

Inter-State Disparities in Economic Growth and Human Development in India during the First Decade of Reform

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Abstract: This paper is a modest attempt to examine the nature of the disparities in economic growth and human development across the states of India especially during the first decade of reform. It tries to provide answer to the paradoxical situations of the achievement of high rate of growth of real (PCI) coupled with lower level of human development across the states such that while the inter-state disparity in the growth rate of real PCI is increasing, the same in respect of human development is declining during the period of liberalization. We also investigate the crucial explanatory factors behind the inter-state disparities in human development. We find that the social sector expenditure of centre and states especially the expenditure on health and education is abysmally low which is pernicious to economic vis-à-vis human development. The policy of liberalization has failed to produce any impact on it. Further, almost all the states excepting Bihar, Haryana, Punjab, and Rajasthan have been able to raise the annual rate of growth of real per capita income. However, the inter-state disparities in the levels and growth rates of real PCI are very high and it is increasing. Our cross state regression results confirm that the social sector expenditure (SSE) made by government and private household (using PCI as surrogate of private SSE) together explain a significant proportion of inter-state disparity in human development and these two are found to be statistically highly significant explanatory factors.

Key-words: Human capital, economic growth, social sector expenditure, inter-state disparity, real per capita income, cross-state regression.

1. Introduction

Immediately after the emancipation of our economy from the British colonial power, the overall objective, as proclaimed by Pundit Nehru, was the ending of poverty, ignorance, diseases and inequalities in opportunities. In fact, we aimed at such an economic development which would bring about amelioration in the qualities of life vis-à-vis human development. By this time 64 years after independence have elapsed and of course our economy has not remained stagnant. Our economy has been able to rank her amongst the ten fastest growing countries in the world. Being much more optimistic, the 11th five year plan has targeted an

annual average growth rate of 8-9% of our GDP. Moreover, we have been able to reduce the proportion of our total population lying below the poverty line to 26%. Further, we have also been able to increase our literacy rate to 65% and our life expectancy at birth to 64 years. Contrary to this optimistic scenario, the most disappointing picture is that we spend an abysmally low proportion i.e. 1.22% of GDP on health and water supply and only 3.35% of GDP on education, sports and youth welfare even at the beginning of the 21st century. Surprisingly until now, about 78% of pregnant women of our country suffer from anemia and 58% children suffer from malnutrition and the infant mortality rate is still very high i.e. 71 per thousand live births as compared to other countries. The proportion of low birth weight babies is 33% now. All these of course imply a fragile state of health as an important component of human capital. So how can one reconcile between these two completely different (optimistic and pessimistic) scenarios. Is it due to the paucity of flow of public fund to the social sector development? Or is it due to the lack of private expenditure on health? In fact, human development means the amelioration of the ingredient of human capital like education, health, family welfare and qualities of life, which is possible not only through the increase in the flow of social sector expenditure (SSE) by the government but also by the increase in private expenditure on education and health. So one has to make an in-depth study on the nature of human development and its proximate explanatory factors.

By this time we have also experienced several policy changes particularly since 1991, i.e. we have switched over from the state of bureaucratic control over trade investment and finance to the state of widespread deregulation i.e. to market in view of globalizing our economy. But what is surprising is that at the cross country level our economy ranks 127 in respect of Human Development Index (HDI) as per the estimate of UNDP. Thus the paradox is that while in respect of growth we rank amongst the ten fastest growing countries in the world, but in respect of human development (HD), we rank 127 amongst the countries in the world. In fact, one may think of two-way causalities between economic growth and human development as well as the development of qualities of life. The economic growth may lead to a sustained increase in real per capita income thereby leading to the improvement in human capital through increase in expenditure on social services by both the government and private households. On the other hand, improvement in human capital may sub serve the acceleration of physical capital through increase in income and saving. So the obvious question is- do these causalities between the two work? Further, it is also recognized not only in the neoclassical growth theory but also in the modern growth theory, that human capital plays a

