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**Estimating Deprivation and Inequality in Human Well Beings: A Case Study
of Indian States**

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ESTIMATING DEPRIVATION AND INEQUALITY IN HUMAN WELL BEINGS : A CASE STUDY OF INDIAN STATES

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ABSTRACT

Human concerns as deprivation in income, education, medical and public health, etc. have been focal themes before policy makers, scholars and institutions since last quarter of 20th century and it continues unabated today. This has led world-wide debate on these issues which strengthen further through publication of Human Development Report (HDR) of UNDP in 1990 and launch of the Millennium Development Goals (MDGs) at the millennium summit in New York in September 2000. India's economic growth since 1980 has been among the most rapid (World Bank Report No. 34580-IN, May 29, 2006) and Union Budget, Government of India for 2007-08 presents average growth rate in GDP in to three years of the UPA Government at 8.6% ([www.http//indiabudget.nic.in](http://indiabudget.nic.in)). Contrary to it, the World Bank in its report (May 2006) entitled "India-Inclusive Growth and Service delivery : Building on India's Success" has clearly mentioned that poorer states stayed at exactly the same level of growth since 1970 while other states have enjoyed significant gain. India can not attain the MDGs without significant progress in MD indicators in its poorest states – Bihar, Orissa, Uttar Pradesh, Madhya Pradesh and Rajasthan (Anil B. Deolalikar, 2005, The World Bank, Human Development Unit, South Asia Region) Indeed, the progress of social and economic indicators in BIMARU states has been quiet slow than other Indian states during past 25 years [(Jean Dreze & Amartya Sen, 1995, 1999), (India-Sustaining Reform, Reducing Poverty – The World Bank, 2005), Uttar Pradesh Development Report (Vol. I & II), Planning Commission, Government of India, 2007)].

Thus, apart from income, education, medical and public health are vital ingredients of quality of human life (Martha C. NUSSBAUM and Amartya Sen, 1999) and deprivation in these human concerns is perhaps major challenge before any state and particularly in a federation like India. It is

against this back drop, the present paper attempts to examine the inter-state poverty in human concerns like income, education, medical and public health in case of Indian federation for the period 1980-81 to 2001-02. Human poverty has been estimated in terms of deprivation indices as developed by UNDP in its successive HDRs. For this purpose, deprivation indices related to three major ingredients of human development i.e. per capita state domestic product (SDP), per capita expenditure of states on Education, medical and public health have been calculated for twenty major states of India for period 1980-81 – 2001-02.

The empirical findings of the present paper are quiet astonishing and shocking. For example excepting education, average deprivation in terms of per capital SDP and expenditure on medical and Public health, for twenty states has risen significantly during the period 1980-2005. Inter-state deprivation indices for per capita SDP and medical and public health stood at 0.6177 and 0.8294 respectively in 1980-81 while these indices increased further and were noted at 0.6202 and 0.8756 in 2001-2002. However, in case of education, inter state deprivation indices have shown declining trend during the period 1980-2002.

Significant to mention that deprivation indices in terms of per capita SDP, per capita expenditure on medical and public health and education for BIMARU states like UP, MP, Orissa, Rajasthan and Bihar were found higher than average deprivation indices throughout during the period 1980-2002. Deprivation indices related to per capita SDP and medical and public health were also found higher than average deprivation indices in case of hill states like Assam, Meghalaya and Tripura.

This paper also examines the impact of economic reforms, introduced by Government of India in 1991, on existing inter-state deprivations. For this purpose, the technique of slope as well as intercept dummy variables have been employed with 1991 as shift period, if any. Eventually, empirical results of the paper do not reveal any significant change in deprivation indices in aforesaid parameters during economic reform (1992-2002) than 1980-91.

Thus, in view of increasing inter state human poverty in India as obvious through surge in deprivation indices during 1981-2002, there is an urgent need to introduce the reforms for Human Development at State level and to implement it effectively for effective redressal of inter-state poverty in human concerns like per capita SDP, education, medical and public health etc.

JEL classification : I 31, H 51, H 52.

