertake programmes to raise the productivity levels in dry areas. With inadequate resources in Andhra, Madhya Pradesh and Rajasthan, these states are in a less advantageous position to divert resources to dry farming areas.

Thus, in agriculture, we recognise the conflict between "efficiency" and "equity" arising out of the need to attain national targets of production through a concentrated effort in the best areas that are spread all over the country and through higher effort in the states which have existing advantages and have been able to create conditions conducive to higher agricultural growth. However, since such concentrated effort through HYVP would affect only 19 to 20 per cent of cultivated area, the need arises to undertake additional steps to spread the agricultural development to larger areas of the country, and especially those in the

[1] Although, as we pointed out in Chapter VII, as a result of unequal distribution of regional area under HYVP, the regional disparity can be expected to increase as the low income regions of Madhya Pradesh, Rajasthan, Orissa continue to have a low share in area under HYVP.

low income regions which are inadequately placed in terms of their own resources. It is essential to relate their outlay in agriculture and irrigation to their development needs and potential. Greater resources for these states for agriculture can be made available through several ways. One of these is a higher central assistance to these states for increasing their outlay in agriculture. Thus in the criteria of determining the central assistance, the states with inadequate outlays on agriculture and irrigation, and with low agricultural development, may get additional assistance. Secondly, there is scope for centrally sponsored schemes for states such as Rajasthan and Madhya Pradesh for dry area farming.[1] Thirdly, a greater effort to raise additional resources may come from these states if they are encouraged to undertake a greater development effort in agriculture. This appears to be the case in Bihar and Uttar Pradesh.

We may finally conclude that between the two sectors of manufacturing and agriculture, public investment is spatially more diffused in manufacturing up to 1968-69 and in the Fourth Plan. The public investment in agriculture is spatially concentrated. Since agriculture accounts for more than 40 per cent of state income in the states, the need for a "fair" share of development effort in agriculture at state level is more important than the political demands of various states to have steel mills or fertiliser plants located within given state boundaries.

---

1. For a similar approach, see Shivamaggi, H.B., Economic and Political Weekly, Review of Agriculture, September 1969.

SECTION III: GUIDELINES ON NATIONAL POLICY FOR REGIONAL DEVELOPMENT

An empirical evaluation of regional goals and policy instruments in Indian planning leads us to the following conclusions:-

(1) The regional goals in Indian plans are expressed in terms of vague statements of the needs of different areas and the "regional balance". These goals are not specified in terms of targets or by a classification of regions.

(2) The national planning process operates through the multi-regional planning bodies and hence a considerable proportion of the national expenditure in various important sectors occurs through state plans. The role of centre in the state plans is crucial as the size of the state plans and its sectoral allocation is prepared in consultation with the centre and, secondly, the central assistance is an important source of financing the state plans. Thus, the size and pattern of the state development effort is an important regional policy variable. The regional development effort in the low income regions remained much below that in the high income regions during the period 1950-51 to 1965-66. During this period, the reduction of regional disparities or the level of a state's development was not taken as an explicit criterion in the allocation of central assistance. In the Fourth Plan, greater weight was given to the level of a state's development in the criteria of central assistance. However, this in itself did not result in an adequate increase in the state outlays of the low income regions.[1] An examination of the states' resources in the Fourth Plan reveals[2] that, in spite of greater additional tax effort in the low income regions as compared to some high income regions, the total resources of the low income states remained low as they had large

---

1. We considered earlier the various reasons for inadequate outlays in low income states.
2. See the appendix1 at the end of the chapter.

negative balance in capital account due to past loan indebtedness; and secondly, the resources raised by these states in the market loans and other miscellaneous sources were much lower than in high income states.

(3) An examination of sectoral outlays in agriculture and irrigation in the Fourth Plan showed that the per hectare outlay in agriculture and irrigation remained below national average in three low income regions which we classified as the least advantageous in agriculture.[1] The share of these states also remains the lowest in the HYVP. The Fourth Plan did not propose specific programmes for, or allocations to these states to step up their outlay on agriculture or to undertake additional centrally sponsored schemes. In the plan literature, the regional disparity in agricultural investment is less emphasised than the need for the regional balance in the public sector projects.

(4) The regional allocative criteria in the location of public sector projects are not discussed in the planning literature. Planning documents emphasise that in addition to techno-economic considerations, the needs of the backward areas are given special attention. This assertion in the plans resulted in allocation of some public sector project to each state and also led to long battles between the states for the location of certain industrial projects. To quote Lefeber,[2] "Unfortunately state governments frequently compete for certain types of industrial investments, not on economic grounds, but out of political necessity or misguided eagerness. In effect, regional self-sufficiency in fertiliser production or in petroleum refining is almost a status symbol and a sign of an active government. Rational economic evaluation of regional production patterns and real cost-benefit calculations would demonstrate that many of these projects are wasteful from the point of view of both nation and the state."

Thus, we conclude that up to the Fourth Plan the

1. These are Orissa, Madhya Pradesh and Rajasthan.
2. Lefeber,L., "Regional Allocation of Resources in India", op.cit.

national planning operated without specific regional orientation towards reducing regional disparities, and yet obtained the consensus of states on their respective shares in outlays through the complex mechanism of centre state political, planning and financial relationships and through the regional allocation of public sector projects. To quote M.Chaudhry, "The structure of economic planning, both national and regional, reflected this important fact of the country's political life. Rational planning implies the considering of alternative problems, making a choice on the basis of certain socially accepted criteria and evolving a hierarchy of decision-making apparatus.on the different levels to implement the policy implications of these choices. In the 1950's, the Indian planning process tried to specify the alternatives regarding the allocation of resources among different sectors of commodity production as well as those regarding the techniques of production, applying economic analysis in an attempt to reach a national solution. However, the process almost deliberately sidetracked all questions concerning inter-regional conflicts of interests. The objectives of planned development were stated in such a fashion as to hide all questions of choice inherent in the planning process of multi-region economy. Because the same political party controlled all governments, it could afford to make the process of formulating both central and state plans a cooperative and almost informal venture. Conflicts naturally developed, but no formal machinery for their resolution was established". He further adds that "Although the Indian planning process did not try to find a rational solution to problems of regional allocation (in fact, it made no attempt to state these problems realistically), actual decisions concerning regional allocation had to be made. In practice, except for the few cases in which non-institutionalised political bargaining provided the solution, the allocation problem was solved by analogy with solutions of other choice

problems concerning commodity composition and choice of techniques."[1]

The role of the centre dominated planning process in influencing the "development-mindedness" or the "development-orientation" of states is also noted by other writers. George Akerlof[2] concludes as follows: "Thus the plan placed pressure on the states to be 'development-minded' administratively since the preparation of well-formulated plans would most likely lead to increased appropriation of funds from the centre. It is difficult to assess quantitatively: (1) the degree of pressure from the centre, (2) the success of the centre in inducing the states to prepare better plans and finally (3) even the value of this exercise. A glance, however, at consecutive state plans does indicate that there was some force at work which caused greater care in the preparation of these documents and more precision in the project proposals. In each of the three Five Year Plans, the allocation of aid to each and every state in the Indian Union came closer than in the previous plan to the percentage population of the state in the total population of India."

We believe that the alternatives or modifications to the regional framework up to the Fourth Plan need to be considered in the light of two factors. Important political changes have taken place in the late 'sixties and early 'seventies, resulting in a situation in which the ruling party at the centre no longer controls all the state governments. This process of change and instability is not yet complete, but it is bound to influence the centre-state relationships and the operation of national and regional

---

1. M. Datta-Chaudhri, "Regional Planning in India", in "Issues in Regional Planning", Eds. David Dunham and Jos.G.M. Hilhorst, A Selection of Seminar Papers, Institute of Social Studies, The Hague, 1971 - p.174.

2. George Akerlof, "Centre-State Fiscal Relations in India", Indian Economic Journal, 1968.

planning process.[1] Secondly, since this new situation demands that the informal and cooperative planning of the earlier era is no longer possible, the economic criteria of resource allocation and the trade-offs between various alternatives must be considered with greater urgency.

The modifications to the regional policy framework need to be considered against this background. We shall examine below the three important aspects in which these changes must be sought, both to provide a rational basis of regional resource allocation and, through it, to form a basis to obtain a consensus of multi-regions under the new political framework. These are (1) formulation of regional goals; (2) efficiency in industrial location; (3) the criteria of central assistance and the size of state plans.

Formulation of regional goals: Formulation of long term and short term regional goals occupies an important place in national and regional planning. Such goals can be worked out both in relation to long term and short term Five Year Plans. Consideration of alternative long term regional goals would involve examining the relation between the alternative regional goals and their relation to long term goals of national planning. Such goals can be considered in two forms, such as:(1) select the regional distribution of investment according to explicit regional objectives and then decide on the sector in which investment should take place: (2) select the sectoral distribution of investment according to some national objective and then

---

1. See Chaudhry, M., op.cit., "During the last three years, important political changes have taken place. The congress party has lost control of more than half of the state governments, even though it retains control at the centre. The old system of informal and cooperative planning is no longer possible. The entire planning machinery is undergoing drastic change, with the intention of introducing greater autonomy for the states in formulating their plans and of specifying the rules for inter-state resource allocation. A clear picture of the new situation has yet to emerge, thus making it rather difficult at present to assess the regional planning techniques as practised in India."

consider its regional distribution.[1] The national planning in India corresponds to the second form in which regional resource allocation follows after the sectoral allocation of resources. Here, an application of different regional goals would lead to a different pattern of regional investment within each sector. Such long term projections would highlight the areas of conflict and thus serve as a useful guide for rational allocation of resources in the short term plans, as the short term goals can then be worked out in relation to the long term objectives of national and regional planning. We consider that formulation of long and short term goals in national planning can provide a basis for cooperation between centre and states and create a more rational basis on which regional gains in the development effort may be evaluated. M.Chaudhry concludes in this regard as follows: " However, rational use of a country's resources is feasible only when the various opportunities for the use of these resources are known. The full potentialities of certain development schemes become apparent only when viewed at close quarters. Therefore, ground level planning efforts are often more efficient in formulating development schemes which are consistent with the endowments of the place and needs of the people. But it is not easy to devise an institutional machinery which can efficiently explore development potentials and also exercise social choice consistent with the objectives of efficiency and distributive justice. Current political developments in India are improving the situation in the former sense by decentralising the planning process. The need to devise a mechanism of rational choice

---

1. For more discussion on these issues, see (1) Stilwell, J.B.Frank, "Regional Economic Policy", op.cit., 1972, also (2) "Issues in Regional Planning", ed. Dunham, David and Hilhorst,Jos.G.M., op.cit., (3) Meade,J.E., "The Theory of Indicative Planning", Manchester University Press, 1970, (4) Rahman,M.A., "Regional Allocation of Investment",op.cit.

is correspondingly becoming more and more important but the major innovation in this field is yet to come".[1] Lefeber also concludes that "The short-run solution is to apply more vigorous criteria to regional investment choices in accordance with a rationally adjusted pricing mechanism. In the long run, however, the states cannot be expected to cooperate unless the distant benefits of current patience are spelled out in the forms of explicit long term plans. Without such plans the democratic approach to development will have to be replaced by fiat".[2]

Efficiency in Industrial Location: We examined earlier[3] the regional distribution of public sector investment. We emphasised that out of techno-economic considerations public sector investment in manufacturing has gone to various low income regions. The regional growth effects of the public sector projects are likely to vary among the low income regions. The industrial location choices by strict application of national and regional efficiency criteria may not coincide with a "fair" regional distribution of public sector investment asserted in the plans. National and regional efficiency criteria can be better served by spatial concentration of public investment at the selected spatial centres. An examination of the location pattern of public investment in four plans is necessary to examine the future potentialities of various locational clusters to receive further public investment. Such examination can also show the linkages of the existing clusters to the regional production structures and the existing advantages or disadvantages of these clusters in terms of the social infrastructure facilities.[4] If the development gains of the

---

1. Chaudhry, Mrinal Datta M., "Regional Planning in India, op.cit.
2. Lefeber, M., "Regional Allocation of Resources in India, op.cit.
3. See Chapter VI and Section II of this chapter.
4. Lefeber cites the example of location of oil refinery in Assam as the case in industrial location in which the considerations of economies of scale and nearness to the market would have led to a different location and to a more rational allocation of resources.

regions are specified in more concrete terms through regional goals, these may help to lessen the political demands of states for the location of industrial projects.

Central Assistance to the States: Up to the period 1965-66, the regional level of economic development was not taken as a specific criterion for determining the central assistance. In the Fourth Plan, three important changes were introduced in the centre-state relationship: (1) The per capita income was taken as one of the criteria in determining the central assistance to the states. (2) A fixed proportion of the total assistance was allocated in the form of grants. (3) States were given greater initiative than in earlier plans to allocate their state plans among different projects. Introduction of these changes did not lead to a reduction in the regional disparities in the size of state plan outlays and the regional allocation in agriculture and irrigation. We propose that formulation of long term and short term regional goals in national planning which are accepted by all the states would result in larger state plans without substantial efficiency loss to the low income regions in the following conditions:- (1) A reallocation of resources from high to low income regions need not result in a lowering of development effort in these states if there is underutilised tax and saving potential. We noted earlier that the additional tax effort of some high income states in the Fourth Plan was not substantially higher than in low income regions. (2) The basic development problem in low income regions consists of low investment. While it is possible to agree on the former, the dimensions of the latter problem cannot easily be quantified, at least in aggregate terms. We noted earlier that the income elasticity of development expenditure over a short period is likely to be higher in high income regions. This, in itself, does not undermine the role of development expenditure considered over a longer time period. In addition, we need to emphasise the possibilities of varying trade-offs between "efficiency" and "equity" if we consider the alternative regional pattern of investments, such as through higher

investments in social infrastructures or in the agricultural development and rural programmes.[1] The importance of higher development effort in agriculture in low income regions can be emphasised from several aspects. Firstly, if the objectives of greater regional orientation are to spread, the benefits of development to the people in different geographic areas who have a distinct identity of their own, and are not perfectly mobile, increased income and employment opportunities in rural areas should receive priority. In addition, these additional income and employment benefits can also arrest large influxes of labour force to the urban areas. Secondly, in agriculture we noted earlier that there is a conflict from the efficiency point of view between the allocation of scarce resources to the regions which already have natural and acquired advantages , and thus concentrated effort in these areas can lead to greater national growth of output and productivity. Agricultural modernisation through investments in modern inputs is a highly capital intensive process and the efficiency criteria of evaluating the returns from investments in alternative regions have to be strictly considered.