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vital role in the growth of every economy (Solow, 2000; Mankiw et al, 1992; Barro, 1991; Barro and Martin, 1995). In fact, in the study on cross-country differentials in the real per-capita SDP, the human capital viz. education and health has been found to be highly significant (Mankiw et al, 1992; Ghosal, 2002). Of course the cross-state differentials in the level of human capital is the outcome of the differentials in the per capita social expenditure i.e. social sector expenditure on education, health etc. undertaken not only by the Government (central and states) but also by the private i.e. by the household as such. The UNDP has also been computing HDI across the countries since a long time so as to exhibit the nature and magnitude of the cross country differentials in the level of human development and it is being published in the form of Human Development Report. Following the same methodology, Government of India and also the state government have also been computing HDI so that one may have a quick appreciation of the nature of the human development taking place across the states of India. Economists have also focused on the regional disparities in the volume of social sector expenditure across the states (Guhan, 1995; Prabhu, 2001). However, there is the dearth of study on the nature of the relation between economic growth, human development and social sector expenditure. A recent study has shown the two way causal relation between human development and economic growth at the inter-state level and tried to examine the nature of convergence by following the standard neoclassical tool of convergence study. This study has found a converging tendency of human development but diverging tendency of economic growth across the states during 1980-2000 (Ghosh, 2006). Astonishingly, a recent study made by Achal Gaur has shown that except education, average deprivation in terms of per-capita SDP and medical and public health has increased significantly in all the states during 1981 to 2002 (Gaur, 2005). Further, he has also shown that economic reform did not produce any cushion against the human deprivation in respect of health across the states. But in none of these studies the natures of relation between human development and social sector expenditure made by both the central and state government and private households and its cross state differentials have received much attention. Since the data available on the expenditure on health, education, family welfare are mainly of the government (central plus state) and data on the private expenditure on such items are hardly available, we concentrate on the role of social sector expenditure made by government on cross state differentials in the human development vis-à-vis economic growth. Further one has to investigate the role of private expenditure on social services (education, health) and its effect on human development. Moreover, one cannot deny that there is causality between social sector expenditure, human development and qualities of life of the people. So one has to investigate

the effectiveness of social sector expenditure not only on the human development, economic growth but also on the qualities of life of the people. In none of the studies mentioned above, these aspects have received any attention. Our study is in this direction and it is organized as follows: Section 2 gives an overview on data and methodology, Section 3 presents an analysis of the nature, trend and composition of social sector expenditure, Section 4 focuses on the inter-state disparities in HD and economic growth and also the relation between social sector expenditure, human development and growth, and finally Section 5 gives concluding observations.

2. Data and Methodology

This study is exclusively based on the secondary data available from the National Account Statistics of C.S.O, RBI Bulletin, the Report on Currency and Finance, the Human Development Reports of GOI, Statistical Abstract, C.S.O etc. However, one of the major problems in respect of data that we face is that there is no comparable set of time series data on per capita social sector expenditure incurred by both centre and states and also by the private households across the states. This has created problems in respect of statistical analysis which was expected to be done. Further since the relevant data on the state Assam is not available before us, we exclude Assam from our analysis. So we consider 14 states as our observations. Now to examine the cross state disparities in human development and social sector expenditure (SSE) made by both centre and states and also by the household, we have used the conventional statistical tool coefficient of variation (C.V). However, it is worth mentioning in this context that since the data of private/households expenditure on education, health and other social services are not available, we have used per capita real income (PCI) as a surrogate of expenditure on the same.

Further, to determine the relative importance of the private expenditure and public expenditure on social services in explaining the inter-state disparity in human development (HD), we regress HDI on PCI and SSE, by fitting a log-linear regression model as follows:

$$\text{Log HDI}_{it} = a + b_1 \log \text{SSE}_{it} + b_2 \log \text{PCI}_{it} + e_i$$

$i = 1, 2, 3 \dots 14$ states

$t = \text{time}$

$e = \text{error term}$. We estimate the relevant coefficients by applying the OLS method of regression analysis.