ESTIMATING DEPRIVATION AND INEQUALITY IN HUMAN WELL BEINGS : A CASE STUDY OF INDIAN STATES

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I. INTRODUCTION

Human concerns as deprivation in income, education, medical and public health, etc. have been focal themes before policy makers, scholars and institutions since last quarter of 20th century and it continues unabated today. This has led world-wide debate on these issues which strengthen further through publication of Human Development Report (HDR) of UNDP in 1990 and launch of the Millennium Development Goals (MDGs) at the millennium summit in New York in September 2000. Poverty amid plenty is the world's greatest challenge today. Of the world's 6 billion people, 2.8 billion – almost half – live on less than \$ 2 a day and 1.2 billion – a fifth – live on less than \$ 1 a day with 44 percent living in South Asia (World Development Report 2001). Most of the economists/ scholars [Atkinson (1970a, 1789), Chakarvarty, S. R. (1981, 1983a, 1983b), Desai, M. J. (1984, 1990) Foster, J. (1984), Karkwani, N. (1980a, 1980b), Iyengar, N. S. (1989), and Sen, A. K. (1974b, 1976) Rowntree, B. S. (1901) Arvind Virmani (2006)] have examined the structure of poverty in terms of income only. But, since the publication of the first Human Development Report in 1990 (UNDP, 1990) and launch of the millennium Development Goals (MDGs) at the millennium summit in New York in September 2000, an exciting debate has emerged world-wide on the issues of human poverty. The world Development Report 2001 clearly states that now traditional view of poverty as encompassing not only material deprivation (measured by an appropriate concept of income or consumption) but also

deprivation of education and health. Recently, World Development Report, 2007 has observed that reducing in poverty and ensuring better opportunities in term of education, medical and public health, especially in youth, should be assigned top priority (World Development Report, 2007). Measuring deprivation in the dimensions of health and education has a tradition that can be obtained in the writings of classical economists too like Malthus, Ricardo and Karl Marx (World Development Report 2001). Despite Rowntree's [Rowntree, B. S. (1901)] primarily income based approach to measuring poverty, he has devoted a full chapter of his work to the relation of poverty of health.

Empirical studies [Nair (1993a), Cassen (2002), Malhotra (1998), Planning Commission (2002), Datt and Ravilion (2002)] revealed that there exists a close and inverse relationship in between human poverty and human development. Human Development, as defined by UNDP (UNDP 1991), is a process of enlarging people's choice, including to live a long and healthy life, to educate and to have access to resources needed for a decent living standard. In fact, human development has two sides. One is the formation of human capabilities –such as improved health, knowledge of skills. The other is the use people make to their acquired capabilities for productive purpose. If the scales of human development do not finely balance the two sides, much human frustration emerge (UNDP, 1995). In particular, Human Development, is measured through Human Development Index (HDI) which is composite of three basic components: income, education and health (UNDP, 1991, 92, 2001) while human poverty may be measured in terms of Deprivation Index (DI). Human Development is possible either by raising the value of HDI closer to unity or by reducing the Deprivation Index (DI) closer to zero. Thus, human poverty which may be measured in terms of deprivation indices, can be minimized through reducing the value of DIs.

In light of aforesaid facts, it is important to evaluate a nation's/region's performance in the areas of health and education, and examine the role of government expenditure in promoting these non-income objectives. Here, it is significant to observe that state's expenditure, especially on social sector like education, medical and public health has been deteriorating after eighties

(Planning Commission, Government of India, 2001). India's economic growth since 1980 has been among the most rapid (World Bank Report No. 34580-IN, May 29, 2006) and Union Budget, Government of India for 2007-08 presents average growth rate in GDP in to three years of the UPA Government at 8.6% ([www.http://indiabudget.nic.in](http://indiabudget.nic.in)). Contrary to it, the World Bank in its report (May 2006) entitled "India-Inclusive Growth and Service delivery : Building on India's Success" has clearly mentioned that poorer states stayed at exactly the same level of growth since 1970 while other states have enjoyed significant gain. India can not attain the MDGs without significant progress in MD indicators in its poorest states – Bihar, Orissa, Uttar Pradesh, Madhya Pradesh and Rajasthan (Anil B. Deolalikar, 2005, The World Bank, Human Development Unit, South Asia Region) Indeed, the progress of social and economic indicators in BIMARU states has been quiet slow than other Indian states during past 25 years [(Jean Dreze & Amartya Sen, 1995, 1999), (India-Sustaining Reform, Reducing Poverty – The World Bank, 2005), Uttar Pradesh Development Report (Vol. I & II), Planning Commission, Government of India, 2007)]. Facts show that ratio of social sector expenditure of states to there total expenditure declined from 38.6% in 1990-91 to 34.9% in 2006-07 (Reserve Bank of India, 2006). Accordingly, the present paper attempts to measure Human Poverty (Inter-State) in India. For this purpose, per capita State Domestic Product of 20 major states has been taken for the period 1981-2002. In addition, per capita expenditure of these 20 major states on education, medical & public health has also been taken for the period 1981-2002. For these three parameters which are effective indicators of human poverty/ human development of any state/ region, Deprivation Indices (DIs) have been calculated. As per definition (Sudhir Anand, Amartya K. Sen 1994), the Deprivation Index (DI) lies in between Zero and Unity i.e. $0 \leq DI \leq 1$. Closer the value of DI towards Zero indicates higher degree of Quality of human life while close the value of DI towards unity indicates acute human poverty. Section II deals with methodology (technical note) as well as data structure of the present paper while empirical

