Chapter Three

PER CAPITA INCOME AND STRUCTURE OF STATE ECONOMIES

I. Introduction :

In the previous Chapter, we have derived the estimates of comparable State Domestic Product at 1960-61 prices for the years 1960-61 and 1970-71 for the fifteen major States in India. In the present Chapter, let us examine some important implications of our estimates of income presented in Chapter 2 above in terms of income inequalities among States and growth and structure of different State economies in India during the sixties. The present chapter is accordingly divided into five sections. In the next section our estimates of the State per capita income for the year 1960-61 and 1970-71 at 1960-61 prices have been presented. Their implications in terms of the extent and trends in income inequalities among States have also been examined. For the sake of comparison, available alternative estimates of State income are also presented. In the third section, the structure of the State economies in terms of the sectoral composition of the State Domestic

Product at 1960-61 prices for the years 1960-61 and 1970-71 is examined. The famous sector hypothesis is also tested with the help of correlation technique. Then, in the fourth section, growth of SDP by broad sectors is presented and the inter-relationships between the sectoral growth and overall growth have been examined. A few interesting exercises have also been carried out to find out whether any significant relationship exists between the growth of SDP and some obvious factors like population growth, initial levels of per capita income etc. In other words, an elementary attempt is made with the help of some traditional factors to explain the interstate variations in the growth of SDP. In the fifth and the final section of this chapter, contribution of broad sectors to the growth of SDP is worked out. An attempt is also made to isolate the effects of the pure growth factors and the initial structure of the economy on the observed overall growth of the different state economies.

II. Per Capita Income in Indian States, 1960-61 and 1970-71 :

Per capita income in a State economy is defined as a ratio between total income and total population in that State at a given point of time. In the previous chapter, we have derived a set of comparable estimates of the net State Domestic

Product for each of the fifteen major States of India for the years 1960-61 and 1970-71. The data on State-wise population is readily available in the Censuses of India 1961 and 1971. For the year 1960-61, however, two alternative sets of estimates of the State per capita income are also available, viz., the estimates prepared by various State Statistical Bureaus (SSBs) and the estimates prepared by the National Council of Applied Economic Research (NCAER). In fact, most of the studies made so far on the interstate variations in the levels of income especially for the year 1960-61 have used the estimates prepared by the NCAER on the grounds that this is the only set of estimates which is comparable and consistent.*1 It would be, therefore, an interesting exercise to compare our estimates of the State per capita income with the estimates prepared by different SSBs and the estimates prepared by the NCAER. Table 3.1 presents these three sets of estimates for the year 1960-61.

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*1 See for example (i) M.M.Dadi: "Interstate Differences in Income, Productivity and Industrial Structure" in Indian Economic Association Annual Conference Number, 1969. (ii) N.V. Nadkarni: "Regional Imbalance in India" in Indian Economic Association Annual Conference Number, 1969. (iii) M.M.Dadi: "Interrelation of State Income, Industrial Structure, Productivity and Labour Participation Ratio" in Indian Journal of Industrial Relations, April 1973. (iv) R.H.Dholakia : "A Note on Interstate Income Differentials in India", an unpublished paper, etc.

Table 3.1

State Per Capita Income at Current Prices in India, 1960-61

(in Rs.)

States	State Per Capita Income at Current Prices					
	Our Estimate	Rank	SSBs Estimate	Rank	NCAER Estimate	Rank
1	2		3		4	
1. Andhra	292	(7)	273	(6)	287	(5)
2. Assam	349	(9)	306	(9)	333	(9)
3. Bihar	228	(2)	214	(2)	221	(1)
4. Gujarat	372	(12)	358	(13)	393	(11)
5. Haryana	360	(11)	323	(11)	N.A.	-
6. Karnataka	319	(8)	283	(8)	305	(7)
7. Kerala	280	(6)	263	(5)	315	(8)
8. M.P.	261	(4)	257	(4)	285	(4)
9. Maharashtra	403	(14)	404	(15)	469	(14)
10. Orissa	225	(1)	213	(1)	276	(3)
11. Punjab	374	(13)	369	(14)	451*	(12)
12. Rajasthan	279	(5)	278	(7)	267	(2)
13. Tamil Nadu	355	(10)	330	(12)	334	(10)
14. U.P.	238	(3)	244	(3)	297	(6)
15. W. Bengal	442	(15)	312	(10)	465	(13)
Total	307		287		331	

* Stands for old Punjab.

N.A. stands for not available.

Note: The same population base has been taken for all the three series.

Source: (i) Table 2.1 above.

(ii) NCAER : Distribution of National Income by States 1960-61, 1965.

(iii) Census of India 1961.

It becomes fairly obvious from the table that the levels of per capita income in 1960-61 differ significantly among different States. This is brought out clearly by all the three sets of estimates. However, among these three sets of estimates of per capita income of different States, there is hardly any agreement as far as the absolute level of the income is concerned. On an average, it can be seen that our estimates lie in between the estimates prepared by the State Statistical Bureaus and those prepared by the National Council of Applied Economic Research, the former being on the lower side and the latter being on the higher side, on an average. It should be noted here that there is no uniform adjustment among these three sets of estimates for all States, though for most of the States, the SSBs estimate lie below our estimates as well as the estimates prepared by the NCAER. However, the rankings implicit in the three sets of estimates of State per capita income do not differ violently. It is interesting to note further that barring the case of Karnataka, the set of below average per capita income States in all the three sets of estimates turns out to be the same. In other words, except the case of Karnataka, the broad division of States with above average per capita income and with below average per capita income remains the same for all the three sets of estimates.

The rankings within these broad categories of States may differ from one set of estimates to another, but the division of States into the broad categories has remained the same for all the three sets of estimates. The case of Karnataka is an exceptional case in the sense that it turns out to be marginally above-average per capita income State in our estimate while according to NCAER estimates, it turns out to be marginally below-average per capita income State.

According to our estimates, in 1960-61, the lowest per capita income State was Orissa followed closely by Bihar and Uttar Pradesh, whereas West Bengal and Maharashtra were the highest and the second highest per capita income States respectively. The ratio between the highest State per capita income and the lowest State per capita income turns out to be 1.96 in India in 1960-61 according to our estimates. The corresponding ratios for the NCAER estimates and the SSBs estimates of State per capita income in India turn out to be 2.12 and 1.90 respectively. Thus, if we adopt this crude measure, the NCAER estimates show a greater disparity of income levels among regions in India in 1960-61 as compared to our estimates. Even if we take coefficient of variation as the measure of income inequalities among States, the NCAER estimates show a greater degree of interstate variations

in the per capita income levels as compared to our estimates. The coefficients of variation for the State per capita income series given by our estimates, the NCAER estimates and SSBs estimates, turn out to be 21.43%, 23.10% and 18.92% respectively.

As against this, if we measure the income inequalities among different states in India by the most popular measure, viz., the Gini Coefficient,*2 we find that our estimates show the highest degree of income inequalities in India in 1960-61. The Gini Coefficient of inequalities turns out to be 12.93% for our estimates, 12.83% for the NCAER estimates and 10.94% for the SSBs estimates. The coefficient of variation and the Gini coefficient of inequality give opposite results when we compare our estimates with those of NCAER. This only implies that the resulting Lorenz curves in the two cases may be intersecting each other. In this case, there seems to be a problem of selection between the two measures. It is enough to state at this stage that Gini Coefficient appears to be

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*2 The Gini Coefficient can be calculated on the basis of the Lorenz Curve. It is defined as the ratio of the difference between the line of absolute equality (the diagonal) and the Lorenz Curve to the triangular region underneath the diagonal (cf. A.K.Sen: On Economic Inequality, Oxford University Press, 1975, ch.2). If we represent relative frequency of population by r_i, the relative frequency of total income by fi and the cumulative relative frequency of income by F_i then, the

Gini Coefficient, $G = 1 - \sum_{i=1}^{n} r_i f_i - 2 \left(\sum_{i=1}^{n} r_i F_{i-1} \right)$

more acceptable as a measure of income inequalities as compared to the coefficient of variation.*3

Turning our attention to the year 1970-71, we find that except our estimates and the State Statistical Bureaus estimates, no other set of estimates of State income is available for 1970-71. We have already seen in Chapter 2 and also from Table 3.1 above that the SSBs estimates are thoroughly unreliable as far as the question of interstate comparisons of the per capita income levels is concerned. Thus, we are apparently left with only our estimates of State per capita income for the year 1970-71. However, it should be noted that we have prepared two sets of estimates of the net State Domestic Product for the year 1970-71 for the fifteen Indian States in the previous Chapter, viz., the estimates of SDP in 1970-71 at current prices and the estimates of SDP in 1970-71 at 1960-61 prices. Moreover, if we do not insist on the year 1970-71, we have an alternative set of estimates prepared by the Central Statistical Organization

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*3 The measure of coefficient of variation involves arbitrary squaring procedure and concentrates heavily on differences vis-a-vis the mean. On the other hand, Gini Coefficient is a more direct measure of income inequalities taking note of differences between every pair of incomes. For further discussion on this topic, see A.K.Sen: On Economic Inequality, (Oxford University Press, 1975), ch.2.