3. Trend and Composition of Social Sector Expenditure

In this section, we analyze the nature and behavior of the social sector expenditure (revenue plus capital account) i.e. the expenditure on education, health, family welfare, water supply and sanitation during mid 80's to 1999-2000. Table-I gives an overview of the social sector expenditure (SSE). It is quite clear that social sector expenditure as % of GDP has occupied an insignificant proportion throughout the period. In fact, we find that while during the later half of 80's the SSE constituted about 7.74% of the GDP, during the reform period it has fallen and remains almost stagnant around 6.9%. If we consider the SSE as the proportion of aggregate public expenditure then we also find that it hovers between 25% and 26% during the 90's. Further, the real PCSSE at 1993-94 prices does not reveal any remarkable increase during the period from 1987-88 to 1998-99. In fact, it has increased from Rs. 623 in 1990-91 to Rs. 890 in 1998-99. Surprisingly, the state's contribution to the total SSE has been found to be significantly larger than the same of the centre. In 1991, the state's share in total SSE was 85.2% and at the end of the 90's it has become 80%.

Table-1: Centre & States Combined Social Sector Expenditure

Year	Social Sector Exp (rev.+capital)		
	As % of GDP	As % of Agg. Pub. Exp.	Per Capita Exp. (Rs.) in 1993-94 prices
1987-88	7.74	25.29	562
1988-89	7.40	25.22	583
1989-90	7.64	25.19	633
1990-91	6.78	24.85	623
1991-92	6.58	24.28	599
1992-93	6.39	24.06	594
1993-94	6.46	24.58	623
1994-95	6.41	25.01	633
1995-96	6.40	25.95	675
1996-97	6.48	27.22	739
1997-98	6.60	26.95	789
1998-99	6.94	27.36	890
1999-00	7.55	27.69	1027

Source: Estimate based on data from *Indian Public Finance Statistics*, GOI, 1995 and 2000-01.

The trend behavior of the SSE (both capital and revenue) as percentage of GDP and also as percentage of total public expenditure as shown in the scatter plot do not also reveal any optimistic picture during the reform period, albeit with we find a rising trend in real per capita SSE by centre and state (see fig. 1 & 2). Thus on the whole what we find is that economic reform has failed to produce any substantial impact on the social sector expenditure incurred by both the states and centre.

Figure 1: Trend behavior of SSE as % of total public expenditure during the period 1987-88 to 1999-00

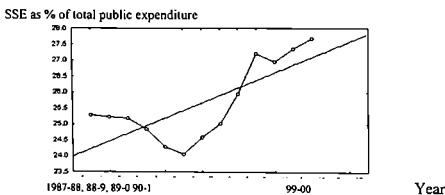
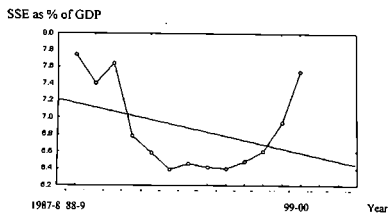


Figure 2: Trend behavior of SSE as % of GDP during the period 1987-88 to 1999-00



Now, so far as the composition of social sector expenditure (central and state government combined) is concerned, the Table-2 gives an overview of the same during the 90's. It is surprising that negligible proportion of GDP has been spent on education, sports and youth welfare throughout the 90s. The figure ranges from 3.06% in 1990-91 to 3.35% in 1999-2000. On the other hand, expenditure on public health and water supply is still found to be

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abysmally low which hovers between 1.05% of GDP and 1.22% of GDP during 90's. Astonishingly, the expenditure on family welfare is also tremendously low and it ranges from 0.13% to 0.16% during 90's. Now if one considers the expenditure on total social services, the Table-2 clearly reveals that the figure ranges from 5.87% in 1990-91 to 5.85% in 1998-99, and then we find a marginal increase in the same to 6.43% in 1999-2000. What is surprising is that we do not find any increase in social sector expenditure during the period of economic reform. So it is plausible to conclude that the major components of human capital viz the education and health have been neglected even after liberalization. Thus one can safely justify India's position in human development at the cross-country level, which has been estimated by UNDP at 127. Therefore one of the crucial reasons for non-percolation of the fruits of growth mediated economic development (i.e. failure of trickledown theory in our economy) might be the negligence on the formation of human capital. What is more surprising from Table-2 is that the states bear a lion share in all the components of expenditure on social sector, albeit the same has declined marginally from 84.4% in 1990-91 to 82.3% in 1998-99. This obviously implies the delinquency of central government in respect of human development. So what is paradoxical is that, we have liberalized our economy in order to avail of the benefits of market like China, but we pay miserable importance to the development of human capital.