results are contained in section III. Section IV deals with concluding remarks and policy observations.

II. METHODOLOGY AND DATA STRUCTURE:

UNDP's methodology of Deprivation Index (DI) as developed by Sudhir Anand and Amartya K. Sen (1994) has been adopted in the present paper in order to measure poverty in Indian States in terms of parameters like per capita state domestic product, per capita expenditure of states on education and per capita expenditure of states on medical & public-health. The deprivation index for any state/ region j with respect to parameter x_i is defined as :

$$DI_{ij} = \frac{\text{Max}_K\{X_{ij}\} - X_{ij}}{\text{Max}_K\{X_{ik}\} - \text{Min}_K\{X_{ik}\}} \quad (2.1)$$

where $i = 1,2,3$ (for three parameters under study) and $j = 1,2,\dots,20$ (Twenty state of Indian federation under study).

The deprivation index for state j lies in between 0 and 1. An average deprivation index DI_j for state j across the three parameters is defined as a simple unweighted average of the D_{ij} , i.e.

$$DI_j = \frac{1}{3} \sum_{i=1}^3 DI_{ij} \quad (2.2)$$

The shortfall in the human development index for state j is then defined to be just this average deprivation. Thus, if H_j is the human development index for state j , we have, by definition:

$$H_j = 1 - DI_j \quad (2.3)$$

Further, H_j can directly be expressed in terms of attainment level X_{ij} . From above,

$$H_j = 1 - \frac{1}{3} \sum_{i=1}^3 DI_i \quad (2.4)$$

$$= \frac{1}{3} \sum_{i=1}^3 (1 - D_{ij}) \quad (2.5)$$

$$= \frac{1}{3} \sum_{i=1}^3 \left[1 - \frac{\text{Max}_K \{X_{ij}\} - X_{ij}}{\text{Max}_K \{X_{ij}\} - \text{Min}_K \{X_{ik}\}} \right] \quad (2.6)$$

$$= \frac{1}{3} \sum_{i=1}^3 \left[\frac{X_{ij} - \text{Min}_K \{X_{ik}\}}{\text{Max}_K \{X_{ik}\} - \text{Min}_K \{X_{ik}\}} \right]$$

$$= \frac{1}{3} \sum_{i=1}^3 H_{ij} \quad (2.7)$$

where, $H_{ij} = \frac{X_{ij} - \text{Min}_K \{X_{ik}\}}{\text{Max}_K \{X_{ik}\} - \text{Min}_K \{X_{ik}\}}$ is the i^{th} parameter's contribution to

the human development index for state j . Eqs. (2.1), (2.6) and (2.7) clearly state the inverse relationship in between human development and human poverty of a state where later is measured in terms of deprivation Index (DI).

In order to depict inter-state human poverty (for 20 major states) in Indian federation, deprivation indices for three parameters i.e. per capita state Domestic product, per capita expenditure on education, per capita expenditure on medical & public health, have been estimated for the period 1981-2002. Data for these parameters have been collected from various issues of currency and Finance (Vol. II, 1981-1998), Reserve Bank of India Monthly Bulletins (1980-2003), and State Finances –A Study of Budgets of 2001-02, RBI. Further, more than a decade has passed when Government of India introduced the policy of economic reforms in July 1991. The present paper also attempts to measure the structural shift, if any, in the deprivation indices due to introduction of economic reforms. In order to measure such impact, we have used the technique of slope and intercept dummy variables [Damodar, G. (1970), Damodar, G. (1995, 1999), Johnston J and Dinardo J (1997)] and have fitted the following type of linear regression:

$$DI_i = \alpha_0 + \alpha_1 t + \alpha_2 \cdot D_1 + \alpha_3 (tD_2) + u_i \quad (2.8)$$

where,

$DI_i = i^{\text{th}}$ Deprivation index,

- t = time trend;
 D_1 = first dummy for the period 1980-81 to 1990-91,
 D_2 = second dummy for the period 1991-92 to 2001-02.
 $t_i D_2$ = An interaction variable to Capture the interaction effect of the presence of the attribute in the second period (1991-2002) and the time trend on deprivation index.
 α_0 = intercept in the first period (1981-91)
 α_2 = differential intercept in the second period (1991-2002)
 α_1 = regression coefficient of time-trend in the first period (1981-91) which shows the magnitude of rate of response of DI_i w.r.t time;
 α_3 = differential coefficient of time trend in the second period (1992-02) to allow a shift/ break/structural change in the magnitude of rate of response of DI_i w.r.t. time;
 u_i = error term.