Table 3.2

State Per Capita Income in India, 1970-71

(in Rs.)

States	State Per Capita Income in India					
	Our Estimates at 1960-61 Prices	Rank	Our Estimates at current Prices	Rank	CSO Estimates at current Prices	Rank
1	2		3		4	
1. Andhra	322	(6)	603	(8)	537	(6)
2. Assam	358	(8)	594	(7)	581	(10)
3. Bihar	223	(1)	434	(1)	409	(1)
4. Gujarat	437	(11)	836	(13)	667	(12)
5. Haryana	497	(14)	945	(14)	810	(14)
6. Karnataka	458	(13)	532	(5)	552	(7)
7. Kerala	299	(5)	643	(9)	555	(8)
8. M.P.	262	(3)	491	(3)	458	(3)
9. Maharashtra	407	(10)	759	(12)	686	(13)
10. Orissa	269	(4)	512	(4)	488	(5)
11. Punjab	499	(15)	1045	(15)	940	(15)
12. Rajasthan	332	(7)	583	(6)	455	(2)
13. Tamil Nadu	388	(9)	672	(10)	558	(9)
14. U.P.	258	(2)	491	(2)	480	(4)
15. West Bengal	453	(12)	682	(11)	667	(11)
Total	340		607		531**	

* Average of the State per capita income at current prices for the years 1967-68, 1968-69 and 1969-70.

** Pertains to All India.

Source: (i) Appendix Table 2A.2 and Appendix Table 2A.4 above.

(ii) Report of the Six Finance Commission, p.163.

for the use of the Sixth Finance Commission for the years 1967-68, 1968-69 and 1969-70 at current prices. As the Sixth Finance Commission has rightly done, if we take the arithmetic average of the State per capita income for those three years, it can serve as an alternative set of estimates of the State per capita income whose interstate variations may be broadly comparable to our estimates for the year 1970-71 at current prices. Table 3.2 presents State per capita income in 1970-71 according to our estimates at 1960-61 prices and at current prices and the estimates used by the Sixth Finance Commission.

The table clearly shows that the three sets of estimates are in perfect confirmity as far as the highest and the lowest per capita income States are concerned. In 1970-71, Punjab turns out to be the highest per capita income State and Bihar turns out to be the lowest per capita income State. The ratio of the highest State per capita income to the lowest State per capita income turns out to be 2.24 for our estimates at 1960-61 prices, 2.41 for our estimates at current prices and 2.30 for the CSO estimates used by the Sixth Finance Commission. Thus, it can be seen that this particular ratio has increased over the period 1960-61 to 1970-71. In other words, the disparity of income between

the richest and the poorest is widening during the sixties in India.

It is interesting to note from Table 3.2 above that the rankings of our estimates at current prices and the rankings of the CSO estimates at current prices do not differ significantly except for two States, viz., Rajasthan and Assam. For the former, two of the three years chosen by the CSO, viz., 1968-69 and 1969-70 unfortunately turned out to be bad agricultural years while the year 1970-71 was comparatively a good year and hence the significant improvement in the ranking. For Assam, the State economy did not completely recover during 1970-71 from the set-back suffered in the previous two years compared to other State economies with the result that it experienced a decline in its ranking. Another interesting case to observe from the table is that of Karnataka. It is the only State out of fifteen major States of India where the per capita income at current prices in 1970-71 is less than the average per capita income during 1967-70 at current prices. This decline is largely monetary rather than real in the sense that prices in Karnataka have substantially fallen during 1970-71.*4 This is further corroborated by the fact that in

*4 To be precise, the overall price index with 1960-61 as a base rose by about 41% on an average during 1967-70, while in the year 1970-71, the same was about 119. (cf. State Statistical Bureau, Karnataka). Thus, during the year 1970-71, the prices fell significantly in Karnataka unlike many other States which experienced a remarkable rise in the overall price level.

real terms, i.e., at 1960-61 prices, the per capita income of Karnataka in 1970-71 is third largest in the country while in terms of current prices it figures among the low per capita income States in the country. This raises an important issue, viz., for the policy purposes, whether the current prices figures should be used or the constant price figures should be used. One of the most important Commissions in India whose recommendations have direct bearing on the policy making, viz., the Finance Commission, is using the State per capita income estimates at current prices. Since the Finance Commission is appointed once in five years to make recommendations for the allocation of transfers to the States, from the point of view of one particular Finance Commission, there may not be much to choose between the figures at current prices and figures at constant prices. However, if we view the Finance Commission as a regular feature (though its composition in terms of its members may change every five years), we do expect some temporal consistency in its recommendations for the allocation of transfers to States. The level of development or the level of economic activity prevailing in different States over a period of time can be truly represented only by the estimates of State per capita income at some given base year constant prices. The figures at current prices would only

distort the real picture over a period of time.*5 In other words, the use of figures at current prices by different Finance Commissions at different points of time would seriously impair the temporal consistency of their recommendations. It is desirable, therefore, that the constant price figures are used for making the policy recommendations.*6

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*5 To illustrate this point, let us consider a hypothetical case of two States - A & B. Suppose, to start with A & B are having exactly the same per capita income in the year 1960-61. However, prices in A are falling and those in B are rising over a period of time and real output expands in both the States at the same rate. In 1970-71, we will find that State A has a lower per capita income than State B in terms of current prices, while they have equal per capita income in terms of 1960-61 prices.

*6 In this connection, it is worth-mentioning that the Sixth Finance Commission has used the State income at all India prices prevailing in the respective years. This procedure does eliminate the interstate differences in the absolute level as well as rate of change in prices, however, it does not eliminate the differences in intersectoral movements in prices. The latter can always distort the reality over a period of time. We can illustrate this point if we assume two States - A & B producing only two products - X & Y. State A produces X & Y in the proportion of 60:40 and State B produces X & Y in the proportion of 40:60. The prices of X & Y are the same at all India level in 1960-61. If over the period of time, at the all India level, price of X rises faster than price of Y and if the rate of growth of real output of X & Y remains equal and the same in the two regions, in 1970-71, State A will be better off as compared to State B in money terms (i.e. at current prices) while in real terms (i.e., at 1960-61 prices), their relative position has remained the same. Therefore, we can say that although the Sixth Finance Commission has taken a step towards the right direction, (because by taking the all India prices for each State, it does eliminate the interstate variation in the levels of prices), the ideal measure for the policy purposes is to calculate State income in different years at the all India prices prevailing in some given base year, say, 1960-61, so as to capture changes in the real product over time and among States.