Hence, we conclude that the agricultural programmes in the regions with existing dis-advantages should be such that they do not involve the use of scarce capital intensive resources. The labour intensive rural development programmes, minor irrigation and the agricultural development programmes aimed to increase the productivity levels in dry farming which fall into this category. The potentialities for different types of projects can only be worked out at the level of each state. Thirdly, it is also possible to suggest that centrally sponsored schemes may be

---

1. See, for example, Haddad, Paulo Roberto, "Problems of Regional Planning in Brazil", in "Issues in Regional Planning, op.cit. He notes that, in Brazil, the types of policies of regional development changed from a low emphasis on investments in social and economic infrastructures in the earlier plan (1949-53) to higher emphasis on such investments in later plans.

undertaken in the regions which have existing disadvantages in agriculture. Such schemes may be undertaken to tackle the problem areas of the region.

We can summarise the guidelines as follows: The informal and cooperative era of regional and national planning up to the late 'sixties owed much of its origin to the centre-dominated political and planning process. Important political changes in the late 'sixties and 'seventies have created a new situation in which the earlier basis of cooperation and consensus is no longer possible. The possibilities of introducing rational criteria for regional resource allocation have to be considered against this background. We consider that such rational criteria are all the more imperative in the current situation and although the precise goals or measures cannot be specified here as not being within the scope of the present study, we can consider the broad directions in which the regional policy framework can be modified. The formulation of long and short term regional goals in national planning, modifying the criteria of central assistance in accordance with these goals, and greater regional orientation in agricultural development appear to be of crucial importance in addition to the more decentralised planning introduced in the Fourth Plan.

Background Tables of data used in the regression analysis of Chapter IX

1950-51 - 1955 - 56

State	Net Domestic Product Average Growth Rate	Net Industrial Output Average Growth Rate	Additional Net Domestic Product Rs. 100,000	Additional Net Industrial Output Rs. 100,000	Accumulated Development Expenditure, Three years, Rs.100,000	Net Domestic Product Rs.100,000	Net Industrial Output Rs.100,000
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Andhra	3.26	3.10	13048	1027	9365	80129	6762
2. Assam	3.32	3.90	4908	736	2338	29548	3768
3. Bihar	3.40	2.13	11923	1263	7479	70041	11832
4. Bombay	6.40	8.10	31318	9178	15752	181447	33382
5. Kerala	2.96	2.79	6095	965	5675	41173	6622
6. Madhya Pradesh	6.30	4.00	19346	1647	5380	61467	8200
7. Madras	5.20	4.01	19190	2496	9708	73713	12111
8. Mysore	3.70	4.01	10334	1634	9884	55651	7835
9. Orissa	1.62	4.83	3002	559	4219	36876	2269

1950-51 - 1955-56 (Continued)

State	Net Domestic Product Average Growth Rate	Net Industrial Output Average Growth Rate	Additional Net Domestic Product Rs. 100,000	Additional Net Industrial Output Rs. 100,000	Accumulated Development Expenditure, Three years, Rs.100,000	Net Domestic Product Rs. 100,000	Net Industrial Output Rs.100,000
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
10. Punjab	1.58	3.90	5150	1414	9714	65,254	7238
11. Rajasthan	4.16	1.96	8512	282	3511	40931	2865
12. Uttar Pradesh	0.94	1.97	8017	1502	14848	171022	15240
13. West Bengal	3.66	4.57	12366	5127	10718	123982	22409

Calculated from:-

Sources: 1) NCAER, "Estimates of State Income" op. cit.
2) IIPO, op. cit.
3) Reserve Bank of India Bulletins, 1952 through 1966.

1955-56 - 1960-61

	State	Net Domestic Product Average Growth Rate	Net Industrial Output Average Growth Rate	Additional Net Domestic Product Rs.100,000	Additional Net Industrial Output Rs.100,000	Accumulated Development Expenditure, Three years, Rs.100,000	Net Domestic Product Rs.100,000	Net Industrial Output Rs.100,000
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Andhra	2.34	5.24	10866	2044	14997	93177	7789
2.	Assam	2.64	4.54	4537	1024	15199	34456	4504
3.	Bihar	5.16	7.03	21173	4616	12459	81964	13095
4.	Bombay	10.40	15.86	59955	26484	27591	212765	41570
5.	Kerala	3.32	3.02	7266	1140	8122	47268	7547
6.	Madhya Pradesh	3.50	4.07	14165	2007	14438	80813	9847
7.	Madras	4.74	6.80	22909	4971	16844	92903	14607
8.	Mysore	2.40	3.73	7929	1709	14976	65955	9469
9.	Orissa	3.58	6.61	7132	932	9908	39878	2818

1955-56 - 1960-61 (Continued)

State	Net Domestic Product Average Growth Rate	Net Industrial Output Average Growth Rate	Additional Net Domestic Product Rs.100,000	Additional Net Industrial Output Rs.100,000	Accumulated Development Expenditure, Three years, Rs.100,000	Net Domestic Product Rs.100,000	Net Industrial Output Rs. 100,000
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
10. Punjab	5.46	9.28	19212	4017	17136	70404	8652
11. Rajasthan	2.18	6.00	5378	949	9810	49443	3147
12. Uttar Pradesh	4.40	3.69	36108	3658	27406	179039	16742
13. West Bengal	3.01	7.71	24960		18277	136348	27536

Calculated from:-

Sources: 1) NCAER, "Estimates of State Income" op. cit.
2) IIPO, op. cit.
3) Reserve Bank of India Bulletins, 1952 through 1966

1960-61 - 1967-68

State	Net Domestic Product Average Growth Rate	Net Industrial Output Average Growth Rate	Additional Net Domestic Product Rs.100,000	Additional Net Industrial Output Rs.100,000	Accumulated Development Expenditure, Three years, Rs.100,000	Net Domestic Product Rs.100,000	Net Industrial Output Rs.100,000
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Andhra	4.10	5.90	34055	4862	1941	104043	9833
2. Assam	2.37	1.80	6960	720	6264	38993	5528
3. Bihar	2.82	3.90	22200	5393	29149	103137	17711
4. Guyarat	5.30	4.70	36181	6529	23577	83108	17361
5. Kerala	2.76	3.60	11638	2447	20222	55134	8687
6. Madhya Pradesh	2.96	6.70	21562	6815	31139	94978	17854
7. Madras	3.50	5.50	31638	8946	36580	115812	19578
8. Maharashtre	2.28	3.40	32351	11231	45071	189612	42503
9. Mysore	4.80	9.20	24845	8115	31164	73884	11236

1960-61 - 1967-68 (Continued)

State	Net Domestic Product Average Growth Rate	Net Industrial Output Average Growth Rate	Additional Net Domestic Product Rs.100,000	Additional Net Industrial Output Rs.100,000	Accumulated Development Expenditure, Three years, Rs. 100,000	Net Domestic Product Rs.100,000	Net Industrial Output Rs.100,000
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
10. Orissa	3.50	10.50	12887	3794	26834	47010	3750
11. Punjab	6.84	10.90	52833	4037	25079	89616	12669
12. Rajasthan	4.85	7.00	21556	2490	20541	54821	4096
13. Uttar Pradesh	2.07	3.70	33190	5819	46350	215147	19838
14. West Bengal	2.04	2.70	24415	7936	38073	161308	38155

Calculated from:-

Sources: 1) NCAER, "Estimates of State Income" op. cit.
2) IIPO, op. cit.
3) Reserve Bank of India Bulletins, 1952 through 1966

CHAPTER IX

Background Table 2
(In Rs Crores)

Regional Distribution of Public Investment by Projects

	Gross fixed Investment at the end of 1968-69
1. ANDHRA PRADESH	
Bharat Heavy Electricals Ltd.	35.8
Indian Drugs and Pharmaceuticals Ltd.	21.2
Hindustan Machine Tools Ltd.	7.4
Hindustan Shipyard Ltd.	8.2
Hindustan Aeonautics Ltd.	6.3
Praga Tools Ltd.	4.4
Bharat Heavy Plate & Vessels Ltd.	2.2
Electronics Corporation of India Ltd.	1.4
	86.9
2. ASSAM	
Fertilizer Corporation of India Ltd.	26.8
Indian Oil Corporation Ltd.	15.8
Oil & Natural Gas Commission	20.6
Central Inland Water Transport Ltd.	0.9
	64.1
3. BIHAR	
Heavy Engineering Corpn. Ltd.	179.6
National Coal Development Corpn. Ltd.	104.0
Bokara Steel Ltd.	180.0
Indian Oil Corporation Ltd.	50.3
Fertilizer Corporation of India Ltd.	58.4
National Mineral Development Corpn. Ltd.	12.3
Uranium Corporation of India Ltd.	9.6
Pyrites, Phosphates & Chemicals Ltd.	3.2

Table 2 contd.

	Gross fixed Investment at the end of 1968-69
3. BIHAR contd.	
Hindustan Steel Ltd.	23.5
Hindustan Zinc Ltd.	0.2
Hindustan Copper Ltd.	0.1
	621.2
4. DELHI	
Ashoka Hotels Ltd.	5.1
National Small Industries Corpn. Ltd.	1.5
Hindustan Insecticides Ltd.	0.9
State Trading Corporation of India Ltd.	0.3
Minerals & Metals Trading Corpn. of India Ltd.	0.2
Hindustan Housing Factory Ltd.	0.8
Janpath Hotels Ltd.	0.5
National Research Dev. Corpn. Ltd.	0.1
National Seeds Corporation Ltd.	0.6
India Tourism Dev. Corpn. Ltd.	1.3
Modern Bakeries (India) Ltd.	0.4
National Industrial Dev. Corpn. Ltd.	0.1
Handicrafts and Handlooms Export Corpn.	0.1
Engineers India Ltd.	0.1
	12.0
5. GUJARAT	
Oil & Natural Gas Commission	54.4
Indian Oil Corporation Ltd.	30.8
National Small Industries Corpn. Ltd.	0.7
Hindustan Salts Ltd.	0.5
Modern Bakeries (I) Ltd.	0.3
	86.7

Table 2 contd.

	Gross fixed Investment at the end of 1968-69
6. KERALA	
Fertilisers & Chemicals (Travancore) Ltd.	63.1
Cochin Refineries Ltd.	26.4
Hindustan Machine Tools Ltd.	7.8
Indian Rare Earths Ltd.	1.6
Hindustan Insecticides Ltd.	1.1
Hindustan Latex Ltd.	1.1
Modern Bakeries (I) Ltd.	0.3
	101.4
7. MADHYA PRADESH	
Hindustan Steel Ltd.	379.0
Heavy Electricals India Ltd.	69.8
National Coal Dev. Corpn. Ltd.	55.0
National Mineral Dev. Corpn. Ltd.	22.6
National Newsprint & Paper Mills Ltd.	13.9
Bharat Aluminium Co. Ltd.	0.7
Cement Corporation of India Ltd.	2.2
	543.2

Table 2 contd.

		Gross fixed Investment at the end of 1968-69
8.	MAHARASHTRA	
	Fertiliser Corporation of India Ltd.	46.9
	Hindustan Aeronautics Ltd.	26.5
	Hindustan Antibiotics Ltd.	7.8
	Mazagon Dock Ltd.	10.0
	National Coal Dev. Corpn. Ltd.	4.4
	Hindustan Organic Chemicals Ltd.	3.9
	Lubrizon (I) Ltd.	0.9
	Modern Bakeries (I) Ltd.	0.5
		100.9
9.	MYSORE	
	Hindustan Aeronautics Ltd.	29.9
	Hindustan Machine Tools Ltd.	13.1
	Bharat Electronics Ltd.	15.1
	Indian Telephone Industries Ltd.	11.2
	Bharat Earthmovers Ltd.	8.4
	Tungabhadra Steel Products Ltd.	0.7
	Cement Corporation of India Ltd.	1.2
		79.6
10.	ORISSA	
	Hindustan Steel Ltd.	386.5
	Hindustan Aeronautics Ltd.	29.7
	National Coal Dev. Corpn. Ltd.	7.0
		423.2

Table 2 contd.

		Gross fixed Investment at the end of 1968-69
11.	HARYANA	
	Hindustan Machine Tools Ltd.	7.1
12.	PUNJAB	
	Fertiliser Corporation of India Ltd.	32.6
	Modern Bakeries (I) Ltd.	-
		32.6
13.	RAJASTHAN	
	Hindustan Zinc Ltd.	12.6
	Instrumentation Ltd.	5.2
	Sambhar Salts Ltd.	1.2
	Machine Tool Corpn. of India Ltd.	1.8
	Oil & Natural Gas Commission	0.5
	Hindustan Copper Ltd.	5.9
		27.2
14.	UTTAR PRADESH	
	Bharat Heavy Electricals Ltd.	68.4
	Fertiliser Corpn. of India Ltd.	31.3
	Indian Drugs & Pharmaceuticals Ltd.	25.0
	Oil & Natural Gas Commission	5.8
	Hindustan Aeronautics Ltd.	3.0
	Triveni Structurals Ltd.	3.2
	National Small Industries Corpn.	0.3
		137.0

Table 2 contd.