In equation 2.8, (i) $(\alpha_1^* + \alpha_3^*)$, (* shows statistically significant) shows an upward shift in DI_i . w.r.t. time in the second period (1991-02); (ii) $(\alpha_1^* - \alpha_3^*)$ shows a downward shift in DI_i w.r.t. time in the second period (1991-02) while (iii) $(\alpha_1^* \pm \alpha_3^{**})$ (where ** shows statistically insignificant) shows no shift/ no structural change in DI_i w.r.t. time in the second period (1991-2002).

III. EMPIRICAL RESULTS

The present section attempts to examine and sketch the structure of poverty in human concerns for twenty states of Indian federation based on per capita State Domestic Product (SDP), per capita expenditure on education, medical and public health. Accordingly, per capita state Domestic Product (at current prices), per capita expenditure of states on education as well as per capita expenditure of states on medical & public health for twenty major states of Indian federation during the period 1981-2002 are presented in Table 1, Table 2 and Table 3 respectively. Some relevant statistics pertaining to per capita SDPs

(1981-02) are presented in Table 4. It is obvious from the table that average SDP was maximum for state of Punjab (Rs.10596.36) while it was found minimum for Bihar (Rs.2859.82) during the period 1981-02. In the category of Maximum, Karnataka had the maximum SDP (Rs.30794.00) while in the category of Minimum, Bihar had the minimum SDP (Rs.901.00) during the period. The maximum variation in terms of S.D. was found in case of A.P. (7675.19) while minimum S.D. was found in case of Tripura (1581.98). The skewness was positive for all states during the period and it was maximum-positive for Karnataka (62.98) while it was minimum –positive for Bihar (1.4384). Table 5 shows relevant statistics relating to per capita expenditure of states on education during 1981-02. Facts reveal that average per capita expenditure on education was maximum in case of H.P. (Rs.513.18) while it was minimum for M.P. (Rs.162.95). In series of maximum per capita expenditure, the maximum value was recorded in favour of Manipur (Rs.1558.00) while in series of minimum per capita expenditure in this regard, the minimum value was noted in case of Uttar Pradesh (Rs.31.00). The standard Deviation was found maximum in case of Manipur (Rs.405.99) while it was minimum for M.P. (Rs.114.28). The value of skewness was higher in case of Assam (1.2146) while it was lowest for Nagaland (0.5924). Major statistical indicators pertaining to per capita expenditure on medical & public health of states are shown in Table 6. It is obvious that average per capita expenditure in this regard was highest for Nagaland (Rs.255.00) while it was lowest for Bihar (Rs.410.09). In series of maximum, the highest per capita expenditure was noted for Manipur (Rs.1335.00) while in the series of minimum, the lowest per capita expenditure was incurred by Bihar (Rs.09.00). The maximum S.D. was recorded for Manipur (Rs.273.91) while minimum S.D. was noted for Uttar Pradesh (Rs.25.13). Similarly maximum skewness was recorded in favour of Tripura (3.88) while it was minimum for Nagaland (0.4038).

Inter-state human poverty in India in terms of income has been expressed in form of per capita inter-state SDP deprivation indices and are shown in Table 7. Facts show that these deprivation indices were zero for state of Punjab while