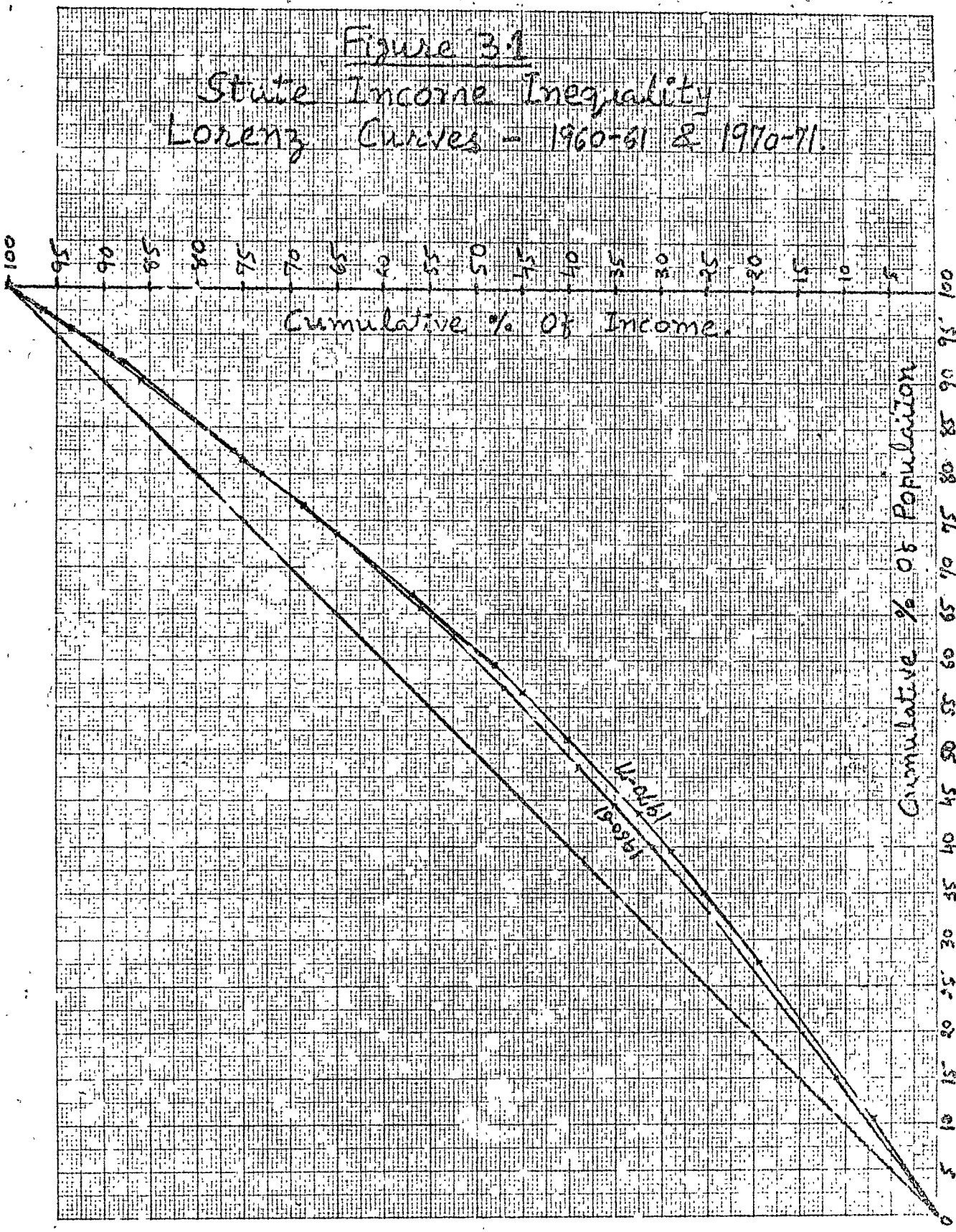
From the point of view of the regional income inequalities also, the use of current price figures or the constant price figures is not a matter of indifference. In fact, if we want to compare the regional income inequalities existing at one point of time with the regional income inequalities existing at another point of time, the use of current price figures is bound to conceal the true story because the current price figures would also include the effects of interstate variations in the price-movements over the period of time along with interstate variations in the real income trend. It is only the constant price figures which make sense if we want to talk about the inequalities over a period of time.

It is interesting, in the light of this discussion, to compare the extent of State income inequalities implicit in our estimates at 1960-61 prices with that implicit in our estimates at current prices for the year 1970-71. The Gini Coefficient of inequality turns out to be 14.33 per cent for our estimates of State income at 1960-61 prices while the same turns out to be only 12.57% for our estimates of State income at current prices in 1970-71. It is important to recall at this stage that the Gini Coefficient of inequality turned out to be 12.93% for our estimates of State income in 1960-61

Figure 3.1

State Income Inequality

Lorenz Curves - 1960-61 & 1970-71.



at current prices. Thus, if we compare the State income inequalities prevailing in 1960-61 with those prevailing in 1970-71 at current prices (or in money terms), the State income inequalities have declined marginally; whereas, measured at 1960-61 prices (or in real terms), the State income inequalities show a clear increase over the decade 1960-61 to 1970-71. This implies that during the sixties, the interstate variations in the price trends had a significant balancing effect. In other words, if we abstract from the interstate variations in the price trends over the period under consideration, the State income inequalities show an appreciable increase.

Before we conclude this section, it is worth-while to draw the Lorenz Curves implicit in our estimates of State income for the years 1960-61 and 1970-71. Figure 3.1 contains the Lorenz Curves for the years 1960-61 and 1970-71. The relevant data on the basis of which these curves are drawn, are given below in Appendix Tables 3A.1 & 3A.2. A look at the Figure 3.1 brings out that the two Lorenz Curves are intersecting at around 75% of population and 67% of income. Upto 75% of population, the Lorenze curve for the year 1970-71 lies below the one for the year 1960-61, after this point, the Lorenz Curve for the year 1970-71 lies slightly above the one for the year 1960-61 upto about 94% of the population

and thereafter the two curves almost coincide with each other. Since the population and income base for the two curves are different, no sharp conclusions can be drawn, however, broadly we can say that, for low per capita income states, the income disparities have increased between 1960-61 and 1970-71; while for very high per capita income States, the income disparities are likely to have decreased marginally.

It should be noted, at this stage, that according to our estimates at 1960-61 prices, exactly seven States, viz., Andhra Pradesh, Bihar, Kerala, Madhya Pradesh, Orissa, Rajasthan and Uttar Pradesh, lie below the average per capita income in 1960-61 and the same seven States also lie below the average per capita income in 1970-71. Thus, between 1960-61 and 1970-71, no radical transformation has taken place in the relative position of States with respect to the average in real terms. However, within the broad categories of above-average income States and below-average income States, some significant changes seem to have occurred in the relative positions of different States. On the whole, it appears that State income inequalities in India have increased between 1960-61 and 1970-71 in real terms. This is further corroborated by J.F.J. Toye who finds that "in domestic product, organised sector employment and food grain production per head,

interstate inequality increased."*7 Moreover, an increase in the interstate income inequality in India during the sixties is perfectly in line with J.G. Williamson's hypothesis of an inverted U shape of the regional inequality curve with respect to the level of development of the nation.*8 He finds this hypothesis to be valid on the basis of cross-section and time series analysis of a large number of nations. Increase in the regional income inequalities have also been experienced at one time or the other in the history of economic development of various nations like U.S.A.*9, Canada,*10 Brazil,*11, Italy,*12 Pakistan,*13, etc. It is also interesting to note that income

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*7 J.F.J.Toye: "Structural Changes in the Government Sector of the Indian States, 1955-70", in Journal of Development Studies, Vol.9, No.2, Jan.1973.

*8 Cf. J.G. Williamson: "Regional Inequality and the Process of National Development: A Description of the Patterns", in Economic Development and Cultural Change, Vol.13, No.4, Part II, July 1965.

*9 Cf. R.A. Eastertin: "Interregional Differences in Per Capita Income, Population and Total Income, 1840-1950", in Trends in American Economy in the Nineteenth Century, Studies in Income and Wealth, Vol.24, NBER (Princeton University Press,1960).

*10 Cf. A.G.Green: "Regional Aspects of Canada's Economic Growth, 1890-1929", in The Canadian Journal of Economics and Political Science, Vol.33, No.2, May 1967.

*11 Cf. D.H.Graham: "Divergent and Convergent Regional Economic Growth and Internal Migration in Brazil - 1940-1960", in Economic Development and Cultural Change, Vol.18,No.3,April 1970.

*12 Cf. G.Schachter: "Regional Development in the Italian Dual Economy", in Economic Development and Cultural Change, Vol.15, No.4, July 1967.

*13 Cf. K.Griffin & A.R.Khan (eds.): Growth and Inequality in Pakistan, (MacMillan, St.Martin's Press,1972), especially, the Introduction by the editors.

inequality in the size distribution in India has also widened through time.*14 All these observations point to only one general conclusion that in the initial stages of development, the polarization effects (back-wash effects) are stronger than the trickling down effects (spread effects).*15

III. Structure of State Economies in India :

After examining the State per capita income and State income inequalities prevailing in India, let us now examine the Structure of different State economies in India, since it is supposed to reflect the level of development of the State. Colin Clark, for instance, has proposed a hypothesis wherein he tries to argue that, as economic development takes place in an essentially underdeveloped economy, the relative importance of the primary sector declines and the relative importance of the secondary sector and the tertiary sector gradually and progressively increases in terms of employment.*16

*14 Cf. S.Swamy: "The Distribution of Income in India: 1951-68", in J.C.Sandesara (ed.): The Indian Economy - Performance and Prospects, University of Bombay Publications, Economic Series No.23, 1974.

*15 For detailed discussion on this point see A.O.Hirschman: The strategy of Economic Development, (New Haven: Yale University Press, 1960); and G. Myrdal: Economic Theory and Underdeveloped Regions, (London, 1957).

*16 Cf. Colin Clark: The Conditions of Economic Progress, London, 1940.