		Gross fixed Investment at the end of 1968-69
15.	TAMIL NADU	
	Neyveli Lignite Corpn. Ltd.	181.0
	Madras Refineries Ltd.	36.3
	Bharat Heavy Electricals Ltd.	22.7
	Hindustan Photofilms Mfg. Co. Ltd.	10.6
	Indian Drugs & Pharmaceuticals Ltd.	4.6
	Hindustan Teleprinters Ltd.	2.4
	Oil & Natural Gas Commission	1.8
	Madras Refineries Ltd.	2.0
	Indian Rare Earths Ltd.	0.5
	Modern Bakeries (I) Ltd.	0.3
		262.2
16.	HIMACHAL PRADESH	
	Oil & Natural Gas Commission	1.6
	Hindustan Salts Ltd.	0.1
		1.7
17.	WEST BENGAL	
	Hindustan Steel Ltd.	328.8
	Mining & Allied Machinery Corpn. Ltd.	30.9
	Fertilizer Corpn. of India Ltd.	27.2
	Hindustan Cables Ltd.	7.2
	National Instruments Ltd.	4.7
	Central Inland Water Transport Corpn.Ltd.	2.1
	Garden Reach Workshops Ltd.	3.5
	Hindustan Steel Works Construction Corpn. Ltd.	2.0

Table 2 contd.

	Gross fixed Investment at the end of 1968-69
17. WEST BENGAL contd.	
Rehabiliation Industries Corpn. Ltd.	1.5
National Small Industries Corpn. Ltd.	1.2
Oil & Natural Gas Commission	1.9
Central Fisheries Corpn. Ltd.	0.2
Hindustan Aeronautics Ltd.	0.2
	411.4
18. UNALLOCATED*	464.7

* In respect of aviation, shipping, etc. and the State of Jammu & Kashmir and Union, Territories not mentioned above.

Chapter IX

Appendix - I

States' Total Resources, Additional Resource Mobilization and the States' outlay in Fourth Plan

We may begin with a brief review of the pattern of states' resources and outlay in the first three five year plans and then examine the pattern in Fourth Plan. In the limited scope here we cannot go into all the aspects of the complex centre-state financial relationships which can be a separate subject of study by itself. Instead, we shall discuss only the broad issues with special reference to the resources and outlay in Fourth Plan.

Table I and 2 give the trends in states' expenditure and central assistance in the Three Plans. Row I in Table I gives the total plan and non-plan expenditure of states in the three plans. The total states' expenditure increased from Rs 3359 crores in First Plan to Rs I0833 crores in Third Plan. Row 2 in Table I gives the total transfer of central resources to the states, which increased nearly four times as compared to a three fold increase in expenditure. The distribution of the total central transfer of resources by various items is given in Table 2. The total transfers from Centre consist of states' share of divisible taxes and duties, as awarded by the finance commission and of grants and loans awarded through Planning Commission. Loans alone account for nearly 50 per cent of total central resources while the statutory and other grants met from revenue account for I7, 23 and 26 per cent of total transfer of resources. The planning grants and loans

Table - I

Trends in States' Expenditure and Central Assistance in Three Plans

(RS Crores)

	First Plan	Second Plan	Third Plan
I) Total Expenditure* of States (plan and non-plan)	3359	5585	I0833
2) Resources from the centre resources as percentage of expenditure	I4I3 42	2458 49	5478 52
3) Total state plan expenditure	I427	2083	4058
4) Resources from Centre deployed on plan side	880	I058	2502
5) Central assistance as percentage of plan expenditure	6I.6	50.8	6I.5

* Excluding discharge of debt and repayment of loans.

Source: The report of Administrative Reforms Commission, op. cit.

Table - 2

Transfer of Central Resources to States in RS Crores

	First Plan	Second Plan	Third Plan
i) Share of divisible taxes and duties %	327 (23%)	7II (24%)	II9I (23%)
ii) Grants (statutory and others) met from revenue	248 (I7%)	668 (23%)	II48 (20%)
iii) Grants from Central Road Fund	I6	I9	I7
iv) Grants met from capital	24	59	I37
v) Loans Loans as% of total	799 (56.I%)	I4II (49%)	2985 (5I%)
vi) Total Transferod resources	I4I3 (I00.00)	2858 (I00.00)	5478 (I00.00)

Source: The report of Administrative Reforms Commission, op. cit.

together accounted for 73 and 7I per cent of total transfer of central resources. It can also be noted from the table that the central assistance as a percentage of plan expenditure was 6I.6, 50.8 and 6I.5 in First, Second and Third Plan.

Various writers have analysed the centre-state fiscal relations and come to different conclusions on whether over the three plans, the states' dependence on central resources increased, decreased or remained stable[I] and also on the measures to reform the centre-state fiscal relations. The Administrative Reforms Commission emphasized the following aspects in the analysis of trends of the size and pattern of central resources transferred to the states. 2

I. Mention may be made of following works:
a) Venketraman K., "States' finances in India", Allen and Inwin, I968.
b) Sastri K.V.S.7 "Federal-state fiscal Relations", Oxford University Press, I966.
c) Chellia, Raja T. "Fiscal Policy in Under-developed Countries", Allen and Unwin, I969.
d) Toye J.F.J. "Government Expenditure and Revenue in the Indian States", Paper read at India Group, I2th November, I970.
e) Lakadawala D.T. "Union-state Financial Relations" Lavani Publishing House, I967.
f) Khatichate D.R. and Bhatt V.V. "Centre-State financial Relations in Context of Planned Development." Economic and Political weekly, Feb. 2I, I970.
g) A.K. George, "Centre-State Fiscal Relations in India" op. cit.
h) Zaveri N.J. "Transfer of non-plan Resources to states" Economic and Political Weekly, June 7, I969

2. The Report of the Administrative Reforms Commission, op. cit.
The distribution of union and state taxes works out as follows: Progressive or heavy all India taxes, like general income tax, Company taxation, Capital and expenditure taxes, Custom duties (inclusive of export duties) taxes on goods in the course of internal trade, terminal taxes on goods or passengers by sea, air and rail and freights taxes on transactions in the stock exchange fall in the union list. States' taxes consist of land revenue agricultural incomme tax, taxes on land and buildings, sales and purchase taxes, electricity and entertainment duties, taxes on advertisements, (including newspapers), vehicle taxes, taxes on professions.

To quote "i) the resources for raising funds available to states are comparatively inelastic. ii) the functions allocated to the states are such as lead compulsively to expanding responsibilities, particularly in the context of ambitious development plans. iii) important sources for national plan financing are foreign aid and deficit financing both tending to strengthen central rather than state resources"

As we pointed out in Chapter IX the Fourth Plan laid down several criteria for determining the central assistance to states, the states' resources and the resultant outlay in Fourth Plan can be examined against this background.

We pointed out in Chapter IX that although Fourth plan gave specific consideration to the regional level of development by introducing 10 per cent of central assistance on the basis of per capita income if it is below national average and 10 per cent on the basis of the per capita development expenditure if it was below national average, this in itself did not lead to either an equalization of per capita outlay or even a reduction in the disparity between the per capita outlay of high and low income states.[I] Table 3 gives the distribution of Central assistance to states by the three criteria mentioned above.

I. The correlation coefficient between per capita outlay and per capita income in Fourth Plan works out to be +0.65 and that between the per capita central assistance and per capita income is -0.20.

TABLE - 3

Distribution of Central Assistance to States by Categories in Fourth Plan

In Rs 100,000

States	1969-70 Share of Taxes and Grants under Article 275	70 per cent on population basis	10 per cent on the basis of above Average per Capita tax collection	10 per cent on the basis of below National Average per capita Income	10 per cent on the basis of below Average per Capita Development Expenditure	Total (3+4+5+6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Andhra Pradesh	54,68	37,65	2,21	-	-	39,86
Assam	34,19	13,65	-	-	-	13,65
Bihar	48,74	50,35	-	23,80	31,13	105,28
Gujarat	27,31	23,53	7,50	-	-	31,03
Haryana*	8,94	8,94	-	-	-	8,94
Jammu and Kashmir	19,69	3,29	-	-	-	3,29
Kerala	39,98	18,82	4,71	5,85	-	29,38
Madhya Pradesh	43,42	35,77	-	8,13	5,85	49,75
Madras	45,72	34,35	7.51	-	-	41,86
Maharashtra	57,87	43,77	18,60	-	-	62,37
Mysore	46,18	25,88	0,80	-	-	26,68
Nagaland	16,42	47	-	-	-	47
Orissa	43,93	18,82	-	10,02	-	28,84
Punjab*	13,07	13,18	15,10	-	-	28,28
Rajasthan	31,90	23,06	-	10,49	2,08	35,63
Uttar Pradesh	83,59	79,53	-	8,94	26,56	115.03
West Bengal	51,65	470,59	10?81	-	1,61	51,95
Total	672,28	470,59	67,23	67,23	67,23	672,28

* Allocation of assistance on the basis of tax effort and development has been incl under Punjab

Source: Zaveri N.J. "Transfer of Non-Plan Resources to States'. A suggested Approach". Economic and Political Weekly, June 14, (1969)

(484)

These figures show that 10 per cent of allocation on the basis of per capita tax effort meant additional allocation to the high income states and to Andhra and Kerala. Only in the other two criteria the additional allocation occurred only to the low income states.

We may examine the states' total resources by sources to understand the inter-regional differences in states' own additional resource mobilisation from various sources. These figures are given in Table 4. States' total resources can be divided into four separate categories, viz. i) contribution by public enterprises ii) market loans iii) miscellaneous capital receipts and iv) additional taxation. Following points can be noted from the table:

I) The contribution of public enterprises to states' resources reflects the influence of two factors, viz. the accumulated public investment and the efficiency of the public enterprises.

Andhra, Tamil Nadu, Maharashtra and Uttar Pradesh have larger resources raised from this source than the other states. In the market loans, the industrialisation bias can be noticed as here the amount of market loans raised by Gujarat, Maharashtra and Tamil Nadu is highest, although this source is relatively unimportant both in Punjab and West Bengal. The surplus or deficit on miscellaneous receipts shows the overall past loan

Table - 4

State Resources in Fourth Plan by Sources

(Rs crores)

State	Contribution by Public Enterprises (1)	Market Loans (2)	Miscellaneous Capital Receipts (3)	Additional Taxation (4)	Total State Resources (5)
Andhra Pradesh	73.9	37.0	(-)I70.7	Ioo.0	I20.5
Bihar	40.8	I2.3	(-)I4I.0	I00.0	I03.6
Gujarat	43.6	63.2	3.7	II6.7	292.2
Haryana	20.0	I6.2	(-)6.6	30.0	II2.0
Kerala	23.0	I5.6	(-)8I.6	60.0	83.4
Madhya Pradesh	27.9	I4.8	(-)I47.9	I00.0	94.0
Maharashtra	6I.5	73.6	209.5	50.0	566.3
Mysore	35.8	8.6	(-)37.5	50.0	I54.I
Orissa	9.8	II.6	(-)78.4	35.0	20.5
Punjab	20.7	I3.2	(-)6.I	78.0	I70.4
Rajasthan	I4.2	I3.8	(-)96.6	40.0	I9.0
Tamil Nadu	75.7	67.I	(-)36.0	85.0	300.0
Uttar Pradesh	73.8	36.5	(-)24.0	I75.0	425.0
West Bengal	22.4	I9.8	(-)I2I.5	80.0	99.5
Total	543.I	403.3	(-)734.7	I099.7	256@.5

Source: Vithal B.P.R. "Central Assistance to States", op. cit.

Table - 4 Contd.

States' Resources by Sources in Fourth Plan

	Per capita additional taxation in Third Plan Rs. (6)	Per capita additional taxation in Fourth Plan (Rs) (7)	Per capita Outlay Rs. (8)
Andhra	I2.4	28.6	84.96
Bihar	4.8	I7.7	70.24
Gujarat	I9.5	45.I	I73.96
Haryana	25.3	30.6	I94.58
Kerala	I4.3	28.8	I24.I7
Madhya Pradesh	9.2	25.I	89.45
Tamil Nadu	I5.9	2I.9	I29.I5
Maharashtra	I0.4	I0.2	I60.05
Mysore	I5.0	I7.5	II4.83
Orissa	I7.3	I6.5	85.80
Punjab	25.9	54.3	I89.00
Rajasthan	I4.I	I5.8	93.43
Uttar Pradesh	II.3	I9.7	I29.I5
West Bengal	Io.8	I8.3	I06.95
All States	I3.9	2I.8	73.24

Source: Vithal, B.P.R. "Central Assistance to states". op. cit.

liabilities of the state. A big surplus of RS 209.5 crores existed only in Maharashtra. The negative balance on this account is highest in Andhra, Madhya Pradesh, Bihar and West Bengal. The additional taxation is the most important source of total state resources in all the low income states although its relative importance differs in the various high income states. If we compare the additional per capita taxes instead of overall levels of per capita taxes, Punjab, Gujarat, Haryana, Kerala and Madhya Pradesh occupy the first five ranks while Maharashtra, West Bengal and Tamil Nadu occupy I4, 9 and 7 ranks. Thus, in spite of higher additional tax effort by Madhya Pradesh, both in per capita tax and in additional tax the per capita outlay remained one of the lowest in Fourth Plan. On the other hand, Orissa and Rajasthan improved their ranking position in per capita outlay (II and 9) from their respective ranking positions in per capita additional taxes. (I2 and I3). Maharashtra, Mysore and Tamil Nadu improved their ranking position in per capita outlay as compared to that in per capita additional taxes. Thus, if we take additional resource mobilization of the states as the index of their willingness to raise resources it becomes clear that high income states are not necessarily those contributing the most and yet are compensated for it as their per capita total taxes are higher (see table 2). In addition, as the additional resource mobilization through taxation is not a predominant source of total state resources, their ranking in per capita outlay improves in spite of poor tax effort.

We must also emphasize that the economic factors alone are not sufficient in explaining inter-regional differences in tax effort.[I] Nambiar and Rao[2] estimate the income elasticity in percentage for the Indian states in I967-68 as follows.

High Income States		Low Income States	
Gujarat	I.46	Orissa	0.80
Maharashtra	I.6I	Madhya Pradesh	0.99
West Bengal	0.77	Bihar	0.59
Punjab	I.02	Rajasthan	I.I6
Tamil Nadu	2.29	Uttar Pradesh	0.9I
Average		Andhra	I.24
Mysore	I.35	Assam	0.86
Kerala	I.56		

I. Toye, F.J. op. cit, points out that the strength of the agrarian elite is one reason why on average throughout India revenue levels are low compared with other poor countries. He also concludes that in accounting for revenue differences between states within India neither political nor the technical explanation appears to be satisfactory. Fast rising income level in the previous decade, the relative scarcity of scheduled tribes and castes and a small proportion of male non-workers in population are so far best proven characteristics of states where government raises plentiful revenues.