in case of Bihar, it was unity during entire period 1981-02. These indices reveal that the state of Bihar was the most-deprived state while the state of Punjab was the least deprived state when reckoned in terms of per capita SDP deprivation index. The deprivation indices for economically poor states like U.P. (0.7958 in 1981 to 0.8580 in 2002), Orissa (0.7704 in 1981 to 0.8617 in 2002), and M.P. (0.7496 in 1981 to 0.7646 in 2002) and hill-states like H.P. (0.5512 in 1981 to 0.6949 in 2002), J&K (0.5107 in 1981 to 0.8775 in 2002) and Tripura (0.7837 in 1981 to 0.9437 in 2002) have also risen during 1980-81 to 2001-02. The average deprivation in per capita SDP has also increased from 0.6177 in 1981 to 0.6202 in 2002 indicating about 100.40 percent increase in it: Further, the variation in the degree of deprivation as measured in terms of S.D. has risen from 0.2544 in 1981 to 0.2799 in 2002 revealing about 10.02 percent enhancement in it. In order to measure any structure change/ break in inter-state per capita SDP deprivation indices due to implementation of economic reforms in 1991, we have fitted regression equation of type Eq. 2.8 and result are presented in Table 8. Based on these regression coefficients, the direction of structural shift (i.e. Upward shift, Downward Shift and No Shift) for 20 states are presented in Table 9. These results reveal that due to economic reforms, only downward shift was noticed in case of Kerala while Upward shift was observed in case of States like Assam, Meghalaya and Nagaland. In addition, no any structural shift was observed in case of other states. These results show that due to economic reforms, the degree of per capita SDP deprivation has decreased only in case of Kerala while this deprivation has increased for hill-states like Assam, Meghalaya and Nagaland, during the post-reform period (1992-2002). It also reveals that economic reforms did not affect to the rate of change in per capita SDP deprivation for most of the states in India.

Expenditure of states in India on education has been critical in the recent past. For example, expenditure of all states on education as a ratio to their aggregate disbursement stood at 17.4% in 2000-01 which declined at recorded at 14.4% in 2006-07 (Table 10). Also, all states expenditure in this regard as percent to their GDP stood at 2.9% in 2000-01 which reduced further and was

noted at 2.4% in 2006-07. It is significant to note that expenditure of poor states like M.P. and Orissa on education as a ratio to their aggregate disbursement fell short than all states average in this regard during 2000-01 to 2006-07 (Table 10). In order to measure human poverty in terms of education, deprivation indices for per capita expenditure of states on education during 1981-2002 have been estimated and are presented in Table 11. Figures show that although, deprivation index for Uttar Pradesh was Unity during 1981-86 but it declined later on and was recorded at 0.8999 in 2002 while deprivation index was zero for Nagaland during 1981-88 but it increased and stood at 0.1424 during 2002. The average educational deprivation index, however, declined from 0.7361 in 1981 to 0.5363 in 2002, showing about 72.86 percent reduction in per capita inter state educational deprivation during 1981-02. However, inter-state variation in deprivation indices has risen from 0.2631 in 1981 to 0.2880 in 2002 indicating about 9.46 percent enhancement in variation of inter-state educational deprivation during 1981-2002. Regression results revealing search of structural-shift in educational deprivation, which may occur due to economic reforms of 1991, are presented in Table 12. Based on the regression-coefficients, the results indicating movement of structural-shift in educational deprivation for twenty states are shown in Table 13. Interestingly, the structural-shift was downward for two states only i.e. Bihar and Maharashtra, revealing reduction in educational poverty these two states during post-reform (1992-02) period. In case of other eighteen states, no any structural shift was observed which shows that economic reforms of 1991 had exerted no any impact on existing structure of inter-state educational deprivation in India during 1992-2002.

Medical and public health sector of states in India have shown sluggish trend since 2000-01 in terms of expenditure on this vital organ of human development. For instance, expenditure of all states on medical and public health and family welfare as a ratio to their aggregate disbursement stood at 4.7% in 2000-01 which declined at noted at 4.4% in 2006-07 (Table 14). All states expenditure in this regard as percent to their GDP was noted at 0.77% in 2000-01 which further declined and stood at 0.74% in 2006-07. Significant to note that

expenditure of hill states like Sikkim and Tripura on medical and public health and family welfare as a ratio to their aggregate disbursement fell short than all states average in this regard during 2001-2007 (Table 14). Human poverty in terms of per capita expenditure of states on Medical & Public Health has been examined through deprivation indices for per capita inter-state expenditure on it during 1981-02 and are presented in Table 15. Facts reveal that deprivation indices for Bihar were one (excepting the years 1992, 2000 and 2001) while it stood zero for Nagaland during the period 1981-2002 revealing the truth that in terms of Medical & Public Health, Bihar was the most-deprived state while Nagaland was the least-deprived state. The average deprivation in per capita Medical & Public health has also increased from 0.8294 in 1981 to 0.8756 indicating about 105.57 percent increase in it during 1981-02. Also, the variation in the degree of deprivation as measured in terms of S.D. has risen from 0.2074 in 1981 to 0.2084 in 2002 showing about 0.48 percent upward-surge in it. Structural shifts, if any, in the inter-state Medical & Public Health deprivation indices due to implementation of economic reforms of 1991, have been measured through linear-regressions and results are shown in Table 16. The results, based on the regression coefficients, indicating movement of structural shift in Medical & Public Health deprivation for twenty states are presented in Table 17. It is significant to observe that the structural shift was downward for state of M.P. only indicating reduction of Medical & Public Health deprivation for M.P. during post-reform period (1992-02). In case of other 19 states, no structural shift was noted which indicates that economic reforms of 1991 had put no any impact on existing structure of inter-state Medical & Public Health deprivation in Indian federation during 1992-2002 i.e. during post-economic reforms era.