The crux of the argument is that the demand for the tertiary sector goods is relatively more income elastic as compared to the secondary sector and primary sector goods. Therefore, in the process of economic development, the demand for the tertiary sector goods rises faster than the demand for the secondary and primary sectors goods. On the assumption that demand conditions govern the growth of working force in a sector, Colin Clark's Sector hypothesis is but a logical conclusion.*17 If we extend this argument with an assumption based on general observation that the productivity in the primary sector is substantially less than the productivity in the secondary and the tertiary sector,*18 it is but natural to expect that the relative importance of the primary sector would decline and the relative importance of the secondary and the tertiary sectors would increase in terms of income originating, during the course of economic progress in an economy, unless productivity in the primary sector grows at significantly higher rate than the productivity in the

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*17 However, there are subtle criticisms of Clark's sector hypothesis. See, for example, P.T.Bauer and B.S.Yamey: "Economic Progress and Occupational Distribution", in Economic Journal, Vol.61, Dec.1951.

*18 See S.Kuznets: "Quantitative Aspects of Economic Growth of Nations:III- Industrial Distribution of Income and Labour Force by States, United States, 1919-1921 to 1955", in Economic Development and Cultural Change, Vol.6, July, 1958.

Table 3.3

Sectoral Composition of SDP at 1960-61 Prices in the Indian States - 1960-61

States	Distribution of SDP in Rs. lakhs				Percentage Distribution of SDP (in per cent)			
	Primary sector	Secondary sector	Tertiary sector	Total	Primary sector	Secondary sector	Tertiary sector	Total
1	2	3	4	5	6	7	8	9
1. Andhra	57451	15136	32421	105008	54.71	14.41	30.88	100.00
2. Assam	26564	5838	9090	41492	64.02	14.07	21.91	100.00
3. Bihar	56651	20890	28321	105862	53.51	19.73	26.76	100.00
4. Gujarat	30684	22074	24081	76839	39.93	28.73	31.34	100.00
5. Haryana	16058	4677	6613	27348	58.72	17.10	24.18	100.00
6. Karnataka	41702	12639	20984	75325	55.36	16.78	27.86	100.00
7. Kerala	25083	7394	14773	47250	53.09	15.65	31.26	100.00
8. M.P.	49230	15530	19621	84381	58.34	18.40	23.26	100.00
9. Maharashtra	66345	41334	51592	159271	41.66	25.95	32.39	100.00
10. Orissa	24523	5714	9283	39520	62.05	14.46	23.49	100.00
11. Punjab	21901	9578	10203	41682	52.54	22.98	24.48	100.00
12. Rajasthan	30481	10085	15584	56150	54.28	17.96	27.76	100.00
13. Tamil Nadu	58888	21950	38848	119686	49.20	18.34	32.46	100.00
14. U.P.	104688	24457	46137	175282	59.73	13.95	26.32	100.00
15. W.Bengal	49125	45435	59714	154274	31.84	29.45	38.71	100.00
Total	659374	262731	387265	1309370	50.36	20.06	29.58	100.00

Source : Appendix Table 2A.2 above.

secondary and the tertiary sectors. This broad hypothesis can be tested by examining the interstate variations in the structure of State economies in terms of income originating. Table 3.3 presents distribution of SDP by broad sectors in the year 1960-61.

A glance through Table 3.3 is enough to realize that there were wide variations in the structure of different State economies in 1960-61. The share of the primary sector in the total income (SDP) varied all the way from 64% in Assam to just 32% in West Bengal. On an average, the share of the primary sector turned out to be 50.36%, the share of the secondary sector turned out to be 20.06% and the share of the tertiary sector turned out to be 29.58% in 1960-61. It is readily seen from the Table 3.3 that only four States, viz., Gujarat, Maharashtra, Tamil Nadu and West Bengal, had a below average share of primary sector in the total income. All these four states had an above-average per capita income in 1960-61.

As far as the secondary sector is concerned, its share in total income varied from 29.45% in West Bengal to 14.07% in Assam. In the tertiary sector also, the relative share varied from 38.71% in West Bengal to 21.91% in Assam. Thus,

West Bengal had the lowest share of primary sector and the highest share of secondary and tertiary sector as compared to other States; and Assam had the highest share of primary sector and the lowest share of the secondary and the tertiary sector in comparison with other States. There are again only four States, viz., Gujarat, Maharashtra, Punjab and West Bengal, where the share of the secondary sector was above-average in 1960-61. In Punjab, the share of the primary sector was also above the average, while in the remaining three States, the share of the primary sector in total income was below the average in 1960-61. On the other hand, in as many as six States, viz., Andhra Pradesh, Gujarat, Kerala, Maharashtra, Tamil Nadu and West Bengal, the share of the tertiary sector was above the average in 1960-61.

If we find out the coefficient of variation of the relative shares of the primary sector, secondary sector and tertiary sector to get an idea of the interstate variations in the relative shares of these sectors, we find that it turns out to be 16.69%, 27.15% and 16.31% respectively. Thus, the relative share of the secondary sector shows maximum inter-state variations as compared to the other two sectors in 1960-61. To test broadly the sector hypothesis/stated above, we can correlate the relative shares of the primary sector,

secondary sector and tertiary sector with our estimates of State per capita income in the year 1960-61. The coefficients of determination (i.e., R^2) between the State per capita income in 1960-61 and the relative shares of the primary sector, secondary sector and tertiary sector turn out to be (-)40.55%, 52.14%, and 30.96% respectively. The correlation of State per capita income with the secondary sector is significant at 1% level of significance, while the remaining two are significant at 5% level of significance. These results imply that high levels of development are generally associated with low share of the primary sector and high shares of the secondary and tertiary sectors in total income and vice-versa. We can, therefore, say that the cross-section data in India in 1960-61 are consistent with the sector hypothesis.*19

Let us now turn to the examination of the structure of various State economies in the year 1970-71. Table 3.4 presents the sectoral distribution of the net State Domestic Product at 1960-61 prices for the year 1970-71 in India.

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*19 S.Kuznets also finds support to the sector hypothesis from his analyses of cross-country data and interstate data for the United States. See S.Kuznets: "Quantitative Aspects of Economic Growth of Nations - II- Industrial Distribution of National Product and Labour Force", in Economic Development and Cultural Change, Suppl. to Vol.V, July 1957; and S.Kuznets: "Quantitative aspects of Economic Growth of Nations- III- Industrial Distribution of Income and Labour Force by States, United States, 1919-1921 to 1955", op.cit.

Table 3.4

Sectoral Composition of SDP at 1960-61 Prices in the Indian States - 1970-71

States	Distribution of SDP in Rs.lakhs				Percentage Distribution of SDP (in Per cent)			
	Primary sector	Secondary sector	Tertiary sector	Total	Primary sector	Secondary sector	Tertiary sector	Total
1	2	3	4	5	6	7	8	9
1. Andhra	69746	23925	46528	140199	49.75	17.07	33.18	100.00
2. Assam	31757	12068	13417	57242	55.48	21.08	23.44	100.00
3. Bihar	61462	30188	33766	125416	49.01	24.07	26.92	100.00
4. Gujarat	51304	30028	35354	116686	43.97	25.73	30.30	100.00
5. Haryana	28128	10442	11335	49905	56.36	20.92	22.72	100.00
6. Karnataka	57996	32755	43374	134125	43.24	24.42	32.34	100.00
7. Kerala	24994	14456	24307	63757	39.20	22.67	38.13	100.00
8. M.P.	55759	24886	28501	109146	51.09	22.80	26.11	100.00
9. Maharashtra	56791	68038	80233	205062	27.69	33.18	39.13	100.00
10. Orissa	35107	9351	14601	59059	59.45	15.83	24.72	100.00
11. Punjab	36637	14157	16813	67607	54.19	20.94	24.87	100.00
12. Rajasthan	49574	11890	24066	85530	57.96	13.90	28.14	100.00
13. Tamil Nadu	66056	38040	55928	160024	41.28	23.77	34.95	100.00
14. U.P.	131258	35470	61370	228098	57.54	15.55	26.91	100.00
15. W.Bengal	58277	62399	79852	200528	29.06	31.12	39.82	100.00
Total	814846	418093	569445	1802384	45.21	23.20	31.59	100.00

Source: Appendix Table 2A.4 above.

The table reveals that there are significant variations in the Structure of different State economies in 1970-71 also. Relative share of the primary sector varies from 28% in Maharashtra to 59.5% in Orissa. On an average, the share of primary sector is 45.21%, the share of the secondary sector is 23.20% and the share of the tertiary sector is 31.59% in the total income at 1960-61 prices in the year 1970-71. It is worth-noting that over the decade 1960-61 to 1970-71, the relative share of the primary sector has fallen and the relative shares of the secondary and tertiary sectors have increased significantly on an average. Again, the sector hypothesis seems to be at work at least on an average.