**Table-2: Social Sector Expenditure (State-Centre combined) during 90's
(as % of GDP)**

Major Heads									Share of States (%)	
	'90-91	'92-93	'94-95	'95-96	'96-97	'97-98	'98-99	'99-00	'90-91	'98-99
Education, sports, youth welfare	3.06	2.87	2.76	2.74	2.73	2.78	3.00	3.35	90.3	88.1
Public health and water supply	1.15	1.11	1.10	1.05	1.05	1.11	1.17	1.22	90.7	89.3
Family welfare	0.16	0.14	0.15	0.15	0.13	0.14	0.13	0.15	93.5	85.9
Housing and urban development	0.27	0.26	0.24	0.26	0.34	0.35	0.38	0.45	71.4	44.6
Broadcasting	0.11	0.08	0.07	0.07	0.08	0.08	0.07	0.08	85.7	93.1
Social security and welfare	0.68	0.68	0.63	0.73	0.68	0.70	0.70	0.77	60.3	60.4
Labour and employment	0.13	0.12	0.11	0.10	0.10	0.11	0.10	0.11	92.3	89.2
Other social services	0.31	0.29	0.30	0.29	0.31	0.29	0.30	0.30	18.4	21.2
Total services	5.87	5.55	5.36	5.39	5.42	0.56	5.85	6.43	84.4	82.3
Rural development	0.91	0.84	1.05	1.01	0.88	0.85	0.88	0.91	90.3	64.2
Total	6.78	6.39	6.41	6.40	6.48	6.60	6.94	7.55	85.2	80.0

Source: Computed from the data available in *Indian Public Finance Statistics*, Ministry of Finance, GOI, 1995, and 2001.

4. Inter-State Disparity in Growth and Human Development

In this section we analyze the nature of cross-state variability in the growth of real per capita income and also of the human development, which is measured in terms of human development indices. Table-3 gives an overview on the cross-state disparity in the real per capita income (RPCI) and its annual average growth rates for the three phases viz. (i) 1981-91; (ii) 1991-01 and (iii) 1981-01 and also on degree of variations in the human development across the states. It is evident from the table that the national average rate of growth of RPCI during the Pre-reform period (1981-91) was 3.15% per annum and it has registered an increase during the post reform period (1991-01), the figure being 3.81% per annum. However the growth rate of RPCI for the overall period is found to be much higher (7.09% per annum) than the same for the two phases. So one can safely say that we have achieved a higher growth rate in per capita term during the post reform period.

Table-3: Per Capita Real GDP and its Growth during 1981-2001 at 1980-81 Constant Prices

States	PCI			Annual Compound Growth Rate			HDI			SSE (as % of GDP)		
	1981	1991	2001	1981-91	1991-01	1981-01	1981	1991	2001	90-91	95-96	98-99
Andhra Pradesh	1380	2060	3069	4.09 (2)	4.06 (7)	8.32	298 (9)	.377(9)	.416(10)	6.92	6.56	6.98
Bihar	917	1197	1225	2.70 (9)	0.23(14)	2.93	237(14)	.308(14)	.367(14)	8.82	8.34	6.89
Gujarat	1940	2641	4257	3.13 (7)	4.88 (4)	8.17	.36 (4)	.431(6)	.479(6)	6.92	5.02	6.63
Haryana	2370	3509	4485	4.00 (4)	2.48 (10)	6.58	.36 (3)	.443(5)	.509(5)	5.48	6.48	5.82
Karnataka	1520	2039	3590	2.98 (8)	5.81 (1)	8.97	346 (6)	.412(7)	.478(7)	7.57	6.31	6.29
Kerala	1508	1815	2778	1.87 (13)	4.34 (5)	6.29	.50 (1)	.591(1)	.638(1)	10.7	6.78	6.06
Madhya Pradesh	1358	1693	2084	2.22 (11)	2.09 (12)	4.37	245(13)	.328(12)	.394(12)	7.45	6.18	7.34
Maharashtra	2435	3483	5283	3.64 (5)	4.25 (6)	8.05	363 (3)	.452(4)	.523(4)	5.44	4.59	4.54
Orissa	1314	1383	1917	0.51 (14)	3.31 (8)	3.84	.267 (10)	.345(11)	.404(11)	9.16	7.92	9.02
Punjab	2674	3730	4897	3.38 (6)	2.75 (9)	6.23	.41 (2)	.475(2)	.537(2)	5.43	4.77	6.07
Rajasthan	1222	1942	2412	4.74 (3)	2.19 (11)	0.36	256 (11)	.347(10)	.424(9)	8.84	8.61	10.65
Tamil Nadu	1498	2237	3643	4.09 (1)	4.99 (3)	9.29	343 (7)	.466(3)	.531(3)	9.18	6.46	6.96
Uttar Pradesh	1278	1652	1852	2.60 (10)	1.14 (13)	3.77	.255 (12)	.314(13)	.308(13)	7.12	5.55	6.00
West Bengal	1773	2145	3745	1.92 (12)	5.73 (2)	7.76	.305 (8)	.404(8)	.472(8)	7.48	5.14	5.71
India	1630	2223	3234	3.15	3.81	7.09	.302	.381	.472	7.32	5.97	6.37
C.V	31.09	36.0	40.55	37.64	49.33	44.67	22.5	19.02	16.29	35.58	22.1	14