IV. CONCLUSIONS AND POLICY SUGGESTIONS

The publication of Human Development Report by UNDP for the first time in 1990 and introduction of the Millennium Development Goals (MDGs) at the millennium summit in New York in September 2000 have generated a world-wide debate/effort pertaining to improvement in Quality of human life such that

human poverty may be corrected. In the light of this, the present paper attempts to measure human poverty (inter-state) in India for the period 1981-2002. For this purpose, deprivation indices related to three parameters i.e. per capita State Domestic Product, per capita expenditure of states on Education, Medical & Public Health, have been calculated in case of twenty major states of India during 1981-02. The empirical findings of the present paper are quiet astonishing and shocking. For example excepting education, average deprivation in terms of per capital SDP and expenditure on medical and Public health, for twenty states has risen significantly during the period 1980-2002. Inter-state deprivation indices for per capita SDP and medical and public health stood at 0.6177 and 0.8294 respectively in 1980-81 while these indices increased further and were noted at 0.6202 and 0.8756 in 2001-2002. However, in case of education, inter state deprivation indices have shown declining trend during the period 1980-2002. Significant to mention that deprivation indices in terms of per capita SDP, per capita expenditure on medical and public health and education for BIMARU states like UP, MP, Orissa, Rajasthan and Bihar were found higher than average deprivation indices throughout during the period 1980-2002. Deprivation indices related to per capita SDP and medical and public health were also found higher than average deprivation indices in case of hill states like Assam, Meghalaya and Tripura. This paper also examines the impact of economic reforms, introduced by Government of India in 1991, on existing inter-state deprivations. For this purpose, the technique of slope as well as intercept dummy variables have been employed with 1991 as shift period, if any. Eventually, empirical results of the paper do not reveal any significant change in deprivation indices in aforesaid parameters during economic reform (1992-2002) than 1980-91. Thus, in view of increasing inter state human poverty in India as obvious through surge in deprivation indices during 1981-2002, there is an urgent need to introduce the reforms for Human Development at State level and to implement it effectively for effective redressel of inter-state poverty in human concerns like per capita SDP, education, medical and public health etc.

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Table-1 Per- Capita State-Domestic Product (at current prices) of States (1981-2002)