As far as the share of the primary sector in 1970-71 is concerned, six States, viz., Gujarat, Karnataka, Kerala, Maharashtra, Tamil Nadu and West Bengal, have a share below the average. It should be noted that there is a net addition of Karnataka and Kerala in 1970-71 to the corresponding list of States in 1960-61. The relative share of the secondary sector varies from 35% in Maharashtra to 14% in Rajasthan. In six States, viz., Bihar, Gujarat, Karnataka, Maharashtra, Tamil Nadu and West Bengal, the relative share of the secondary sector was above average. In Bihar, the share of the primary sector was also above average, while in the remaining

States, the share of primary sector was below average. The relative share of the tertiary sector varies from 39.82% in West Bengal to 22.72% in Haryana. In six States, viz., Andhra Pradesh, Karnataka, Kerala, Maharashtra, Tamil Nadu and West Bengal, the share of the tertiary sector is above the average. As compared to the corresponding list of States in 1960-61, in 1970-71 , Gujarat is replaced by Karnataka.

The coefficients of variation in the relative share of the primary sector secondary sector and tertiary sector turn out to be 21.22%, 24.37% and 19.34% in 1970-71. Thus, in 1970-71 also, the secondary sector continues to show maximum inter-state variations in terms of its importance in total income, though the extent of variations as indicated by the coefficient of variation has declined between 1960-61 and 1970-71. On the other hand, the extent of interstate variations in the relative shares of the primary and the tertiary sectors have increased substantially between 1960-61 and 1970-71.

Another worth-mentioning thing is the correlation of the State per capita income with the relative shares of the primary, secondary and tertiary sectors for the year 1970-71. The coefficients of determination (i.e., R^2) between the real per capita State income and the relative shares of primary,

secondary and tertiary sectors turn out to be 8.66%, 17.49% and 2.24% respectively. None of these correlations are significant at 5% level of significance. Thus, the cross-section data for the year 1970-71 is not in confirmity with the sector hypothesis. Since the sector hypothesis is about the course of development of the same economy over a period of time, the cross-section data may not always be consistent with the sector hypothesis.

For testing the validity of the sector hypothesis, let us examine the changes in the structure of different State economies in India over the decade 1960-61 to 1970-71. Comparing the figures given in Table 3.3 and Table 3.4, we find that out of fifteen States in India, only in three States viz., Gujarat, Punjab, and Rajasthan, the relative share of the primary sector has increased between 1960-61 and 1970-71. In all other States, the relative share of the primary sector has declined over the period. In the case of the same three States, the relative share of the secondary sector has declined over the period while in the case of the remaining States, the relative share of the secondary sector has increased over the decade. As far as the relative share of the tertiary sector is concerned, it has declined only in two States viz., Gujarat and Haryana over the decade; in all other States

including Punjab and Rajasthan, the relative share of the tertiary sector has increased between 1960-61 and 1970-71.

Thus, only four States, viz., Gujarat, Haryana, Punjab and Rajasthan, represent some sort of an exception to the sector hypothesis, in all the remaining States, the sector hypothesis seems to be quite valid. Out of these four States also, only Gujarat represents a genuine exception to the working of the sector hypothesis in the sense that it is the only State where the relative share of the primary sector has increased and the relative shares of both the secondary and tertiary sectors have fallen over the decade 1960-61 to 1970-71. The explanation for this phenomenon may lie in the examination of the growth of output in different sectors of the State economies over the decade.

IV. Growth of Income in Indian States, 1960-61 to 1970-71 :

A close examination of the growth of income is quite important not only from the purely analytical point of view but also for the policy purposes. The trends in the structure of an economy can better be analysed by looking into the growth pattern of different sectors of the economy. Similarly, trends in the State income inequalities have their clue in terms of the interstate variations in the

economic growth over the period. From the analytical point of view, we can examine some of the interesting hypotheses about the interrelationships among the growth of different sectors as well as the interrelationships between the growth of total income and growth of different sectors. To illustrate, we can say that a high growth of the primary sector would be associated with a high growth of the secondary sector, because when the agricultural output expands fast, the agro-based industries would find their raw materials cheap and abundant and hence their expansion would also become fast. Similarly, we can expect that when the tertiary sector is growing rapidly, there will be more facilities and incentives in terms of better infra-structure for a rapid expansion of industry.*20 On the other hand, we also have some obvious hypotheses for the underdeveloped country like India. When the agriculture is growing at a faster rate, because of its predominence in the economy, the economy as a whole will also grow at a faster

*20 These hypotheses are implied by a huge amount of literature on the controversy on balanced V/s unbalanced growth. For details on this controversy see, K.N.Prasad: "The Balanced V/s Unbalanced Growth Controversy: A Critical Survey," in Indian Economic Journal, Vol.14, Oct.1966. For a discussion of the Leading Sector hypothesis (W.W.Rostow) V/s the Induced Sector hypothesis (A.O. Hirschman), see M.Q.Dalvi: "Social Overhead Capital and Economic Development: An Exploration in the Behaviour of the Indian Economy - 1951-69", in J.C. Sandesara (ed.): The Indian Economy - Performance and Prospects, op.cit.

Table 3.5

Growth of SDP at 1960-61 Prices in the Indian States - 1960-61 to 1970-71

(in Per cent)

States	Average Growth Rate per Decade in				Average Annual Compound Rate of Growth in			
	Primary sector	Secondary sector	Tertiary sector	Total	Primary sector	Secondary sector	Tertiary sector	Total
1	2	3	4	5	6	7	8	9
1. Andhra	21.40	58.07	43.51	33.51	1.95	4.66	3.67	2.93
2. Assam	19.55	106.71	47.60	37.96	1.80	7.53	3.97	3.27
3. Bihar	8.49	44.51	19.23	18.47	0.81	3.75	1.77	1.70
4. Gujarat	67.20	36.03	46.81	51.86	5.27	3.12	3.91	4.26
5. Haryana	75.17	123.26	71.40	82.48	5.76	8.36	5.53	6.19
6. Karnataka	39.07	159.16	106.70	78.06	3.35	9.99	7.53	5.93
7. Kerala	-0.35	95.51	64.54	34.94	-0.04	6.93	5.10	3.04
8. M.P.	13.26	60.24	45.26	29.35	1.25	4.82	3.80	2.60
9. Maharashtra	-14.40	64.61	55.51	28.75	-1.54	5.11	4.51	2.55
10. Orissa	43.16	63.65	57.29	49.44	3.65	5.04	4.63	4.09
11. Punjab	67.28	47.81	64.78	62.20	5.27	3.98	5.12	4.95
12. Rajasthan	62.64	17.96	54.43	52.32	4.98	1.66	4.44	4.29
13. Tamil Nadu	12.17	73.30	43.97	33.70	1.15	5.65	3.71	2.94
14. U.P.	25.38	45.03	33.02	30.13	2.28	3.78	2.89	2.66
15. W.Bengal	18.63	37.34	33.72	29.98	1.72	3.22	2.94	2.65
Total	23.58	59.13	47.04	37.65	2.13	4.75	3.93	3.24

Source: Table 3.3 and Table 3.4 above.

rate. Thus, boom in agriculture can be expected to generate boom in the whole economy and depression in agriculture may bring about a general depression in the economy.

Table 3.5 presents the growth of real net State Domestic Product by broad sectors between 1960-61 and 1970-71 in the fifteen Indian States. From the figures given in the table, it becomes obvious that there are significant variations in growth of SDP in every sector of the State economies. Moreover, in the case of almost every State in India, there are significant intersectoral differences in growth of SDP between 1960-61 and 1970-71. Intersectoral differences in the growth of income can explain changing importance of different sectors in the State economies.

In the earlier section, we found that Gujarat, Haryana, Punjab and Rajasthan represented exceptions to the sector hypothesis. In all of these four States, the growth of the primary sector was phenomenal during 1960-61 to 1970-71. Actually, in these four States, the growth of output in the primary sector was more than double the growth of the primary sector on an average for all States taken together. Even within the economies of these States except Haryana, the growth of the primary sector was the highest and the growth of

the secondary sector was the lowest. In Haryana, the secondary sector grew at a significantly higher rate as compared to the primary sector and the tertiary sector. On the other hand, in the remaining three States, the secondary sector grew at a substantially lower rate as compared to the average rate of growth for the secondary sector for all States taken together. This only means that agriculture was very favourable in these States and something seriously went wrong with the secondary sector probably in terms of its productivity, in the sense that productivity in secondary sector might not have grown at a satisfactory rate either because of the policy factors or because of the technological factors.