Source: National Accounts Statistics, 2003 C.S.O, Government of India.

Note: Figures in brackets are the corresponding ranks of the state.

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It is also discernable from the table that some states viz. Andhra Pradesh, Gujarat, Tamil Nadu, Maharashtra and West Bengal for phase (ii) and (iii) have achieved higher growth rate of RPCI than the national average and the others trail behind the same in all the three phases. But what is surprising that there has been a remarkable change in the ranks of the states between the first and second phases. While Tamil Nadu ranked first (4.09% p.a) and West Bengal ranked 12 (1.92%p.a) in respect of growth rates of RPCI during pre-reform period, the rank of Tamil Nadu has been deteriorated to 3 and West Bengal has been able to surmount the barrier and ranked second during the post-reform period by achieving an annual growth rate of RPCI of 5.73%. Tremendous improvement in the rank of Karnataka from 8th to 1st is indeed appreciable. So the table clearly reveals that some of the states like Karnataka, West Bengal, Orissa, and Kerala have been able to bring about a tremendous improvement in their relative positions in respect of growth during the post reform period, but some other states like Tamil Nadu, Andhra Pradesh, Bihar, Haryana etc. have trailed behind. Interestingly, however, the inter-state disparity in the rate of growth of RPCI (measured in terms of C.V) has been found to increase remarkably from pre-reform period to post-reform period. Another interesting trait, which is clear from the table is that majority of the states excepting Bihar, Punjab, Uttar Pradesh, Haryana have been able to increase the rate of growth of RPCI during the post reform period.

Now, if we consider the time – profile of HDI across the states, then it is very clear that all the states have been able to bring about improvement in their human development in varying degrees over the period from 1981 to 2001. The value of national average HDI has increased from 0.302 in 1981 to 0.381 in 1991 and further to 0.472 in 2001. While Kerala has been able to rank first although the period in respect of human development, West Bengal has been able to retain its rank at 8th position, albeit in respect of growth of RPCI Kerala ranks 5 and West Bengal ranks second. So we do not find any one to one correspondence between the ranks in respect of human development and the ranks in respect of growth rates of RPCI. The rank correlation between average growth rate of RPCI during 1991-2001 and the human development indices across the states is very poor for 1991 it is (0.28) and the same is 0.57 for 2001. Further it is also evident that while some states like Tamil Nadu, Kerala, Punjab, Haryana have been able to achieve higher level of human development in varying degrees during the post reform period as compared with the national average level of human development, some other states viz. Uttar Pradesh, Orissa, Madhya Pradesh, Bihar, Andhra Pradesh etc. achieved the level of human development lower than the national average level, albeit they have achieved higher growth rate of RPCI. Astonishingly, the inter-state disparity in respect of human development has shown a declining tendency such that the value of C.V

has fallen from 22.5% in 1981 to 19.02% in 1991 and further to 16.29% in 2001. On the contrary, what is more surprising is that the inter-state disparity in respect of growth of RPCI has been found to increase over the period (as is revealed by the time profile of C.V in the table). It is worth mentioning that the study made by M. Ghosh (2006) has also found the same trend. However, if we consider the total expenditure on social services made by the major states (as shown in Table-3), then we find a declining trend in the inter-state disparity in terms of time profile of C.Vs.