2. See Nambiar, K.V. and Rao Govinda M., "Tax Performance of States", Economic and Political Weekly, May 20, I972.

$$\text{Income Elasticity} = \frac{\Delta T / T}{\Delta Y / Y} = \frac{\Delta T}{T} \times \frac{Y}{\Delta Y}$$

In their regression analysis to explain the regional T/Y in I967-68, the statistical fit with reference to urbanization factor is only 0.40.

We may conclude as follows from the above brief discussion. The overall trends in the central assistance to states in first three plans showed that while the total expenditure of s states increased nearly threefold, the central assistance increased by nearly four times. Among the various sources of central assistance, the planning grants and loans accounted for an increasing proportion of total assistance. In the Fourth Plan, in the criteria of determining the central assistance, the level of regional development was specifically recognised and hence we analysed how far this resulted into a more equitable distribution of central assistance to states or led to higher per capita outlay in the low income states. Examination of allocation of central assistance by the various additional criteria (per capita tax effort, per capita income and per capita development expenditure) showed that in the first criterion all high income states Andhra and Madhya Pradesh qualified for additional resources. In the other two criteria, additional central resources were allocated to low income regions. An analysis of various categories of states' resources showed that in the market loans and the miscellaneous capital receipts, the high income states had a much better position so that in most of the low income states, additional tax effort was the principal source of state's total resources besides the central assistance.

The additional tax effort was found to be highest (first five ranks) in Punjab, Gujarat, Haryana, Kerala and Madhya Pradesh. In spite of large variations in the additional tax effort, the per capita outlay in Fourth Plan was positively and significantly correlated to the per capita income due to the importance of the above mentioned factors that enhance the resources position of high income states. Thus, we can conclude, that the regional disparities in the state development effort must have increased during the Fourth Plan.

Additional tax effort is one indicator of states' willingness to raise resources. In addition, there are considerable regional variations in the other indicators of tax effort such as states' own tax revenue as proportion of states' net domestic product per capita tax revenue and the income elasticity as discussed earlier. We agree with the various writers that economic factors alone do not appear to be sufficient to explain regional differences in these various indicators of regional tax performance.

CHAPTER IX

Appendix - 2

The Sectoral Allocation of the state outlays and the Physical Indicators of the Levels of Social Infrastructures in fourth Plan

We discussed in Chapter IX the role of centre dominated planning process in maintaining an overall consensus of the multi-regions in the period up to the end of Third Plan. We also pointed out that in the fourth plan, some changes were introduced towards greater decentralization of the decision making and in increasing the state initiative in the state plans. However, in Fourth Plan also Centre still retained its influence by earmarking funds by sectors such as agriculture, major irrigation and power, elementary education and rural water supply, allowing switching of funds between the projects in a sector but not between sectors. The sphere of action of centre and state activities was described by Gadgil D.R. as follows. To quote, "The field of action of the Centre and of the states are, to a large extent district.

The centre builds up and maintains the overall instrumentalities of national economic life such as credit and the monetary system, railway and ports. It also acts in relation to the basic requirements of a long-term plan of industrialisation, with emphasis on large industry and exploitation of mineral resources. The states are concerned, on the other hand, with acting on the total life of all the people in their charge and on all the diffused dispersed and small-scale units and activities. The Centre is concerned with highly concentrated action at strategic points; the states must affect all areas and localities, all the relevant

fields and all units. The centre is concerned with the strategy of long term plan and with initiating crucial movements, the states have to engage themselves in transmitting the forces impelling economic development to all areas and units and with concretising for the individual units the fruits of economic development. The generalized objectives of state plan are therefore, making possible initiating and encouraging economic development in all activities and sectors and areas and localities and protecting the standard of living and improving and ameliorating the situation, social and economic of all individuals within their territories.

Another differentiation in the Central and state action lies in the realm of conservation and better utilization of natural resources and provision of public utilities and social services.[I] Thus, the sphere of action of Centre and state is such as to allow for greater state initiative in individual schemes within each sector once the state's allocation of total resources to various sectors is determined in consultation with Centre. Up to the Third Plan and also in Fourth Plan a great uniformity is found to exist in the percentage allocation of regional resources to the various sectors. In spite of the unevenness of development between high and low income regions and

---

I. Gadgil D.R. "Planning and Economic Policy in India." Poona, Gokhale Institute of Politics and Economics, 1962, P. 182-8.

the regional differences in the physical levels of the various social infrastructures. We discussed in Chapter IX that regional variations in the pattern of sectoral allocation in the social infrastructures is an important policy variable.

Table I gives the percentage distribution of sectoral allocation of regional resources in Third Plan. It can be seen from the table that the percentage of total resources allocated to each sector shows very small regional variation, although since the total state expenditure is unevenly distributed it would lead to a larger inter-regional variation in the actual amount spent in each sector by each region and the additional benefits accruing from the given expenditure. We discussed in Chapter IX the regional allocation in Third and Fourth Plan in agriculture and irrigation and concluded that the agricultural development effort as measured by the various indicators[I] would remain much below the national average in a n umber of low income regions.

We may further examine the regional resource allocation in Fourth Plan in two important sectors of power and education. Table 2 gives the figures on the percentage of total state expenditure allocated to power and education, the absolute amounts to be spent by various regions in Fourth Plan and the physical levels of development in these sectors in each state.

I. We examined the total outlay in agriculture and irrigation, agricultural outlay per hectare and also the physical indicators such as additional irrigation facilities up to Fourth Plan in relation to the ultimate irrigation potential of the region.

TABLE - I

Allocation of Public Sector Outlays in State Plans in the Third Five-Year Plan.

State	Percentage of Public Sector Outlays to Sector						
	(I)	(2)	(3)	(4)	(5)	(6)	(7)
Andhra Pradesh	I4	II	46	6	4	I9	I00
Assam	II	I0	29	6	8	33	I00
Bihar	I2	I2	43	4	6	23	Ioo
Gujarat	I7	8	42	3	9	2I	I00
Jammu & Kashmir	II	7	33	I2	I2	25	I00
Kerala	I9	6	35	I0	6	24	I00
Madhya Pradesh	I5	II	39	4	6	26	I00
Maharashtra	I7	9	38	4	I0	22	I00
Mysore	I6	8	44	6	5	20	I00
Orissa	II	I3	43	6	6	23	I00
Punjab	I3	8	45	6	6	23	I00
Rajasthan	I0	9	5I	4	6	20	I00
Tamil Nadu	I3	9	44	8	4	23	I00
Uttar Pradesh	I7	I3	33	4	6	26	I00
West Bengal	I8	6	24	9	8	34	I00
Total	I4	I0	40	6	6	24	I00

Notes on Sectors: I) Agriculture 2) community Development and Co-operation; 3) Irrigation and Power; 4) In dustry and Mining; (5) Transport and Communication; 6) Social services and Miscellaneous; 7) Total.

Table - 2

Allocation of State Outlay to Power and Education and the Physical Levels in these Indicators in Fourth Plan

POWER

State	(crores) (in Rs)	% of total state Outlay	Per capita Annual Consumption in K.W.H. (1965-66)
(1)	(2)	(3)	(4)
Andhra	88.50	32	31
Assam	14.62	15	8
Bihar	63.25	26	57
Gujarat	70.80	24	83
Haryana	40.53	36	N.A.
Kerala	48.75	30	39
Madhya Pradesh	26.40	20	36
Maharashtra	142.00	28	106
Mysore	21.90	25	55
Orissa	35.77	30	78
Punjab	73.93	40	102
Rajasthan	28.64	32	21
Tamil Nadu	80.00	30	89
Uttar Pradesh	177.73	38	30
West Bengal	84.00	21	114
All States	974.06	29	61

Table - 2 (continued)

EDUCATION

	Total Outlay (5)	% of State Outlay (6)	Per Capita Expenditure in Rs (I96I) (7)	Expenditure on Education to state income in I960-6I (8)
Andhra	382.00	9	7.I	2.49
Assam	262.70	I0	7.6	2.26
Bihar	4I4.80	8	4.9	2.20
Gujarat	290.00	6	9.2	2.34
Kerala	I92.50	7	II.5	3.64
Madhya Pradesh	2I5.00	6	4.3	2.I9
Maharashtra	647.20	7	I2.4	2.64
Mysore	I50.00	4	7.5	2.46
Orissa	I58.I0	7	6.3	I.54
Punjab	2I8.50	7	9.3	2.05
Rajasthan	I76.00	6	4.9	I.8I
Tamil Nadu	554.30	II	II.0	2.85
Uttar Pradesh	694.30	7	5.7	2.I0
West Bengal	364.50	II	9.8	2.35
All India	55I6.59	8	7.8	

Sources:
Col. (2) from "Fourth Five Year Plan of India, op. cit. p.
Col. (3) Computed from thesectoral outlays of Fourth Plan for each state.
Col. (4) The Pande Report on the Identification of the industrially Backward States, op. cit.
Col. (5) "Fourth Five Year Plan" op. cit.
Col. (6) Computed as in Col. 3
Col. (7) and Col. (8) Rudolph J. Lloyd and Rudolph Susanne, "Regional Patterns of Education Rimland and Heartland in Indian Education". Economic and Political Weekly, June 28, I969.
Col. 7 refers to the private and public expenditure on education. Private expenditure includes fees, tuition, endowment income, gifts etc. as estimated by "Education Commission in Inequalities in Educational Developments", (States and Districts), New Delhi, I966 Mimu.

We can note the following points from the table.

I) Inter-regional variation in the percentage of state outlay in Power amounts to 15 per cent in Assam to 40 per cent in Punjab. The absolute total outlay varies from RS 14 crores in Assam to 177 crores in Uttar Pradesh. High income states have higher than national average consumption of power per capita. From the low income states, Andhra, Bihar and Uttar Pradesh have improved their ranking in total outlay in power.

2) In education the percentage of state outlay allocated to education varies from 4 per cent in Maharashtra to 11 per cent in Uttar Pradesh and Rajasthan. However here also the previous levels of per capita expenditure on education, expenditure on education as percentage of state income and total outlay in RS is higher in high income states as compared to the low income states.I

In Cha pter VIII, we discussed the possibilities of conflict between the "efficiency"and "equity" objectives at the sectoral level. We pointed out that in the sectors in which resource allocation criterion is per capita need. such as public health and education, the conflicts between the two objectives are less acute than in the other sectors. Such as power where the criteria of allocation cannot ignore the current demand for power from the large industrial and urban centres and thus there is a greater conflict between the "efficiency" criterion and the "equity" criterion. From the Table 2 we can see however, that even in education

I. See Rudolph J. Lloyd and Rudolph Susanne, op. cit. In Chapter IV we found that the literacy rate is a highly significant factor in explaining regional per capita and per worker income differentials.

per capita equalization in expenditure does not seem to have taken place. In addition to the factors we have already emphasized above we must also mention that here also, the economic factors such as industrialization or urban bias alone cannot explain the regional differences in the educational levels. The role of historical long term factors are important even if we cannot easily identify the separate factors. Higher levels of education in individual states such as Kerala, Mysore, Gujarat, Maharashtra and Tamil Nadu can be attributed to different social and economic factors besides the overall level of urbanisation or the existence of "active" state governments. However, what we can conclude is that the inter-regional equalization in the expenditure oper capita in education will not take place in Fourth Plan.

CHAPTER X

SUMMARY AND CONCLUSIONS

We shall give the summary of our findings and the conclusions of this study in the following order:

(a) We shall first give the summary of findings and the conclusions of the study.

(b) In the light of the conclusions of our study regarding the importance of the regional policy, we shall consider the future pattern of regional inequality.in India.

Summary of Findings and Conclusions:

The theoretical hypothesis regarding the course of regional disparities during the process of national economic development emerges from the fact that, for the national economy to develop, strong centres of development are needed from which national growth emerges and spreads over time. Thus, during this period, regional differences between the centres of growth and other regions increase. The time pattern of regional inequality during the process of economic development is summarised in the wellknown inverted "U" hypothesis, or divergent-convergent thesis. As Williamson puts it, "the early stages of national development generate increasingly large 'North-South' income differentials. Somewhere during the course of economic development, some or all of the disequilibrating tendencies diminish, causing a reversal in the pattern of regional inequality. From then on, instead of divergence in the inter-regional levels of development, convergence becomes the rule, with backward regions closing the development gap between themselves and the already industrialised areas. The expected result is that a statistic describing regional inequality will trace out an inverted "U" shape against the national growth path." Myrdal and Hirschman also emphasise that the factor flows are likely to be disequilibrating, so as to increase regional disparities. In Williamson's, as well as in

Myrdal and Hirschman's theorising, the "peak" of regional inequality is left vague, to be determined by endogenous factors that differ from country to country. Richardson[1] also comes to the conclusion that whether or not the factor flows are equilibrating is a matter of empirical substantiation, since there is no clear theoretical indication. On a priori grounds, however, he expects labour flows to be more equilibrating than the capital flows.