From Table 3.5, we can also see that in Kerala and Maharashtra the output in the primary sector actually declined over the decade, while the highest growth of about 75% in the primary sector was experienced by Haryana. On an average, the growth of the primary sector, the secondary sector, the tertiary sector and the economy as a whole, turns out to be 23.58%, 59.13%, 47.04% and 37.65% respectively. As compared to the average, the primary sector in Gujarat, Haryana, Karnataka, Orissa, Punjab, Rajasthan and Uttar Pradesh grew at a faster rate during the decade. In seven States, viz., Andhra Pradesh, Bihar, Gujarat, Punjab,

Rajasthan, Uttar Pradesh and West Bengal, the secondary sector grew at a less than the average rate of growth of the secondary sector. The highest growth of the secondary sector was experienced by Karnataka of about 159%, while the lowest growth of the secondary sector of about 18% was experienced by Rajasthan over the decade. The growth in the tertiary sector varies all the way from 107% in Karnataka to 19% in Bihar. In Andhra Pradesh, Bihar, Gujarat, Madhya Pradesh, Tamil Nadu, Uttar Pradesh and West Bengal, the growth in the tertiary sector was below the average. It is interesting to note that in three States, viz., Andhra Pradesh, Bihar and West Bengal, the growth in all the three sectors was found to be less than the corresponding average. On the other hand, in three States, viz., Haryana, Karnataka and Orissa, the growth in all the three sectors was above average. When we talk about the overall growth of the economy, Andhra Pradesh, Bihar, Kerala, Madhya Pradesh, Maharashtra, Uttar Pradesh and West Bengal fall below the average; the rest of the States have experienced an above average growth in total income. The fastest growing State is Haryana with an overall growth of 82.46% while the slowest growing State is Bihar with only 18.47% as the overall growth over the decade 1960-61 to 1970-71. Thus, the fastest growing State grew nearly four and a half times as fast as the slowest growing State in India over the last decade.

Table 3.6

Growth of State Income and Population in India, 1960-61 to 1970-71

(in Per cent)

States	Observed Growth During 1960-61 to 1970-71 in SDP at 1960-61 prices	Rank	Popula-tion	Rank	Per capita Real Income	Rank
1	2		3		4	
1. Andhra	33.51	(6)	20.90	(2)	10.27	(9)
2. Assam	37.96	(9)	34.50	(15)	2.58	(5)
3. Bihar	18.47	(1)	21.31	(3)	-2.19	(1)
4. Gujarat	51.86	(11)	29.39	(13)	17.47	(10)
5. Haryana	82.48	(15)	32.22	(14)	38.06	(14)
6. Karnataka	78.06	(14)	24.22	(6)	43.57	(15)
7. Kerala	34.94	(8)	26.28	(8)	6.79	(6)
8. M.P.	29.35	(3)	28.67	(12)	0.38	(2)
9. Maharashtra	28.75	(2)	27.45	(10)	0.99	(3)
10. Orissa	49.44	(10)	25.05	(7)	19.56	(12)
11. Punjab	62.20	(13)	21.69	(4)	33.42	(13)
12. Rajasthan	52.32	(12)	27.84	(11)	19.00	(11)
13. Tamil Nadu	33.70	(7)	22.30	(5)	9.30	(8)
14. U.P.	30.13	(5)	19.79	(1)	8.40	(7)
15. W.Bengal	29.98	(4)	26.87	(9)	2.49	(4)

Source : Appendix Tables 3A.1 & 3A.2 below.

To get an idea about the interstate variations in the growth of different sectors of the State economies, we can find out the coefficient of variation of the growth in different sectors. The coefficient of variation turns out to be 89.19% in the primary sector, 54.5% in the secondary sector, 38.51% in the tertiary sector and 43.20% for the economy as a whole. Thus, the maximum variation is found in the growth of the primary sector and the lowest variation is found in the growth of tertiary sector.

At this stage a natural question arises as to what explains the interstate variations in the growth of income in the whole economy and different sectors. Table 3.6 presents growth of income and population in fifteen States of India during 1960-61 to 1970-71. Many a times, it is argued that in an economy where the population is rising very fast, the pressure on land increases quite rapidly. As a result, the growth of agricultural productivity slackens which, in turn, reduces the growth of the primary sector. Moreover, it is also argued sometimes that in an economy where the population is growing very rapidly, the average standard of living does not increase significantly and hence the efficiency of an average worker gets adversely affected, with the result that the economy's income ends up by growing at a slower rate. On the other hand, S. Kuznets finds on the basis of inter-

-country data that "in general, there is a positive association between rates of growth of population and of total product."*21 However, he argues that there is nothing inevitable about such a relationship. In fact, "the relations between rates of population growth and those in total and per capita product undergo some systematic changes in the course of secular development."*22 Thus, growth of population seems to be a ready-at-hand variable besides the growth of different sectors in the economy for explaining the interstate variations in the growth of income. Table 3.7 represents the coefficient of correlation matrix for the five variables, viz., growth of total income, growth of population, growth of the primary sector, growth of the secondary sector and growth of the tertiary sector.

From the Table 3.7, it becomes obvious that the growth of population is not significantly correlated with the growth of different sectors nor with the growth of total income in different States in India. The correlations with population growth do not have the expected signs either. Secondly, it is rather surprising to find practically no correlation between

*21 S. Kuznets : "Quantitative Aspects of Economic Growth of Nations - I - Levels and Variability of Rates of Growth", in Economic Development and Cultural Change, Vol.5, Oct.1956.

*22 Ibid.

Table 3.7

Coefficient of Correlation Matrix

	Growth During 1960-61 to 1970-71 in			
	Popula-tion	Primary sector	Secondary sector	Tertiary sector
Growth of Primary Sector	0.1636 (3.37%)			
Growth of Secondary Sector	0.2834 (8.03%)	-0.0224 (0.05%)		
Growth of Tertiary Sector	0.1905 (3.63%)	0.3416 (11.67%)	0.7363 (54.21%)	
Growth of Total Income	0.2704 (7.31%)	0.7898 (62.38%)	0.5315 (28.25%)	0.8146 (66.36%)

Note : Figures in the brackets represent R^2.

Source : Table 3.5 and Table 3.6 above.

the growth of the primary sector and the secondary sector. The correlation between the growth of the primary sector and the tertiary sector also turns out to be insignificant. However, the correlation between the growth of the secondary and the tertiary sectors is statistically significant at 1% level of significance. Similarly, the overall growth of income turns out to be significantly correlated with the growth of each of the three sectors. The correlations between the growth of total income and the growth of the primary and the tertiary sectors turn out to be individually significant at 1% level of significance, while the growth of the secondary sector is

correlated with the growth of total income significantly at 5% level of significance.

Moreover, the coefficients of determination (i.e., R^2) between the share of the primary sector in the initial year 1960-61 and the growth of the primary sector and the growth of the total income in different States turn out to be 2.12% and 4.39% respectively. Both the correlations are insignificant implying thereby that the interestate variations in the share of the primary sector in the initial year do not explain on an average a significant proportion of the interstate variations in the growth of the primary sector and in the growth of total income in India.*23

Similarly, the rank correlation coefficient between the growth of total income and the levels of State per capita income in 1960-61 turns out to be +0.1643 which is insignificant.*24 This only implies that the growth of different State economies in India during the last decade does not

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*23 Cf. R.L.Pfister: "External Trade and Regional Growth: A Case Study of the Pacific Northwest", in Economic Development and Cultural Change, Vol.11, No.2, Part I, Jan.1963. Pfister also finds the hypothesis that "specialization in primary products means that growth will necessarily be slow relative to more industrialized areas" to be not valid in all cases on the basis of his case study.

*24 E.E.Hagen and O.Hawrylyshyn: "Analysis of World Income and Growth, 1955-65", in Economic Development and Cultural Change, Vol.18, No.1, Part II, Oct.1969. They also find similar conclusion for the group of less developed countries.

confirm the hypothesis that a relatively more developed State grows at a faster rate than a relatively less developed State. In fact, from the Table 3.6 above, we find that growth in Maharashtra and West Bengal is less than that in the States like Kerala, Orissa and Rajasthan. Finally, the rank correlation coefficient between the growth of per capita real income and the growth of population among the States of India turns out to be insignificant at -0.0214. It only rejects the popular belief that wherever the growth of population is high, the growth of per capita income is likely to be low.