States	(Rs.)																			
Year	A.P.	Assam	Bihar	Gujarat	Hara- yana	H.P.	J.& K.	Karn- ataka	Kerala	M.P.	Maha- rastra	Megh- alatya	Naga- land	Orissa	Punjab	Rajasthan	Tamil- nadu	Tripura	U.P.	W.B.
1981	1358	1144	901	1906	2325	1677	1747	1493	1493	1334	2397	1258	1329	1298	2630	1192	1483	1275	1254	1745
1982	1629	1428	1024	2334	2622	1922	1949	1672	1560	1419	2639	1401	1578	1432	3051	1355	1761	1455	1309	1902
1983	1731	1594	1127	2422	2903	2002	2161	1824	1776	1580	2771	1503	1882	1480	3311	1513	1754	1623	1509	2098
1984	2017	1865	1262	3088	3068	2243	2401	2156	2043	1808	3134	1696	2078	1876	3590	1877	1998	1741	1642	2420
1985	2057	2142	1483	3152	3258	2217	2646	2377	2230	1799	3324	1899	2336	1820	4031	1812	2312	1890	1772	2743
1986	2264	2300	1579	3190	3874	2615	2857	2456	2321	2063	3773	2111	2500	2144	4482	1939	2588	2025	1991	2873
1987	2362	2334	1772	3630	3977	2833	3092	2765	2583	2088	3985	2325	2680	2283	4851	2054	2852	2184	2153	3067
1988	2831	2689	1878	3539	4316	3147	2963	3107	2854	2640	4661	2747	3388	2279	5642	2265	3337	2453	2360	3657
1989	3357	2814	2218	4880	5573	3889	3543	3558	3126	3051	5506	2908	3962	2838	6437	3016	3701	3084	2775	3853
1990	4002	3272	2274	5279	6107	4324	3662	3970	3578	3328	6724	3728	4297	3188	7661	3155	4280	3294	3095	4263
1991	4660	4210	2625	5815	7372	4820	3723	4540	4165	3975	7319	4123	4745	3035	8200	4120	4933	3286	3529	4599
1992	5481	4606	2820	6158	8626	5613	4088	5818	5091	4093	8121	4677	5484	3852	9780	4427	5753	3626	4014	5230
1993	5643	4893	2948	8126	8890	6316	4384	6248	5711	4476	9932	5046	6238	4058	11080	5114	6473	3707	4277	5470
1994	6812	5433	3362	8937	10359	6794	5307	7161	6457	5439	11834	5722	7798	4599	12926	5233	7993	4174	4732	6168
1995	7787	5924	3678	11659	12099	7736	5759	8413	7517	5946	13177	6197	8697	5297	14603	6311	9286	4285	5271	7345
1996	9203	6588	3601	12644	13204	8163	5927	9103	8976	6580	15642	7162	9809	6208	15793	6734	10008	4675	5613	8329
1997	10279	6914	4324	14408	15963	7178	6276	10212	10294	7350	17603	7665	11287	5904	17792	8203	11451	4936	6400	9399
1998	10611	7354	4766	15994	17205	7387	5676	11367	11957	7883	18407	6456	8886	6828	19389	8910	12697	5203	6894	10442
1999	10286	7024	4269	15184	16546	9142	6619	10688	10489	7655	17853	8218	10424	6475	19105	8003	11762	5613	6531	9645
2000	10793	7281	4414	15947	17372	9554	6854	30794	11004	8007	18151	8544	10748	6753	20037	8322	12355	5826	6780	10080
2001	10885	7618	5709	14533	15559	9424	6335	11001	11264	10338	18043	7679	8883	6791	18749	7893	12459	6085	6937	9845
2002	11017	7894	4882	15640	16881	9488	6732	11426	11394	8436	19213	7837	10425	6970	19980	8347	12851	5732	7026	10148

Note : State-wise Net Domestic at factor cost (At Current Prices) for the period 1980-81 to 2001-02 have been taken from Handbook of Statistic on the Indian Economy (2006-07), RBI, Mumbai.

**Table-2 Per- Capita Expenditure of States on Education (Rev. Account)
(1981-2002)**

(RS.)

States Year	A.P.	Assam	Bihar	Gujarat	Haryana	H.P.	J&K	Karnatak	Kerala	M.P.	Maha- raht	Megha- laya	Naga- land	Orissa	Punjab	Rajasthan	Tamil- nadu	Tripura	U.P.	W.B.
1981	42	47	33	52	54	102	69	45	83	32	60	129	153	40	81	42	48	77	31	44
1982	50	47	41	58	61	107	81	51	93	37	65	140	153	43	83	48	54	88	34	57
1983	61	54	48	69	68	118	91	62	100	43	73	170	196	50	92	58	68	110	42	71
1984	75	88	51	81	77	132	100	68	114	51	84	175	215	55	105	66	74	131	46	71
1985	85	85	58	112	93	144	120	82	126	57	98	190	241	66	117	78	85	156	54	79
1986	90	97	66	124	101	164	131	91	148	65	112	243	297	69	126	82	106	169	62	88
1987	94	131	60	121	111	187	140	102	169	71	134	259	310	85	132	92	113	218	68	110
1988	112	124	62	146	145	246	171	132	177	86	150	288	369	96	173	113	127	259	74	114
1989	128	130	87	177	159	308	222	147	189	105	175	412	399	122	231	125	140	356	90	135
1990	160	159	127	198	185	344	242	160	213	116	213	444	416	133	270	151	190	364	138	146
1991	150	199	139	219	195	354	265	177	265	136	218	413	414	141	251	182	228	379	149	200
1992	168	242	143	252	214	375	281	209	281	148	258	545	419	168	274	194	256	413	141	189
1993	199	309	146	264	255	428	406	253	324	164	286	545	466	214	322	221	275	457	158	217
1994	206	328	150	312	259	469	403	269	375	175	319	572	665	204	322	260	301	457	159	226
1995	235	353	177	349	296	511	432	301	437	189	354	651	735	237	354	301	329	497	190	242
1996	236	391	215	408	348	585	482	343	461	221	421	675	877	272	398	339	365	518	214	260
1997	280	462	240	416	347	650	481	392	578	237	414	747	685	323	429	372	415	634	248	315
1998	302	453	258	486	442	802	577	431	554	256	545	862	766	342	563	412	474	648	255	327
1999	381	514	251	682	659	1186	699	50	606	340	599	888	851	414	776	522	629	823	351	395
2000	439	618	405	732	666	1410	858	587	798	395	809	1558	953	534	808	570	703	1104	344	644
2001	483	913	483	709	652	1290	896	666	884	411	897	1383	1010	471	921	588	745	1359	392	562
2002	532	969	297	785	724	1378	870	673	902	250	855	1202	1244	410	951	631	781	1409	366	519