Thus, we argued on the basis of the above theorising that although we can expect the regional disparities to increase during the process of national economic development, the precise nature and the course of regional disparities and the factor flows is a matter of empirical substantiation. The number of developing countries for which regional income and productivity data are available is very few. In this context, the study of regional disparities in India is of special significance, since it can throw additional light on the process of regional disparities in an economy that is currently undergoing structural change. Since the process of structural change in India and other economies at a similar stage of development is different from that in the more developed countries,in their early stages of development, a study of regional disparities in India can highlight the factors that are different in the context of currently developing economies and which in turn will influence the process of regional inequality. In addition, the importance of the study of regional disparities needs to be emphasised in a large country in which sub-national units are as large as or larger than several individual nations. An understanding of regional differences in economic performance of the sub-national units vis-a-vis national economic performance is vital for understanding the aggregate average national performance. The choice of states as regions can be

---

1. Richardson, H.W., op.cit. p.329.

justified on the grounds that the states represent identifiable groups of people with separate aspirations of their own, but who also work towards common national goals. The states are also proper units for regional analysis as the political and economic processes work through a complex centre-state mechanism of decision-making. Hence, if we want to draw policy conclusions from an empirical analysis of regional disparities, it is necessary to keep the framework that corresponds to the existing administrative and political boundaries. These advantages of using states as the regional units were considered against the limitations of such a choice arising from the fact that if regions were to be chosen on "homogeneity" criteria, the states are least suitable. In addition, we have to recognise that considerable regional differences in the levels of economic development exist within the different parts of the state. In choosing states as regions we are examining the broad average regional aggregates. (Chapter I)

We considered the following factors especially relevant in the development process in India and which, in turn, can be expected to influence the structure and process of regional inequality in India. The differences in the initial levels of national industrial development between the more industrialised countries in their early stage of development,and the levels at which India and other economies at a similar stage of development started their process of planned economic development, is an important factor which will influence the process of national and regional development. The other important and related factors are the population pressures, the initial unevenness of the regional levels of development arising out of historical and natural resource factors, and an entirely different setting of international trade and technological change. Under planning in India, the national rate of growth of the economy and the rates of investment have been lower than the required minimum rate

of growth either to absorb the new additions to the labour force in non-agricultural employment or to reduce the size of labour force engaged in agriculture. Thus, the inter-regional and inter-sectoral migration of labour force which played an important role in the context of developed economies cannot be envisaged to operate in the case of India. Inter-regionally, the arguments that the labour flows can be expected to be more equilibrating does not hold in the Indian context, given the large surplus labour already existing in the high income states and in big cities. Thus, it becomes necessary in this context to emphasise the need to create the internal conditions of regional growth aimed at influencing the income and productivity levels of a region's economic sectors. (Chapter I)

An analysis of regional income data in India presents difficult problems, as the Central Statistical Organisation which compiles national income data does not publish regional income estimates. The regional income data published by the State Statistical Bureaux apply different methods of estimation in the various sectors for which direct data are not available. Hence, it became necessary to use the state income data compiled by NCAER and IIPO for the four planning years. The overall reliability and acceptability of state income figures from these two sources was established by comparing the sum total of state income (which is equivalent to NDP at national level) and the national net domestic output originating in the major economic sectors. An analysis and comparison of state income figures from the various sources revealed the great need for improvement in the regional income data. We pointed out that the centre can play a greater role and initiative in this regard because of several factors. Some of these are that the technical expertise is concentrated in the national planning divisions at the centre; in addition, there are genuine difficulties in enforcing strict methodology and criteria at the multiple regional

levels. Finally, as the centre plays an important part in the regional allocation of resources, the centre should evaluate the regional performance in terms of suitable economic indicators. (Chapter II.)

Regional per capita income as measured at the level of industrial origin is an imperfect measure of regional differences in the economic welfare or the standards of living. However, the regional per capita income is an important indicator as it measures the quantum of productive activities at regional level and, as such, it thus reflects basically the influence on income from two distinct sources, viz. regional differences in economic structures and the differences in the productivity levels within each economic sector. As in other systems of classifications, a certain degree of arbitrariness cannot be avoided in classifying regions into several categories. Taking 1960-61 as the basis of classification, Indian regions were classified in three categories of "high income regions", "low income regions" and "the average".

The degree of regional inequality in India in per capita income was estimated for the years 1950-51, 1955-56, 1960-61 and 1967-68 by applying the indices of weighted coefficients of variation, VW, MW and MWa. The degree of regional inequality in India as measured by these indices was found to be lower than that in some of the "middle-income countries" (by Kuznet's classification) such as Brazil, Italy, Spain, Greece and Yugoslavia. In some of these countries the values of VW and MW show marked difference thus reflecting the fact that the VW is affected by a few extreme deviations with large population shares[1]. In the case of India, the values of VW and MW did not differ in the per capita income index. The value of the regional inequality index remained nearly the same between

---

1. See Williamson, op.cit.

1950-51 and 1967-68; however, there was some decline in its value in 1955-56 and 1960-61. (Chapter III.)

As the number of years for which state income figures are available is very small, the long term trends in income differentials and the inter-regional migration pattern could not be examined. On a priori grounds we argued that the role of substantial inter-regional migration of labour force appears to be very limited in the light of the already high open unemployment in the urban areas and the rapid population growth. In relation to the short-term periods for which data are available, we examined the role of two factors, viz. (a) the role of population distribution versus the unequal regional per capita income growth in accounting for the change in the weighted variance in the given time period; (b) an examination of inter-regional migratory patterns for the period 1951-61;and evaluate the inter-relation between the given migratory flows and the levels and change in regional income differentials. With regard to the first factor, we found that the population redistribution factor accounted for as high as 50 per cent of the change in absolute variance between 1951-61. Thus, for this period, the change in the regional population weights was such as to increase the regional inequality. In the second period of 1960-61 to 1967-68, however, the population redistribution factor was not found to be significant. An analysis of inter-regional migratory patterns in India in 1951-61 showed that the migration of the people across regional boundaries accounted for a much smaller proportion of total migration as compared to the movement of people within the same region. In addition, while the intra-regional migration was characterised by a movement of people among the rural areas of the same region, the inter-regional migration of population was essentially a rural to urban movement of the people.[1] We then

1. Over the period 1951-61 inter-regional migration amounted to 8.6 million people as compared to 57.2 million people who moved within the state boundaries. Out of the total inter-regional migration, 69 per cent accounted for the rural to

urban movement of population, while in intra-state migration, nearly 72 per cent was accounted for by rural to rural movement of population.

---

classified states into those with negative net balance of migrants and those with positive net balance. The states in both categories included some high and low income states. Thus, it showed that income differentials can be regarded as only one of the factors in inducing the migration flows across the regions. Whether a given migratory pattern created a change in the regional income differentials and acted as an equilibrating or disequilibrating factor cannot be answered on the basis of limited data. (Chapter III.)

Since state income figures measure the regional income originating in the economic sectors, the degree of regional disparity can be measured in these variables as well. Estimating the value of net output per worker in the economic sectors presented some difficulties due to the inherent conceptual problems arising due to the predominance of agriculture and also due to the change of census definitions of the working force between 1951 and 1961. An analysis of regional distribution of labour force in major economic sectors and the regional disparity in the value of net output per worker led us to the following conclusions:

(1) An important source of variation in regional per capita income must be attributed to the regional differences in economic structures as measured by the percentage of a region's labour force engaged in the various industrial sectors and the percentage of a region's NDP accounted for by the different sectors.

(2) The degree of regional inequality in Indian economy was higher in 1950-51 and 1960-61 when measured in net output per worker than in per capita income. This meant that Williamson's hypothesis of a significant and positive correlation between regional per capita income and the labour participation rate did not hold in the case of

India. Regional labour participation rate in a predominantly agricultural economy must be regarded as being influenced by complex social and economic factors that vary among regions and we need not assume even a positive correlation between the regional per capita income and the regional labour participation rate.

(3) Williamson's conclusions on the sectoral inequality also do not seem to hold in the case of India. To quote, "Is regional dualism more prevalent in a traditional sector, agriculture, and one in which technology is more localised by regional resource endowments? The answer to this question is most definitely in the affirmative, although we base it on a very limited sample because of the rare appearance of regional income data with sector breakdown." He further adds that "At the risk of oversimplification, it appears that the persistence of high degrees of regional inequality in such countries as Spain, Brazil, Italy, Yugoslavia and the United States can be further decomposed into two parts: (1) tremendous differentials in agricultural productivity and (2) significant regional differences in economic structures. It would appear that regional "dualism" in the industrial sector plays a minor role and its significance has been grossly exaggerated in the current development literature."[1] The analysis of sectoral inequality in major economic sectors led us to conclude that the regional inequality was highest in the manufacturing sector if we compute the regional inequality in the net output per worker in the major economic sectors. A divergence in the value of VW and MW in the manufacturing sector showed that the regional inequality index was affected by a few extreme deviations with large labour force shares. Regional inequality in agriculture in net output per worker was found to be lower than in manufacturing. However, if we estimate the regional disparity index in terms of net agricultural output per acre, the degree of

---

1. Williamson, J.G., op.cit.

regional inequality for the same years was found to be a little less than that in manufacturing. Thus, the Indian data offer a pattern that is different from Williamson's pattern on the few countries for which such data were available. (Chapter IV)

(4) Multiple regression analysis of regional income per capita and per worker income led us to identify the significance of various structural factors in explaining the regional differentials. These were the "pressure of labour on land", labour participation rate, regional percentage of national value added in manufacturing, the literacy rate and the "regionality" variables. In explaining the regional per capita income differentials, the above factors were found to be significant except the labour participation rate which was found to be negatively but statistically insignificantly correlated to regional per capita income differentials. In the regression analysis on per worker income, however, the labour participation rate was found to be negatively and significantly correlated to the per worker income differentials. The negative and significant correlation was also found to exist between the regional per capita income differentials and the "pressure of labour on land". The literacy rate and the regional percentage share in national value added in manufacturing were found to be positively and significantly related to the regional differentials. The statistical significance of these factors showed that the structural factors influencing the regional income differentials in an underdeveloped economy are likely to differ from those in industrialised countries. Regional differences in labour participation, the pressure of labour on land, regional differences in economic structures and the levels of literacy were found to be of crucial significance. The regional differences in these variables represent the influence on regional income of complex social and economic factors and the historical conditions which created regional disparities in these variables. (Chapter IV.)

The regional income analysis was followed by a disaggregated analysis of regional disparities in the two major sectors of manufacturing and agriculture. This analysis was pursued with the following objectives:

(1) The figures of net output per worker in the given economic sector measures the regional income originating in the entire economic sector, and hence it reflects the influence on regional income of two effects, viz. the industrial structure effect and the income and productivity differences within the given industry. Hence, where possible, the importance of these two factors must be assessed separately.

(2) An analysis of regional differences in productivity at a disaggregated level can enable us to identify the explanatory factors in regional disparity at the industry level.

(3) From the regional policy point of view, the future role of private and public sector investment in reducing the regional disparities at sectoral level needs to be considered in the light of past trends.

We summarise below the conclusions of the analysis of regional disparity in manufacturing and agriculture in these three aspects:

(1) The regional disparity indices of weighted coefficient of variation in the sub-sectors of manufacturing showed that the VW was higher in the household and small enterprises sector than in the large industry sector. We found that in all the three sub-sectors, the income per worker was higher in the high income regions. Thus, while low income regions had a larger proportion of their labour force in manufacturing engaged in the household and small enterprises, the average income per worker in these regions was much below the national average, thus giving large absolute deviation resulting in high VW when weighted and squared. A statistical quantification of the sources of variation of the level of manufacturing

income showed that the regional differences in industrial structures were the most significant source of variation in the level of manufacturing income. (Chapter V.)

(2) In the absence of comprehensive data on the income and productivity levels in the household and small enterprises sectors, the disaggregated analysis of regional disparity in the manufacturing productivity was pursued for the large industry sector alone. The cross-sectional analysis of regional disparity in manufacturing was based on the data published by the Annual Survey of Industries. The nineteen industries were selected by their ranks in the national value added in manufacturing. The regional disparity in value added per worker and earnings per worker were calculated and these showed that considerable regional productivity differences existed in these industries. In the cross-sectional analysis, the regional value added per worker in the given industry was regarded as a function of two identifiable factors, viz. capital intensity and the regional percentage of national value added in the industry. The regional differences in capital intensity within the same industry arise because of variations in the technical processes as well as the capital market conditions. Since we assume that surplus labour exists both in the more and the less industrialised regions, the inter-regional variations in the capital intensity are likely to be governed by the capital flows. If these are disequilibrating at industry level, then the industries in the low income regions with locational advantages would still have lower capital intensity and productivity than the more industrialised regions. The importance of the capital intensity factor itself was found to vary among the different industries.

(Chapter V)

The regional differences in the productivity levels in the given industry can be expected to be influenced by the agglomeration factor which was measured as the regional percentage of national value added in the given industry. The industrial concentration of firms in the same region

measures the locational advantages of the region in the given industry. The importance of this factor in explaining the inter-regional variation in the productivity levels was found to vary among the various industries. Our analysis enabled us to classify the industries into four groups, viz. (i) industries in which the capital intensity factor alone was significant; (ii) industries in which there was multicolinearity between the two variables; (iii) industries in which the concentration factor alone was significant; (iv) industries in which none of these factors was found to be significant. The trends in the regional disparity indices in the selected industries also showed that the regional disparity in net output per worker increased in the industries such as cotton textiles, sugar, edible oils, tea manufacturing, art silk and iron and steel. The analysis of regional disparity in individual industries led us to the general conclusion that the trends in the productivity levels, location pattern and the measures to step up productivity levels in the various regions need to be established at the individual industry level. (Chapter V.)