It is also interesting to examine the interrelationships between growth of income and certain other factors like growth of urbanization, literacy rate and age composition of the population. The levels of these factors are frequently taken to reflect the level of development of a particular region. Urbanization is measured as the percentage of urban population in the total population in the region. Similarly, literacy rate and age composition of the population are usually measured as the percentage of literate population and of population belonging to the age-group 15 to 59 in the total population of the region respectively. The higher these percentages, the higher is taken to be the level of the development of the region. It is therefore expected that there

Table 3.8

Growth of Selected Indicators of Development - 1960-61 to 1970-71

(' in Per cent)

States	Growth in total SDP	Growth in PCI	Growth in Degree of urbanization	Growth in literacy rate	Growth in Age composition
1	2	3	4	5	6
1. Andhra	33.51	10.27	10.72	15.95	-1.97
2. Assam	37.96	2.58	20.03	4.97	-4.35
3. Bihar	18.47	-2.19	18.62	8.37	-1.04
4. Gujarat	51.86	17.47	8.96	17.54	-0.90
5. Haryana	82.48	38.06	2.50	27.14	-0.02
6. Karnataka	78.06	43.57	8.87	24.09	-1.23
7. Kerala	34.94	6.79	7.48	28.96	+3.88
8. M.P.	29.35	0.38	14.00	29.25	-6.45
9. Maharashtra	28.75	0.99	10.45	31.39	-2.05
10. Orissa	49.44	19.56	33.07	20.87	-6.49
11. Punjab	62.20	33.42	2.91	27.10	-0.02
12. Rajasthan	52.32	19.00	8.29	25.38	-3.53
13. Tamil Nadu	33.70	9.30	13.38	25.63	-0.55
14. U.P.	30.13	8.40	9.11	23.34	-3.40
15. W.Bengal	29.98	2.49	1.23	13.39	-4.44

Source : Appendix Table 1A.1 and Table 3.6 above.

should be a positive association between the growth of these ratios and the growth of income over a given period of time. Table 3.8 presents the growth of these three ratios along with the growth of total and per capita real income in different States in India over 1960-61 to 1970-71. The coefficients of determination (r^2) between the growth of total real SDP and the growth of urbanization, literacy rate and age composition turn out to be (-)7.36%, 8.63% and 4.40% respectively; while the coefficients of determination between the growth of State per capita real income and the growth of the above-mentioned three ratios turn out to be (-)7.53%, 10.67% and 6.52% respectively. All the correlations are statistically insignificant implying that no decisive association exists between the growth of income and growth of these ratios. More interesting thing to note is that the correlations involving growth of urbanization turn to be negative, though insignificant. This only implies that higher growth of State income is not associated on an average with high growth of urbanization, in fact, exactly opposite is likely to be the case in India during the sixties.

To conclude this section, we can say that the interstate variations in the growth of the economy as a whole are significantly correlated with the interstate variations in

the growth of the three broad sectors. In the next section, we attempt to isolate the exact contribution of each of the three sectors in the observed growth of total income in different state economies in India.

V. Contribution of Broad Sectors to the Growth of Income in Indian States :

In order to isolate the contribution of individual sectors to the total growth of the economy, in the first place, we require a consistent frame-work. The required frame-work can be readily constructed on the basis of some simple definitional equalities in the following way:

If we denote total income in an economy as Y, income from the primary sector as YP, income from the secondary sector as YS and income from the tertiary sector as YT, then we have the following identity :

$$Y = YP + YS + YT$$

Taking absolute changes on both the sides, we have

$$\Delta Y = \Delta(YP + YS + YT)$$

$$\Delta Y = \Delta YP + \Delta YS + \Delta YT$$

$$\therefore \frac{\Delta Y}{Y} = \frac{\Delta YP + \Delta YS + \Delta YT}{Y}$$

$$= \frac{\Delta YP}{Y} + \frac{\Delta YS}{Y} + \frac{\Delta YT}{Y}$$

$$= \frac{YP}{Y} \cdot \frac{\Delta YP}{YP} + \frac{YS}{Y} \cdot \frac{\Delta YS}{YS} + \frac{YT}{Y} \cdot \frac{\Delta YT}{YT}$$

i.e., $GY = RP.GP + RS.GS + RT.GT$

where GY represents overall growth of income in the economy; GP, GS and GT represent the growth of the primary sector, the secondary sector and the tertiary sector respectively; and RP, RS and RT represent the relative shares of the primary, secondary and tertiary sectors respectively in the initial year. The absolute contribution of the primary sector in the total growth of the economy is RP.GP. Similarly, RS.GS and RT.GT represent absolute contribution of the secondary and tertiary sectors respectively in the total growth of the economy. The relative contribution of the primary sector in the total growth of the economy is $\frac{RP.GP}{GY}$ which is the same thing as $\Delta YP/\Delta Y$.*25 Similarly we can find out the relative contribution of the other two sectors in the total growth of the economy. Table 3.9 presents the absolute and the relative contributions of the individual sectors to the observed growth of total income, so derived, in different States in India.

On an average, the contribution of the primary sector, secondary sector and tertiary sector turns out to be 11.87,

*25 Cf. S.Swamy: "Economic Growth in China and India, 1952-70 - A Comparative Appraisal" in Economic Development and Cultural Change, Vol.21, No.4, Part II, July 1973. He also separates the relative contribution of agricultural sector in a similar way, and calls it product contribution of the sector.

Table 3.9

Contribution of Different Sectors in the Growth of Real SDP in Indian States

States	Absolute Contribution in Percentage Points				Relative Contribution in Per cent			
	Primary sector	Secondary sector	Tertiary sector	Total	Primary sector	Secondary sector	Tertiary sector	Total
1	2	3	4	5	6	7	8	9
1. Andhra	11.71	8.37	13.43	33.51	34.94	24.98	40.08	100.00
2. Assam	12.52	15.01	10.43	37.96	32.98	39.54	27.48	100.00
3. Bihar	4.54	8.78	5.15	18.47	24.58	47.54	27.88	100.00
4. Gujarat	26.83	10.35	14.68	51.86	51.74	19.96	28.30	100.00
5. Haryana	44.14	21.08	17.26	82.48	53.52	25.56	20.92	100.00
6. Karnataka	21.63	26.71	29.72	78.06	27.71	34.22	38.07	100.00
7. Kerala	-0.19	14.95	20.18	34.94	-0.54	42.79	57.75	100.00
8. M.P.	7.74	11.08	10.53	29.35	26.37	37.75	35.88	100.00
9. Maharashtra	-6.00	16.77	17.98	28.75	-20.87	58.33	62.54	100.00
10. Orissa	26.78	9.20	13.46	49.44	54.17	18.61	27.22	100.00
11. Punjab	35.35	10.99	15.86	62.20	56.83	17.67	25.50	100.00
12. Rajasthan	34.00	3.21	15.11	52.32	64.98	6.14	28.88	100.00
13. Tamil Nadu	5.99	13.44	14.27	33.70	17.77	39.88	42.35	100.00
14. U.P.	15.16	6.28	8.69	30.13	50.32	20.84	28.84	100.00
15. W.Bengal	5.93	11.00	13.05	29.98	19.78	36.69	43.53	100.00
Total	11.87	11.86	13.92	37.65	31.53	31.50	36.97	100.00

Source : see the text.

11.86 and 13.92 percentage points in absolute terms and 31.53%, 31.50% and 36.97% in relative terms. From the Table 3.9, it can be seen that the highest contribution of the primary sector in absolute terms of about 44 percentage points is found in Haryana while in relative terms, the contribution of the primary sector is highest (nearly 65%) in Rajasthan, This only implies that if the primary sector would not have grown as rapidly as it has actually grown in Rajasthan, the overall growth of Rajasthan would have been reduced to a considerable extent, while under similar circumstances the overall growth of Haryana would not have declined that sharply. The other implication of this observation is that even though agriculture happens to be dominant in Haryana, the other sectors are also accounting for a sizeable proportion of the overall growth of the economy. On the other hand, the growth of the economy of Rajasthan is almost exclusively dominated by agriculture only and lacks the tendency towards diversification.

Moreover, we can see from the table that in seven States, viz., Bihar, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Tamil Nadu and West Bengal, the relative contribution of the primary sector turns out to be below average. Here again, except Karnataka, in all the other six States the overall

growth of total income turns out to be less than the average. If we look at it in a different way, it implies that these States are growing at a slow rate largely because the agriculture in these States experienced either depression or extremely slow growth over the last decade.

As far as the contribution of the secondary sector is concerned, it is above-average in absolute terms in Assam, Haryana, Karnataka, Kerala, Maharashtra and Tamil Nadu; while it is above-average in relative terms in as many as eight States, viz., Assam, Bihar, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Tamil Nadu and West Bengal. In Haryana, though the absolute contribution of the secondary sector is above-average, the relative contribution of the secondary sector is below average. On the other hand, in Bihar, Madhya Pradesh and West Bengal, the relative contribution of the secondary sector is above-average though the absolute contribution is below-average. This can be explained in terms of the overall growth of the economy. In Haryana, the overall growth is significantly above average; hence, a high contribution of the secondary sector in absolute terms also does not give a relatively high contribution in relative terms. As against this, in Bihar, Madhya Pradesh and West Bengal, the overall growth itself is very low, hence even a small contribution

in absolute terms figures as high contribution in relative terms.