But what is surprising in this context is that in almost all the states excepting Rajasthan, the proportion of NSDP spent on social service has fallen during the 90's. So one has to investigate the crucial explanatory factors behind the inter-state disparity in human development. As we have already mentioned that the improvement of human capital consisting of its basic ingredients viz. the education (measured in terms of literacy rate) and health (measured in terms of life expectancy at birth) seems to be the result of both private (household) expenditure on health and education and the public expenditure on social sector/services. So the inter-state variability in the human development seems to be the result of the variability in the SSE by both government and private household. To determine the relative importance of these two types of SSE (public and private), we run a cross-state regression model and regress log (HDI) on log (SSE) by government and log (RPCI) [using it as a proxy of SSE made by private sector] initially without considering any lag in response of the explanatory variables to human development for 1991 and then by considering 10 years lag in response on the part of the explanatory factors to the human development for 2001. The regression results are given in table below.

Table-4: Regression Results

Dependent Variable	No. of Obsvs.	Constant	Log(PCI-91)	Log(SSE-91)	Adj. R ²	F(2,11)
Log (HDI-91)	14	-3.73 (.543) [.000027]	.7671* (.120) [.000053]	.903* (.194) [.000701]	.7493 (.040)	20.434
Log(HDI-01)	14	-3.19 (.4216) [.000011]	.6591* (.0934) [.00021]	.7686* (.1505) [.000342]	.7875 (.0313)	25.09

Note: figures in first brackets are standard errors and that of third brackets are p-values.

* Significant at 1% level.

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Regression results-I clearly indicate that the variations in the SSE of the major states and private expenditure on social services or human capital formation together explain a significant proportion (74% i.e. $\text{Adj.}R^2 = 0.749$) of cross state disparity in the human development in 1991. Both these explanatory factors are found to be statistically significant. Moreover, the regression result-II also reveals that the explanatory power of the two variables viz. SSE by states and the private, have been improved significantly (as $\text{Adj.}R^2 = 0.788$) in 2001 such that both of two explanatory factors have been found to be highly significant. It is, however, noteworthy in this context that in regression result-II i.e. for 2001, we have considered 10 years lag in response i.e. values of HDI are for 2001 and those of two explanatory factors are for 1990-91. On the whole, from the regression results one can plausibly conclude that the variations in both of the SSE made by government and private households explain 74 to 79% of the disparity in human development across the states during the period of reform.

5. Concluding Observations

It is well known that immediately after independence, our avowed objectives were the ending of poverty, ignorance, diseases and inequalities of opportunities. By this time 64 years after independence have been elapsed and we have liberalized our economy through the adoption of economic reform. We have indeed been able to rank amongst the 10 fastest growing countries in the world and also to reduce our economic poverty to 26%. But what is paradoxical is that although we have been able to raise our annual average growth rate, RPCI to a very high level (7.09%), our social sector i.e. education and health still remain at very fragile state such that our present literacy rate is 65% and we spend only an abysmally low proportion of 3.35% and 1.22% of our GDP on education and health. Further, although we rank amongst 10 fastest growing economies of the world, our rank in HDI (as computed by UNDP) is 127. So how can one reconcile between the high growth rate and lower level of human development. Moreover there is high level of inter-state disparity in respect of human development, growth rate of RPCI and SSE by government. But what is surprising is that while the inter-state disparities in human development and SSE by states are diminishing during the period of reform, the same for the growth rates of RPCI is increasing. The cross state regression results clearly reveal that variation in SSE under taken by both the government and private households explain a significant proportion 74% to 79% of inter-state disparity in human development. So for the improvement in the level of human development, the public expenditure on social sector should be increased substantially so that the benefits of market can be availed fruitfully like that of other Asian countries viz. China, Hong Kong, Taiwan, South Korea etc.

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