Private sector investment played a predominant role in the creation of regional disparities in the manufacturing sector analysed in Chapter V; as the share of public sector investment in total manufacturing investment can be regarded as small in the beginning of Third Plan[1]. An analysis of the available data on the trends in the regional distribution of private and public sector investment must take into account the different roles played by these two sectors in the industrial planning in India. The private sector investment accounts for a great bulk of the total manufacturing investment.[1] On the other hand, the public sector investment went to the key industries and its share in the total investment rose over the various plans. An examination of regional distribution of public investment showed that this was not spatially concentrated in a few regions. As the great proportion of the total public investment went to the basic heavy industries, the techno-economic considerations were of paramount importance. The location of steel

1. See Chapter VI, for the respective shares of private and public sector investment in total manufacturing investments.

and heavy large public sector projects occurred in a number of low income regions. However, the location of these projects by themselves cannot be expected to create a new growth centre in the periphery. Regional growth effects of the large public sector investments will vary according to the nature of investment, leakages by way of imports of goods and services and the nature of final demand. The direct growth effects of capital intensive public sector investment are limited as these investments have high import content, low employment potential and the links of these projects to the regional economies merely consist of the nearness to the raw material base. Thus, the beneficial effects of the public investments in low income regions will be confined to the increased investments in the social infrastructures and the additional demand of labour and goods during the construction phase of the project. Whether or not location of large public sector projects in low income regions would attract private sector investment needs to be considered separately; as here we have to consider the past trends in private sector investment and examine in the light of these trends if the private sector investment responded to the new locations of public investment in low income regions. (Chapter VI)

Trends in the private sector investment in manufacturing were examined for the period 1959-66 from the evidence before the Industrial Licensing Committee. The data before the committee covered only a part of the manufacturing sector. An analysis of the regional distribution of private sector investment showed that the private sector investment continued to be concentrated in a few more industrialised states. In terms of the pattern of private investment by products, it had responded to the opportunities created by the public sector investment in key industries. However, this increased investment in growth industries had occurred in the already industrialised states. In analysing the factors underlying

the spatial distribution of private sector investment, we must emphasise a number of inter-related factors. An important feature of private manufacturing sector in India is the monopolistic control of private investment by a few large industrial houses. These industrial houses which led the investments in traditional industries of cotton textiles, sugar and chemicals have taken a lead in the investments in new growth industries as well. Hence, an important factor in the continued concentration of private sector investment lies in the spatial preferences of the big industrial houses, which also have their investments in traditional industries in these regions. As the criteria governing the location of private investment are based on the calculations of private costs and gains of further agglomeration, the advantages arising out of the nearness to market economies of scale and external economy effect of further agglomeration are likely to outweigh the disadvantages due to further congestion, high costs of land and other factors of production and social environmental costs. Further, as the basic commodities such as steel, cement, etc. are available at the national uniform prices in all regions, the advantages of locating new investments in the areas producing these basic commodities are limited. Thus, private sector investment can be expected to be concentrated unless the private costs of location in the regions of agglomeration are substantially influenced by the government policy or if the private location decisions are motivated by the criteria of social costs and gains. In Indian industrial policy, the location of private sector investment was not sought to be influenced by the industrial licensing committee or by positive fiscal and pricing devices. We therefore concluded that the industrialisation of low income regions cannot be speeded up only by the location of large public sector investments. On the other hand, the steps to induce private sector investment in the low income regions are likely to be counteracted by the private gains of further agglomeration

to the large industrial houses, and other private investors. An application of "growth centre" concept to the public sector investment in low income regions would require a greater spatial concentration of public investment in specific low income regions so that, over a period of time, accumulated public investment in the inter-related sectors creates external economy effects large enough to attract private investment in those regions. If at the same time the government measures are directed to influence the private costs and benefits of location in the centres of agglomeration,, there would be greater scope to influence the spatial pattern of private investment. We need to emphasise here two aspects, viz. that the process of creating new centres of growth is essentially long term in nature and secondly, a greater spatial concentration of public investment in the selected low income regions rather than "fair share" of the regions in the projects is necessary if regional goals are to be attained. (Chapter VI.)

An examination of regional disparity indices in net agricultural income showed that the regional inequality in agricultural income per worker in 1950-51 and 1960-61 was lower than that in the net income per acre. The regional inequality index in net income per acre was found to be a little less than that in manufacturing (for the same years). The trends in the regional inequality in agriculture were difficult to establish as the years for which the data were available included some bad agricultural years. Thus, we must conclude that regional disparity in agriculture was as high as that in manufacturing in terms of income per acre. Secondly, due to the importance of agriculture in national and regional economies, the nature of regional disparities in agriculture needs to be understood at a disaggregated level. (Chapter VII.)

The statistical significance of three identifiable factors was examined in explaining the regional value of net agricultural income, viz. average rainfall, the

percentage of net irrigated area to net sown area and the percentage of a region's total labour force engaged in agriculture. The regression analysis showed all the three factors to be statistically highly significant in explaining regional income per acre. In the income per worker, the average rainfall and irrigation were found to be statistically non-significant.

The regional disparity in the productivity in the agricultural crops was analysed in relation to the importance of natural versus modernisation variables. The national policy of agricultural development aims to raise the average productivity levels of the agricultural crops by extending the area under irrigation and through intensive application of the modern inputs of fertiliser and improved seeds. Hence, we assessed the significance of these factors in explaining the regional physical yield of the various agricultural crops. We found that the significance of average rainfall varied for the two years. However, the percentage of irrigated to total area under crop was found to be statistically most significant in the individual crops and in the total foodgrains. The significance of other modernisation inputs varied for different crops but these were statistically significant in rice, wheat and total foodgrains in 1970-71. (Chapter VII.) We included the percentage of a region's total area under crop as a measure of that region's specialisation. However, except in the case of wheat, the statistical correlation between average regional physical yield and the percentage of a region's area under the given crop was found to be non-significant. The statistical correlation between the percentage of a region's area under crop and the percentage of irrigated to total area under crop was also non-significant. (Chapter VII.)

Regions were classified into three groups in terms of the existing advantages and disadvantages. The first group consisted of regions which had higher than national

average productivity levels in all the major crops grown in the regions. The second group of states consisted of a large number of states both from high and low income regions with more than average productivity levels in some of the crops in which they specialised. The third group of states was classified as the regions with severe existing disadvantages in nearly all the crops in which they specialised. A comparison of these three groups of states in the various indicators of agricultural development showed that the first two groups of states had higher levels of agricultural development compared to the third group, both in the indicators of private and public investments in agriculture. Here, we must emphasise the role of two factors: Firstly, the public investment in irrigation prior to Independence was concentrated in a few regions. These regions received further large public sector investments in irrigation under planning. Thus, the acquired long term advantages of these states surpass all the other states. Secondly, the high income regions had a higher outlay in agriculture than the low income regions as the size of their total plan outlay was much higher than the low income regions. Thus, the role of intersectoral transfer of resources must be emphasised as the resources raised the non-agricultural sector are allocated to agricultural development. High income regions also have a higher percentage of rich farmers. In the new agricultural development strategy of HYVP the more industrialised states increased their share in the area under HYVP more rapidly than the regions with severe existing disadvantages. (Chapter VII)

The existence of regional disparities in income and productivity levels in the major economic sector provides one argument to examine the regional policy framework in India. However, the case for a national approach needs to be established in relation to other goals of national economic development. We recognise that the regional policy framework in an underdeveloped economy

undergoing structural change will differ from that in the more developed economies in the following main factors: The constraint of limited resources weighs more heavily in the case of an underdeveloped economy and this influences the particular regional goals that can be adopted in an underdeveloped economy. Secondly, the possibility of a conflict between the "efficiency" and "equity" goals appears to be higher in the case of an underdeveloped economy. Thirdly, the role of short-term corrective measures aimed at influencing the factor and product prices and the management of demand through government expenditure is limited in an underdeveloped economy, as the process of national economic development and regional development is essentially that of creating additional productive capacity and conditions of higher long term economic growth. We advance the following arguments for adopting regional goals and policy measures under planning in India.

(1) Low income regions in India account for nearly 46 per cent of the total population. On equity grounds alone, therefore, national planning cannot ignore the development needs of such a large proportion of the total population.

(2) The policy measures for low income regions become specially relevant in view of the fact that the role of inter-regional migration of labour is very limited and also not socially desirable in the context of high open unemployment in the large cities. It is therefore necessary to create long term conditions of higher economic growth in the low income regions.

(3) The experience of the developed countries shows that the regional imbalances are not self-corrective. The argument that in the long run, at a higher stage of development, growth will spread to the backward regions amoints to allowing a large percentage of the population to slip into a long term stage of low economic development.

The possibility of a conflict between the regional

goals and those of rapid national economic development led many writers[1] to conclude that the regional goals are a luxury for a poor country undergoing structural change, so that a reduction of regional disparities must wait until a higher stage of national economic development is reached. It is also further argued that, during the period of rapid national economic development, the emphasis should be on maximising the growth in the regions with existing advantages. A further relevant point is made by Rahman that the national growth is not necessarily maximised if the regional rates of saving are not identical. Whether or not a more productive region can offer a higher rate of saving depends not only on income but also on various other social and economic factors. (Chapter VIII)

We regard the conflict between the regional and national goals as at a maximum when both are considered in terms of maximising the current or short-term aggregate national income. If viewed over a period longer than a five year plan, the possibilities of trade-offs between "efficiency" and "equity" increase due to the following factors. Over a longer period of time, the efficiency goal includes opening up of new resource frontiers. Secondly, investments in social infrastructures in the low income regions may be regarded as building ahead of demand, so that a critical amount of accumulated public investment in low income regions can then be expected to attract the private capital into these regions. Thirdly, the regional policy measures can be directed to attain a higher internal rate of saving in the low income regions. Fourthly, the degree of conflict between the "efficiency" and "equity" is likely to differ in different economic

---

1. E.E.C. op. cit.

sectors. In the particular economic sectors in which the criteria of allocation are social per capita need, the conflict can be expected to be minimum. In the other sectors in which allocative criteria include, in addition to the social per capita need, the existing demand and the short term returns from investments, the conflict between "efficiency" and "equity" is greater. Inclusion of social environmental costs of agglomeration in the large urban centres can reduce the profitability gap between the location in the large urban area and the periphery, but this need not result in a reduction in the profitability gap between high and low income regions. (Chapter VII.)

An examination of regional goals in Indian planning presents problems as the regional goals are expressed in vague terms of regional balance and the plan documents do not specifically discuss the regional allocative criteria. However, whether or not the goals are specified, the actual decisions of resource allocation were made under planning as the national plans operate through states and as the central resources are an important source of financing state plans. Hence, it was essential to evaluate empirically the size and pattern of regional resource allocation and to arrive at some conclusions on how the regional policy operated in five year plans. (Chapter VIII.)

An empirical evaluation of regional policy framework in India was attempted by analysing the policy instruments which were recognised by the plans. We examined the simple model in which the additional regional NDP was taken as a function of accumulated development expenditure and the initial level of a region's income and the random factors. The regression analysis was applied to the data on three time periods. The significance of these factors varied for the individual time periods. In the period 1960-61 to 1967-68 the regional change was predominantly influenced by the random factors such as bad harvests and, in this period, the development expenditure on the regional

level of income were not significant in explaining the regional change. We also established that the rich regions had higher absolute development expenditure, although the statistical relation between the two varied over different time periods. An estimate of income elasticity of development expenditure for the individual time periods and in pooled regressions showed that the income elasticity of development expenditure with reference to regional Net Domestic Product was less than one in the periods 1950-51 to 1955-56, and 1960-61 to 1967-68. We reached the following conclusions from the values of elasticities: (1) The income elasticity of development expenditure declined in the period in which the random factors predominated in influencing regional change. (2) The income elasticities of development expenditure are likely to differ between the high income and low income regions. (3) The government expenditure was more elastic with reference to change in industrial output than with respect to additional net domestic product.

In order to overcome the problems of multicolinearity between development expenditure and the initial regional income, we also examined the additional regional income and development expenditure as the ratios of the initial level of income. We also included the state effect to measure the influence on regional change of the regionality factors that vary between states and are not specified in the expenditure income ratio.

The regressions analysis led us to the conclusion that the state development expenditure was a significant factor in explaining the regional change in the time periods in which the influence of random factors was not predominant. The rich regions continued to have higher development expenditure than the low income regions up to the end of the Third Plan. (Chapter IX)

In the Fourth Plan, the emphasis on reducing regional

disparities increased in two respects. Firstly, two separate committees were appointed to identify the industrially less developed regions and to recommend fiscal and other incentive measures to attract private sector investment. Secondly, in the criteria for allocating central assistance, the per capita income was taken as one of the indicators. In spite of this, both the size of total outlay and per capita central assistance remained much lower in the low income regions as compared to the high income regions. A greater emphasis on the level of development in criteria of central assistance did not lead to a substantial reallocation of central resources.to the low income regions or the low income states.having the plan outlays which were equal in per capita terms to the national developmental effort or that in high income regions. (Chapter IX.)

Among the sectoral allocation of state outlays, the allocations in agriculture, major, medium and minor irrigation are most important as a regional policy variable. However, in planning literature, the significance of regional differences in outlays in agriculture is less emphasised as compared to the role of public sector projects. The Fourth Plan aimed at two main objectives in agriculture. The first was to provide the conditions necessary for a sustained increase in agricultural production of 5 per cent per annum over the next decade and secondly, to enable as large a section of the rural population as possible, including the small farmer, the farmer in dry areas and the agricultural labourer to participate in development and share its benefits. We pointed out that, as regards the national objectives of increased production, these were aimed to be realised by a concentrated effort on the areas of minimum risk through HYVP. The share of several industrialised regions in the area under HYVP increased more rapidly than that of Madhya Pradesh, Orissa and Rajasthan, which we

classified as the least advantageous regions in agriculture. These states remained below the national average in the per hectare outlay in agriculture in the Second, Third and Fourth Plans. The more industrialised states of Maharashtra, Gujarat, Tamil Nadu and Kerala had a rapid increase in per hectare outlay in agriculture in the Third and Fourth Plans. If we take the region's area share in national area, Assam, Bihar, Kerala, Gujarat, Tamil Nadu, Punjab and Uttar Pradesh received a higher share in national outlay in agriculture than their respective regional area share. The outlays on major, medium and minor irrigation also confirmed the above pattern. In agricultural outlay, Bihar and Uttar Pradesh occupied higher ranks than the other low income regions.

We conclude that the regional disparities in agricultural outlay increased over the Third and Fourth Five Year Plans.[1] In terms of the percentage of a region's ultimate irrigation potential realised also, these states remained much below the national average. Thus, the development effort in agriculture in India was spatially concentrated both in terms of the regional share in HYVP as well as in per hectare outlay in agriculture and irrigation.

In suggesting the guidelines to regional policy in India, we emphasised the role of the centre dominated political and planning process up to the end of the Third Plan in operating the national and regional planning through informal cooperation without elaborating specific regional allocative criteria or goals. The conflicting issues of regional allocation of resources were sidetracked through the dominating influence of the centre in determining the final size of the state plans and its sectoral allocation.

---

1. In the Second Plan, the range between the highest and lowest outlay per hectare was Rs 115 in Kerala to Rs 34 in Rajasthan. In the Third Plan this ranged between Rs 264 in Kerala and Rs 76 in Madhya Pradesh. In the Fourth Plan the range increased to Rs 409 in Kerala and Rs 98 and 69 in Madhya Pradesh and Rajasthan respectively.