However, it is the contribution in relative terms that reflects the importance of a sector in the growth experience of a particular economy. The contribution of the tertiary sector is above-average in relative terms only in six States, viz., Andhra Pradesh, Karnataka, Kerala, Maharashtra, Tamil-Nadu and West Bengal, while it is above-average in absolute terms in as many as eight states, viz., Gujarat, Haryana, Karnataka, Kerala, Maharashtra, Punjab, Rajasthan and Tamil-Nadu. in Gujarat, Haryana, Punjab and Rajasthan, the contribution of the tertiary sector in absolute terms is above-average while the same in relative terms is below-average. On the other hand, in Andhra Pradesh and West Bengal, the contribution of the tertiary sector in absolute terms is below average while the same in relative terms is above-average.

Another interesting thing to observe from Table 3.9 is that only in Haryana and Karnataka, the contribution of all the three sectors in the overall growth is above average in absolute terms. However, the growth experience of these two States is significantly different. In Haryana, the contribution of the primary sector is more than 50% in

relative terms, then comes the secondary sector in terms of relative importance and the tertiary sector is least important as far as the total growth of the economy is concerned. We can say it is primarily an agricultural State where the importance of agriculture still continues to be high. As against this, Karnataka is the State where the tertiary sector plays the most important role in the total growth of the economy, then comes the secondary sector and the last comes the primary sector. This only means that the real dynamic forces for diversification of the economy are actually in operation in Karnataka. On the other side, we have States like Andhra Pradesh, Bihar, Madhya Pradesh and West Bengal where the contribution of all the three sectors to the over-all growth of the economy is below average in absolute terms. These are the States which are largely starving for growth in general and in the agricultural sector in particular.

The above exercise does reveal an important fact that overall growth of the economy is a combination of (i) the structure of the economy in the initial year and (ii) the growth of different sectors in the economy. Some States may be enjoying a favourable structure in the initial year but unfavourable growth on an average in different sectors in the economy, while some States may be experiencing a favourable

growth in the economy but unfaveurable structure of the State economy in the initial year.

Obviously, it will be of great practical importance, if we can somehow classify different States into the categories of favourable and unfavourable growth and structural factors from the viewpoint of total growth in the economy during 1960-61 to 1970-71. Fortunately, it is possible to measure the effect of structure and sectoral growth on the observed overall growth of the economy. If we apply the average growth of each sector to the actual sectoral composition in each state, we generate an expected growth series due only to the differences in the structure of the State economies. If its deviation from the average total growth turns out to be positive, the structural factors in that particular State economy can be regarded as favourable and if its deviation from the average total growth is negative, the structure of the State economy is unfavourable. Similarly, if we apply the average structure to the actual observed sectoral growth in different State economies, we generate an expected growth series due only to sectoral growth factors in the State economies. Its deviation from the average total growth would determine whether growth in the State economy is favourable or unfavourable.

Table 3.10

State Growth Inequalities - Contribution of Structure and Sectoral Growth of State Domestic Real Product

(in Percentage points)

States	Expected Growth Rate Due to the		Deviations from the Average of the Expected Growth Due to	
	Structure	Sectoral Growth	Structure	Sectoral Growth
1	2	3	4	5
1. Andhra	35.95	35.30	- 1.70	- 2.35
2. Assam	33.72	45.33	- 3.93	+ 7.68
3. Bihar	36.87	18.89	- 0.78	-18.76
4. Gujarat	41.15	54.92	+ 3.50	+17.27
5. Haryana	35.33	83.70	- 2.32	+46.05
6. Karnataka	36.08	83.17	- 1.57	+45.52
7. Kerala	36.48	38.07	- 1.17	+ 0.42
8. M.P.	35.56	32.15	- 2.07	- 5.50
9. Maharashtra	40.40	22.13	+ 2.75	-15.52
10. Orissa	34.23	51.45	- 3.42	+13.80
11. Punjab	37.49	62.63	- 0.16	+24.98
12. Rajasthan	36.48	51.24	- 1.17	+13.59
13. Tamil Nadu	37.71	33.84	+ 0.06	- 3.81
14. U.P.	34.71	31.58	- 2.94	- 6.07
15. West Bengal	43.13	26.85	+ 5.48	-10.80
Total	37.65	37.65	0	0

Source: See the text.

Table 3.10 presents the expected growth series so calculated and their deviations from the average total growth (i.e., the expected growth less the average total growth). From this table, the classification of the States into favourable & unfavourable structural factors and favourable & unfavourable growth factors categories becomes easy. This classification is presented below in a tabular form :

	Favourable Structure	Unfavourable Structure
Favourable Growth	Gujarat	Assam, Haryana, Karnataka, Kerala, Orissa, Punjab, Rajasthan.
Unfavourable Growth	Maharashtra, Tamil-Nadu, West Bengal	Andhra Pradesh, Bihar, Madhya Pradesh, Uttar-Pradesh.

From the above exercise, it becomes clear that barring four States, viz., Gujarat, Maharashtra, Tamil Nadu and West-Bengal, all other States are suffering from unfavourable structure of the State economies. If some radical measures to diversify these State economies are not taken in near future, the growth in these State economies is bound to experience a downward pull on account of unfavourable structure of the economy. In as many as four States, viz., Andhra Pradesh, Bihar, Madhya Pradesh and Uttar Pradesh, the growth as well as

structure turn out to be unfavourable. There is a genuine starvation of growth in these four States.

To make some sound policy recommendations for improving the existing balance of growth of income in different State economies, we require to analyse further the growth experience of different State economies by considering the worker rates, industrial structure, productivity per worker in general and capital intensity & output-capital ratio in particular, prevailing in different State economies in India in 1960-61 and 1970-71. In the next two chapters, therefore, we make an attempt to estimate these crucial variables in different State economies in India.

Appendix Table 3A.1

Income and Population in Indian States, 1960-61

States	Per capita SDP at 1960-61 prices (in Rs.)	SDP at 1960-61 prices (Rs.lakhs)	Population (in'000)	Cumulative Relative Frequency	
				Population	SDP at 1960-61 prices
1	2	3	4	5	6
1. Orissa	225	39520	17549	0.0412	0.0302
2. Bihar	228	105862	46555	0.1502	0.1110
3. U.P.	238	175282	73746	0.3233	0.2449
4. M.P.	261	84381	32372	0.3993	0.3093
5. Rajasthan	279	56150	20155	0.4466	0.3522
6. Kerala	280	47250	16904	0.4863	0.3883
7. Andhra	292	105008	35984	0.5707	0.4685
8. Karnataka	319	75325	23587	0.6260	0.5260
9. Assam	349	41492	11873	0.6539	0.5577
10. Tamil Nadu	355	119686	33687	0.7329	0.6491
11. Haryana	360	27348	7591	0.7507	0.6700
12. Gujarat	372	76839	20634	0.7991	0.7287
13. Punjab	374	41682	11136	0.8252	0.7605
14. Maharashtra	403	159271	39553	0.9180	0.8821
15. W.Bengal	442	154274	34926	1.0000	1.0000

Source: Table 2.1 above and the Census of India, 1961.

Appendix Table 3A.2

Income and Population in Indian States, 1970-71

States	Per capita SDP at 1960-61 prices (in Rs.)	SDP at 1960-61 prices (Rs.lakhs)	Population (in'000)	Cumulative Relative Frequency	
				Population	SDP at 1960-61 prices
1	2	3	4	5	6
1. Bihar	223	125416	56353	0.1062	0.0696
2. U.P.	258	228098	88341	0.2728	0.1961
3. M.P.	262	109146	41654	0.3513	0.2566
4. Orissa	269	59059	21945	0.3927	0.2893
5. Kerala	299	63757	21347	0.4329	0.3247
6. Andhra	322	140199	43503	0.5149	0.4025
7. Rajasthan	332	85530	25766	0.5635	0.4500
8. Assam	358	57242	15969	0.5936	0.4818
9. Tamil Nadu	388	160024	41199	0.6713	0.5706
10. Maharashtra	407	205062	50412	0.7663	0.6844
11. Gujarat	437	116686	26698	0.8166	0.7491
12. W.Bengal	453	200528	44312	0.9001	0.8604
13. Karnataka	458	134125	29299	0.9554	0.9348
14. Haryana	497	49905	10037	0.9744	0.9625
15. Punjab	499	67607	13551	1.0000	1.0000

Source: Table 2.1 above, and the Census of India, 1971.