The political developments in the late 'sixties and early seventies have resulted in a gradual weakening of the centre and in a situation in which the same political party no longer controls all the state governments. For the future survival of the Indian federation and the viability of economic planning, the regional policy becomes crucial in two respects. Since the earlier era of consensus and cooperation through the same political platform is no longer possible, the regional goals in national planning and the conflicting issues of regional allocation must be made more explicit. This should provide a rational basis on which the economic trade-offs between the various objectives can be considered. Secondly, the regional policy at the national level should also act so as to differentiate between the political demands of the states for more resources or more projects as distinct from the resource allocation on economic criteria. (Chapter IX)

If a politically weak centre gives way to the demands of politically strong low income regions for more resources for their states in the sectors in which the national growth objectives require a spatial concentration, it would undermine and stifle the national development effort. To prevent this, a better understanding of the regional disparities in the economic sectors as well as studies of the regional production structures is necessary. This requires an effort both at the national and regional levels. To a great extent, studies of regional disparities and the allocative criteria in short term and long term planning can only be pioneered at the centre. The analysis of regional production structures through input-output studies and the industrial base studies, etc., fall into the category in which state regional departments can serve a useful function. Studies of this nature also provide useful information for regional planning at state level. Greater central initiative is also necessary in estimating state income regularly and to integrate these data with the national income data published by the Central

Statistical Organisation.

In considering the future pattern of regional inequality we must isolate from the effects of the changes in the above factors in the course of regional disparities and assume a more limited role of examining the trends in the regional disparities in the light of our study. Regional disparities in per capita income reflect the regional differences in the economic structures and the productivity differences within the economic sectors. The relative dispersion around the mean in the regional per capita income can be expected to increase on account of the following factors: (a) The regional disparities in the economic structures will persist due to the spatial concentration of the private sector's investment in manufacturing; (b) The high income states will be able to maintain a higher development effort than the low income regions, which means that they will continue to have higher investments in social and economic infrastructures[1] and a higher per hectare outlay in agriculture: (c) The high income regions have a higher percentage of rich farmers so that the private investment in agriculture can be expected to be higher in these regions.than in the low income regions.[2]

Thus, agriculture will play an increasing role in the creation of regional income disparities and in the regional allocation of resources within the agricultural sector itself. We noted earlier that the new agricultural

---

1. Classification of Indian regions on the basis of social and economic indicators does not alter the ranking position of low income regions.
2. Rao, S.K., op.cit. comes to the following conclusion in this regard: "It is expected that the economic disparities between regions will widen in the near future. The Green Revolution in agriculture has made investment in agriculture very attractive. We can expect private investment to play a greater role in agriculture. The growth of private investment is likely to be higher in the rich farmer regions because private investment is likely to be constrained by the ability to save by farmers. And, in general, it is the advanced regions who have more rich farmers." The role of rich farmers in obtaining higher cooperative credit and in the regional shares in HYVP was also noted earlier.

development strategy since 1967-68 relies essentially on a concentrated development effort in agriculture in the areas of minimum risk. This meant that in the Fourth Plan the regional shares in HYVP worked out to be much higher in the agriculturally advanced regions and the other more industrialised regions. Objectives of national targets of self-sufficiency in food, rapid population growth and the balance of payment constraints would make it imperative in the near future to concentrate efforts in the regions with existing advantages. Since the investments in fertilisers and major irrigation are highly capital intensive and as there are marked spatial differences in the returns from these investments, application of national criteria would lead to continued higher investments in these regions. The regional development efforts in agriculture in the low income regions with severe existing disadvantages may be concentrated in the programmes to raise their levels of agricultural development by measures directed to the dry farming areas and the labour intensive schemes oriented to increase the employment and income opportunities in the short run and on the rural infra-structures. Such an integrated national approach presupposes that the "externalities" created by the concentration of national effort in few regions are large enough to contain the rest of the regions in a lower share in the technological change in agriculture. If these "externalities" or the "beneficial" effects of higher technological change in some regions are reduced because of the political power of the agriculturally prosperous states and an incoordinated national food distribution policy, the spatially concentrated national effort in agriculture may precipitate the crisis in social and political stability of the country itself. Thus, although the trends in the private and public investment in agriculture suggest that regional disparity in agricultural growth and productivity will increase as a result of the technological change in agriculture and the national constraints would require a

continued concentrated effort, there are inherent dangers in such a situation, especially in the context of a changed political situation.

We conclude that in an underdeveloped economy like India the issues of regional disparities and policy are of great importance, because of the following factors: the stage of national economic development, the size of the country, the limited scope of large scale inter-regional and inter-sectoral migration of labour force and the nature of the political federation through which national and regional planning operates. Regional disparity in per capita income in India was found to be much lower than that in the countries with high regional dualism such as Brazil, Italy, Greece and some of the East European countries. In most of these countries the regional inequality in the economic sectors is lower than in per capita incomes, and also regional inequality in agricultural income is higher than in the manufacturing sector. In the case of India, we conclude that the regional inequality is higher when measured at the sectoral level. Classification of Indian regions on the basis of per capita income is useful, as the regional differences in the per capita income reflect the regional differences in economic structures and the productivity differentials within each economic sector. Classification of Indian regions on the basis of other social and economic indicators does not shift the ranks of low income states to a more favourable position. High regional disparity in the manufacturing income per worker can be attributed to the significant regional differences in the degree of industrialisation and the existence of regional disparities in efficiency at the industry level. Private manufacturing investment has continued to cluster at the large urban centres in the more industrialised states, and has shown a lack of movement to the large public investment in the low income regions. In agriculture, the regional inequality was found to be a little less than in the manufacturing. Regional disparity in the agricultural

income reflects the significant differences in the cropping pattern of regions and high regional disparity in the productivity levels in each crop. Technological change in agriculture through modern inputs is concentrated in the regions with existing advantages. In addition, the more industrialised regions also have a much higher total public investment in agriculture. Private investment in agriculture in these regions is also higher as they have a higher percentage of rich farmers.

We conclude that in the changed political situation the regional policy that lays down more explicit short and long term regional goals[1] can be regarded as crucial for the political survival of the federation and the viability of rational economic planning. Regional policy will have to tackle complex conflicting issues of regional resource allocation which were successfully manoeuvred by the centre-dominated political and planning process until the late 'sixties. While we can expect the regional disparities in per capita income to increase, the most difficult issues are likely to arise due to the nature of technological change in agriculture. Since the constraints of national objectives of self-sufficiency in food and the other national parameters require a continued concentrated effort in some regions additional steps will have to be taken to spread the "externalities" to the other regions, to pursue a vigorous food distribution policy and to have agricultural programmes suited to the needs of the agriculturally least advantageous regions. This can only be achieved by a combination of central and state initiative.

---

1. It would be equally necessary to allocate the central assistance in accordance with these regional goals.leading to the size of state plans that are related to the specific regional goals and needs of the low income regions.

Selected Bibliography

Agro Economics Centre, University of Delhi. "Regional Variations in Indian Agriculture", mimeo., 1966.

Alagh, Yoginder, K., Subramaniam, K.K. and Kashyapa, S.P. "Regional Industrial Diversification", Economic and Political Weekly, April 10, 1971.

Alonso, William and Friedmann, John, Ed. "Regional Development and Planning, A Reader", M.I.T. Press, 1964.

Alonso, William. "Urban and Regional Imbalances in Economic Development", Economic Development and Cultural Change, Vol. 17, No. 1, 1968.

Baer, W. "Regional Inequality and Economic Growth in Brazil", Economic Development and Cultural Change, Vol. 12, No. 3, April, 1964.

Bagchi, A.K. "Growth of Agricultural Production: Regional Differences in Rates", Economic Weekly, Annual Number, Jan. 1965.

Baldwin, George B. "Industrial Growth in South India: Case Studies in Economic Development", Cambridge, M.I.T., 1962.

Berry, B.J.L., Ed. "Essays on Commodity flows and Spatial Structure of Indian Economy", Chicago University Press, 1966.

Bose, A. "Migration Streams in India", Population Review, July, 1967.

Bose, A.N. "Economic Development and Balanced Regional Growth", Indian Journal of Regional Science, Vol. I, 1968-69.

Bose, S.R. "Regional Disparities in Agricultural Incomes in India", Indian Journal of Agricultural Economics, April-June, 1962.

Boserup, Ester. "The Conditions of Agricultural Growth: The Economics of Agricultural Change Under Population Pressure, Allen and Unwin, London, 1965.

Boudeville, J.R. "Problems of Regional Economic Planning", Edinburgh University Press, 1966.

Brown, A.J. "Framework of Regional Economics in Britain", Cambridge, 1972.

Brown, J.H. "Shift and Share Projections of Regional Economic Growth: An Empirical Test", Journal of Regional Science, Vol. 9, April, 1969.

Cameron, G.C. "The Regional Problem in the United States - Some Reflections on a Viable Federal Strategy", Regional Studies, Vol. 2, p. 207-220.

Chaudhry, Mahinder. "Regional Income Accounting in an Under-

developed Economy, A Case Study of India, Ph. D. Dissertation, Duke University 1964, Published by Sterling Publishers, Delhi, 1966.

Chaudhry, M.R. "Indian Industries: Development and Location, An Economic Geographic Appraisal, Calcutta, Oxford Book Co., 1962.

Chaudhri, Pramit, Ed. "Readings in Agricultural Development", London, George Allen and Unwin Ltd., 1972.

Canada, Dominion Bureau of Statistics "Income Distribution by Size in Canada", Ottawa, Queen's Press, 1968.

Cunning, R. and Ray, S.K. "1968-69 Foodgrain Production: Relative Contribution of Weather and New Technology", Economic and Political Weekly, Sept. 27, 1969.

Dandekar, V.M. and Rath, N. "Poverty in India: Dimensions and Trends", Economic and Political Weekly, Jan. 2, 1971, also "Poverty in India, Policies and Programmes", Jan. 9, 1971.

Dunham, David and Hilhorst, Jos. G.M., Eds. "Issues in Regional Planning", Institute of Social Studies, The Hague, 1971.

De Anil. "Public Sector and Regional Development - An Approach to an Industrial Policy" in Efficacy of Public Enterprise, Ed. V. Ramanathan, Allied Publishers, 1963.

Denison, Edward. "Why Growth Rates Differ", The Brookings Institution, Washington, D.C., 1967.

Denton, F.T. "An Analysis of Interregional Differences in Manpower Utilization and Earnings", Economic Council of Canada, Staff Study, No. 15, Ottawa.

Desai, G.U. and Mellor, J.W. "Changing Basis of Demand for Fertiliser", Economic and Political Weekly, Sept. 27, 1969.

Easterlin, R.A. "Interregional Differences in Per Capita Income, 1840 - 1950", in Harris, S., Ed. Economic History, McGraw Hill, 1961.

Eckaus, R.S. "The North-South Differentials in Italian Economic Development, Journal of Economic History, 1961.

Fankel, Francine, R. "India's Green Revolution, Economic and Political Costs", Princetown University Press, 1971.

Friedmann, John. "Regional Development Policy: A Case Study of Venezuela", M.I.T. Press, 1966.

Ghosh, A. and Dhar, R. "Implications of Regional Balance in Planned Growth", Indian Economic Journal, No. 8, 1960.

Ghosh, A. "Planning Programming and Input Output Models: Selected Papers on Indian Planning, Cambridge, University Press, 1968.

Ghosh, A. and Dhar, R. "Efficiency in Location and Interregional flows, The Indian Cement Industry during Five Year Plans, 1950-59", 1965.

Graham, Douglas, M. "Divergent and Convergent Regional Economic Growth and Internal Migration in Brazil, 1940-60", Economic Development and Cultural Change, Vol. 18, No. 3, April, 1970.

Green, Alan. "Regional Inequality, Structural Change and Economic Growth in Canada, 1890-1956", Economic Development and Cultural Change, Vol. 17, No. 4.

Haddad, Paulo. "Problems and Policies of Regional Planning in Brazil", in "Issues in Regional Planning", Ed. Dunham, David and others, 1971.

Hamilton, E. "Regional Analysis in Britian and Commonwealth", L.S.E., Weidenfeld and Nicolson, 1969.

Hanna, F.A. "Analysis of Interstate Differentials, Theory and Practice", National Bureau of Economic Research, in "Regional Income", Princetown University Press, Princetown, 1957.

Hanson, A.H. "Power-shifts and Regional Balances" in "The Crises of Indian Planning", Ed. Streeten, Paul and Lipton, Michael, 1968.

Harbison, Frederick Harris and Myers, Charles A., Ed. "Manpower, Education and Economic Growth, Strategies of Human Resource Development", London, McGraw Hill Book Co. 1964.

Hazari, R.K. "Industrial Licensing and Planning Policy", Report submitted to the Planning Commission, Government

of India, 1967.

Heston, Allan, "Regional Income Differences in India and "Historical Pattern", Indian Economic Journal, Oct.-Dec., 1967.

Hirschman, A.O. "The Strategy of Economic Development", Yale University Press, 1958.

Holmes, R.A. and Munro, J.A. "Regional Non-farm Income Differences in Canada, An Econometric study, Journal of Regional Science, Vol. 10, April 1970, No. 1.

Hoover, E.M. "The Location of Economic Activity", McGraw-Hill, New York, 1948.

INDIA, GOVERNMENT OF:

Food and Agriculture, Ministry of: Growth Rates in Agriculture: All India and States, 1967.

Indian Agriculture in Brief, A Handbook of Statistics, Yearly Publication.

Planning Commission:

The Third Five Year Plan, 1962.

Report of the Committee on Distribution of Income and Levels of Living, Part I, Distribution of Income and Wealth and Concentration of Economic Power, Report prepared under the Chairmanship of Mahalnobis, P.C.

Regional Variations in Social Development and Levels of Living, Vol. I and II, 1969.

The Fourth Five Year Plan, 1969-74, 1969.

Report on the Identification of Backward Areas, 1969.

Economic Development in Different Regions in India, 1962.

Bureau of Public Enterprises, Ministry of Finance, New Delhi. "A Handbook of Information of Public Enterprises", 1970.

Central Statistical Organization

"Annual Survey of Industries", Vol. I to X, 1961 and 1966.

The Registrar General of India, Office of:

Census of India, 1961. Final Population Totals, Paper No. 1, 1962.

Levels of Regional Development in India, Part I-A (i), Mitra, A.

Census of India, 1961, Economic Regionalization of India, Problems and Approaches, "Monograph series, Vol. I, No. 8 by Dr. (Miss) P. Gupta, and Dr. (Mrs.) Galina Salasynk, 1969.

Reserve Bank of India

Bulletins of 1952-1969. Bank's Bulletin reviews state finances from 1952 onwards.

Isard, W. and Chatterjee, M. "Potentialities of Regional Science Methods and Techniques in attacking Indian Regional Problems". Indian section of Regional Science Association, Kharagpur Seminar Paper, reprinted, in Indian Journal of Regional Science, Vol. I, 1968-69.

Isard, W. "Location and Space Economy", London, Chapman and Hall, 1956.

Isard, W. "Methods of Regional Analysis, An Introduction to Regional Science", M.I.T., John Wiley and Sons, 1960.

Isard, W. and Cumberland, John. "Regional Economic Planning, Techniques of Economic Analysis", 1961.

Ishikawa, Shigeru. "Economic Development in Asian Perspective", Kinokuniya Bookstore Co. Ltd., Tokyo, Japan, 1967.

Itagaki, Yoichi. "A Review of the concept of Dual Economy", The Developing Economies, Vol. VI, June 1968, No. 2.

Kalra, B.R. "Regional Variations in Policy Regarding size of Agricultural Holdings", Indian Journal of Agricultural Economics", 1965.

Kapoor, T.N. "Industrial Development in the States of India", Sterling Publishers Ltd., 1967.

Khusro, A.M. "Economic Development With No Population Transfers", Asia Publishing House, 1962.

Krueger, A.O. "Factor Endowments and Per Capita Income Differences Among Countires", Economic Journal, 1968.

Kuznets, S. "Economic Growth and Income Inequality", American Economic Review, No. 45, Mar. 1955.

Kuznets, S. "Underdeveloped Countries and the pre-Industrial Phase in the Advanced Countries: An Attempt at Comparison", U.N. Proceedings of the World Population Conference, 1954, Papers Vol. V, New York, 1955.

Kuznets, S. "Modern Economic Growth, Rate, Structure and Spread", Yale University Press, 1966.

Ladjensky, Wolf. "Tenurial Conditions and the Package Programme", Mainstream, March, 1965, Reprinted in "Readings in Indian Agriculture", Ed. Khusro, M., Calcutta, 1968.

Learmouth, A.T.A. "Mysore State - A Regional Synthesis", Asia Publishing House, New York, 1963.

Lipton, M. "Strategy for Agriculture: Urban Bias and Rural Planning", in "Crises of Indian Planning", Ed. Streeton, Paul and Lipton, Michael, 1968.

Losch, August. "The Economics of Location", 1954. Yale University Press. Original, "Die Raumliche Ordmung der Wirtschaft".

Macrae, John. "The Relationship between Agricultural and Industrial Growth, with special reference to the Development of Punjab Economy from 1950 to 1965", Journal of Development Studies, Vol. 7, July, 1971.

Maddison, Angus. "Economic Progress and Policy in Developing Countries", London, Allen and Unwin, 1970.

Maddison, Angus. "Foreign Skills and Technical Assistance in Economic Development", Paris Development Centre, 1965.

Manne, Alan S., Ed. "Investments for Capacity Expansion, Size, Location and Time-Phasing", George Allen and Unwin Ltd., 1967.

Marglin, S. "Public Investment Criteria: Benefit-Cost Analysis for Planned Economic Growth", Allen and Unwin, 1967.

Mathur, K. Vijay. "Occupational Composition and its Determinants: An Intercity Size Class Analysis", Journal of Regional Science, Vol. 10, No. 1, April, 1970.

Mazmudar, Dipak. "Farm Size and Productivity", Economica, 1965.

McCrone, Gavin. "Scotland's Economic Progress, 1951-61", University of Glasgow, Social and Economic Studies.

Mehta, M.M. "Interrelationship Between Size, Location and Integration", Indian Economic Journal, No. 2, 1954.

Mehta, M.M. "Location of Indian Industries", Allahabad, 1952.

Meyer, J.R. "Regional Economics; A Survey", in "Surveys of Economic Theory", Vol. II, 1965.

Minhas, B.S. and Vaidyanathan, S. "Growth of Crop-output in India, 1951-54 to 1958-61: An Analysis of Component Elements, Reprinted in "Reading in Agricultural Development", Ed. Chaudhry, Pramit, London, George Allen and Unwin Ltd., 1972.

Mrinal, Datta-Chaudhri. "Regional Planning in India", in "Issues in Regional Planning", Ed. Dunham, David M. and others, 1971.

Mukherjee, Moni. "National Income of India", Statistical Publishing Society, 1969.

Myrdal, Gunnar. "Economic Theory and Underdeveloped Regions", Duckworth, 1957.

Myrdal, Gunnar. "Asian Drama", Vol. I, II, III, Penguin Press, 1968.

National Council of Applied Economic Research, New Delhi

NCAER. "Distribution of National Income by States, 1960-61", Delhi, 1967.

NCAER. "Estimates of State Income, 1950-51, 1955-56 and 1960-61", Delhi, 1967.

NCAER. "Agricultural Incomes of States, 1960-61", Delhi, 1965.

NCAER. "Income and Structure of Manufacturing Sector in India, 1960-61", Delhi, 1964.

NCAER. "Summing up the pattern of growth of States".

NCAER. Techno-Economic Survey Reports by States.

Nair, K.R.G. "A Note of Inter-state Income Differentials in India, 1950-51 to 1960-61", Journal of Development Studies", Vol. 7, July 1971, No. 4.

Nath, V. "Regional Planning in the National Plan of India", Artha Vignyana, No. 9, 1967.

Nath, V. "Regional Development in Indian Planning", Economic and Political Weekly, Annual Number, Feb. 1970.

Needleman, Ed. "Regional Analysis", Penguin Modern Economic Readings, 1968.

North, D.C. "Location, Theory and Regional Economic Growth, "Journal of Political Economy, No. 63, 1955.

Nourse, H.O. "Regional Economics", 1968.

Pal, M.N. "Regional Demand Projections for Different Commodities in India, 1970-71 and 1975-76", Indian Economic Journal, Vol. 14, No. 4, Jan.-Mar. 1967.

Peecee. "Imperatives of Central Assistance Policy", Economic and Political Weekly, Oct. 5, 1968.

Perloff, Harvey S. and Others. "Regions, Resources and Economic Growth", University of Nebraska Press, 1960.

Perloff, H.S. "Interrelations of State Income and Industrial Structure", Review of Economics and Statistics, 39, 1957.

Perroux, F. "La Nation de pole de croissance", Economie Applique, Nos. 1-2.

Phillippe, J. Bernard. "Planning in the Soviet Union", Dr. Des Sciences, Economiques; Commissariat, General Du plan, Paris, Pergammon Press, 1966.

Raj, K.N. "Some features of Economic Growth of Past Decade in India, Economic Weekly, Feb. 4, 1961.

Raj, K.N. "Some Questions Concerning Growth, Transformation and Planning of Agriculture in Developing Countries" in "Economic Development of South Asia", Ed. Robinson, E.A.G. and Kidron, Michael.

Raj, Krishna. "The Growth of Aggregate Agricultural Output in Punjab", Indian Economic Journal, Jul.-Sept. 1964.

Rahman, M. "Regional Allocation of Resources" in "Regional Development and Planning, A Reader", Ed. Friedmann, John and Alonso, William, 1968.

Rao. S.K. "Regional Disparities in India", Unpublished Ph. D. Dissertation to the University of Cambridge, 1972.

Rao, A.P. "Size of Holding and Productivity", Economic and Political Weekly, Nov. 11, 1967.

Richardson, H.W. "Regional Economics", Weidenfeld and Nicolson, 1969.

Robinson, E.A.G. and Kidron, Michael. "Economic Development in South Asia", Proceeding of Conference held by International Economic Association, at Kandy, Ceylon, McMillan, St. Martin's Press, 1970.

Robinson, E.A.G. "Backward Areas in Advanced Countries", Proceedings of a Conference held by International Economic Association at Varena, 1969.

Rodwin, Lloyd. "Choosing Regions for Development" in "Regional Development and Planning", Ed. Alonso and Friedmann, 1968.

Rosen, G. "Democracy and Economic Change in India", University of California Press, 1966.

Rudra, Ashok. "Farm-size and Yield per Acre", Economic and Political Weekly, Special Number, July, 1968.

Rudra, Ashok. "More on Returns to Scale in Indian Agriculture", Economic and Political Weekly, October, 1968.

Sakashita, Noboru. "Empirical Evaluation of the Regional Effect of Public Investment Allocation", Indian Journal of Regional Science, Vol. I, 1968.

Samarrie, A.L. and Miller, H.P. "State Differentials and Income Concentration", American Economic Review, No. 57, 1967.

Sanyal, S.K. "Size of Holding and some factors Related to Production", Economic and Political Weekly, Aug. 16, 1969.

Sarma, P.S. "A Study of Structural and Tenurial Aspects of the Rural Economy in light of the 1961 Census", in "Patterns of Population Change in India, 1951-61", Ed. A. Bose, 1967.

Sau, Ranjit. "On Rural Poverty", Economic and Political Weekly, Vol. VI, No. 52, Dec. 25, 1971.

Schultz, T.W. "Transforming Traditional Agriculture", Chicago, 1964.

Scwartzberg, J.E. "Occupational Structure and Level of Economic Development in India: A Regional Analysis",

Sen, A.K. "Size of Holding and Productivity", Economic Weekly, 1964.

Shastry, D.U. "Inter-state Variations in Industry in India, 1951-61: A Tentative Explanation", Indian Journal of Regional Science, Vol. II, 1970 and also in Economic and Political Weekly, Vol. IV, Mar. 22, 1969.

Shastri, K.V.S. "Federal State fiscal relations in India", Oxford University Press, 1966.

Shivamaggi, H.B. "Crucial Aspects of Agricultural Development - Problems of Fourth Plan", Economic and Political Weekly, Sept. 27, 1969.

Stephen, R. "Regional and National Economic Development in India", Journal of Regional Science, Vol. 6, 1959.

Stilwell, Frank J.B. "Regional Economic Policy", McMillan Press, 1972.

Tachi, M. "Regional Income Disparity and Internal Population Migration of Japan", Economic Development and Cultural Change, Vol. 12, No. 2, Jan. 1964.

Thimmaiah, G. "Centre-State Financial Relations in India", 1968.

Thomas, Morgan. "Regional Economic Growth, Some Conceptual Aspects", Journal of Regional Science, Vol. XLV, Feb. 1969.

Tripathy, R.N. and Samat, B. "Economics of High Yielding Variety in IADP: A Study of Sambalpar in Orrissa", Economic and Political Weekly, Oct. 25, 1969.

Turner, R. Ed. "India's Urban future", Berkeley, California, 1962.

Umemura, Mataji. "Regional Differences in the Distribution of Industrial Employment in Japan", Developing Economies, Vol. III, No. 2, June, 1969.

United Nations: "Regional Development Experiences and Prospects", Ed. L. Lefeber and Chaudhry, Mrinal Dutta, Vol. I and II, 1970.

United Nations, Economic Commission for Europe. "Criteria for the Location of Industrial Plants", New York, 1967.

Veeraragha, Vachar S.M. "Union-state financial Relations in India", Doctorate Dissertation, University of Mysore, Sterling Publishers Ltd., 1969.

Venketraman, K. "States' finances in India", Allen and Unwin, 1968.

Ward, Benjamin. "Green Regional Development", Research Monograph Series, 1962.

Weber, Alfred. "The Theory of the Location of Industry", translated by Friedrick, C., University of Chicago Press, Chicago, 1929.

Williamson, J.G. "Regional Inequality and National Economic Development; A description of patterns", Economic Development and Cultural Change, Vol. 13, 1965.

Wu Yuan-Li, Ling, H.C. and Grace, Hsiao Wu. "The Spatial Economy of Communist China, A Study of Industrial Location and Transportation", Hoover Institution Publication, 1967.

Zaveri, N.J. "Transfer of Non-Plan Resources to Sates", Economic and Political Weekly, June 7, 1969.

Additional References

Akerlof, George. "Centre-State Fiscal Relations in India", Indian Economic Review, Vol. IV (New Series), Oct. 1969.

Christaller, Walter. "Die Zentralem Orte in Suddeutschland", 1933, Translated by Baskin, C.W. as "Central Places in Southern Germany".

Chelliah, R.T. "Fiscal Policy in Underdeveloped Countries", Allen and Unwin, 1969.

Gadgil, D.R. "Planning and Economic Policy in India", Gokhale Institute of Politics and Economics, 1962.

Hansen, Niles. "Development Pole Theory in a Regional Context", KYKLOS, Vol. XX, 1967.

India, Government of:

The Report of Administrative Reforms' Commission on Union-State Financial Relations.

Khatkhate, D.R., Bhatt, U.V. "Centre-State Financial Relations in India", Economic and Political Weekly, Feb. 21, 1970.

Lakadawala, D.T. "Union-State Financial Relations", Lavani Publishing House, 1967.

Nambiar, K.V. and Rao, Govinda M. "Tax Performance of States", Economic and Political Weekly, May 20, 1972.

Nath, V. "Agricultural Growth in 1970's, An Analysis", Economic and Political Weekly, Review of Agriculture, December, 1970.

Rudolph, J. Lloyd and Rudolph, Susanne H. "Regional Patterns of Education", Economic and Political Weekly, May 20, 1972.

Vithal, B.P.R. "Central Assistance for State Plans; How Equitable Is It", Economic and Political Weekly, June 16, 1969.

A. H. Hanson: "The process of Planning"

Bhagwati J and P. Desai, "Industrialization and Trade Policies in India.