- Note :**
1. Figures relating to Expenditure of states on education have been taken from various issues of Report on Currency and Finance (vol. II) (1980-9) and various issues of Monthly Bulletins of RBI (1995-2005).
 2. Per capita expenditure of states on education has been derived by the author on the basis of mid year population estimates of the respective states.

**Table-3 Per capita expenditure on Medical and Public Health (Rev. Account)
(1981-2002)**

(Rs.)

States																				
Year	A.P.	Assam	Bihar	Gujrat	Hara- yana	H.P.	J&K	Karna- taka	Kerala	M.P.	Maha- rastra	Megha- laya	Naga- land	Orissa	Punjab	Rajasthan	Tamil- nadu	Tripura	U.P.	W.B.
1981	22	17	9	21	28	55	44	18	25	22	25	41	135	20	28	23	21	19	13	24
1982	23	19	11	27	35	65	47	22	28	24	34	35	135	23	32	23	29	26	15	27
1983	27	23	12	30	39	62	49	27	28	28	41	19	135	30	33	33	36	28	18	30
1984	34	18	15	35	49	63	63	27	24	33	48	46	180	35	43	35	51	35	24	34
1985	36	38	19	39	61	83	74	37	40	35	52	47	158	37	55	41	42	42	24	34
1986	44	44	20	45	64	104	93	46	43	44	67	62	213	37	58	47	49	53	23	40
1987	47	36	24	59	58	108	102	51	50	48	71	128	272	43	63	53	52	62	32	44
1988	58	62	25	65	69	136	116	58	57	60	72	81	349	49	73	60	62	79	38	46
1989	59	51	27	72	66	149	91	62	66	60	75	123	319	56	100	63	59	106	42	51
1990	47	37	26	58	46	119	99	50	60	38	58	105	220	38	79	48	56	90	40	48
1991	48	48	35	60	49	135	113	53	72	41	60	97	189	42	81	56	67	99	44	63
1992	55	61	46	67	56	144	121	64	75	45	65	114	161	48	87	61	74	96	43	55
1993	60	57	42	72	62	163	150	77	75	48	74	123	175	51	94	71	85	92	50	60
1994	73	71	49	81	55	179	163	82	76	57	82	1335	273	55	104	81	95	114	62	70
1995	78	78	53	92	79	207	191	95	93	62	88	139	253	62	104	95	104	117	59	71
1996	80	78	40	85	78	208	196	88	111	51	91	138	297	67	97	92	112	94	49	80
1997	89	86	51	84	82	225	187	123	119	53	97	135	266	73	119	97	123	114	65	91
1998	100	98	56	132	115	273	243	122	154	75	122	180	316	84	165	120	147	161	86	98
1999	139	87	57	183	157	410	316	140	153	108	130	227	346	112	233	154	179	187	75	148
2000	145	114	97	197	151	425	370	170	168	109	150	350	384	117	243	158	184	1270	76	158
2001	163	150	120	177	156	425	402	188	210	139	165	384	382	132	324	162	192	271	84	176
2002	173	151	70	185	176	430	413	216	214	96	174	300	463	133	328	176	204	274	102	179

- Note:**
- Figures relating to expenditure of states on Medical & Public Health have been taken from various issues of Report on Currency and Finance (vol. II) (1980-1996) and various issues of Monthly Bulletins of RBI (1995-2005).
 - Per capita expenditure of states on Medical & Public Health has been derived by the author on the basis of mid year population estimates of the respective states.

Table: 4 - Per capita State Domestic Product of States (1981-2002) (Current Pricss):**Some Relevant Statistics**

States	Mean	Median	Maximum Value	Minimum Value	Standard Dev.	Skewness	Kurtosis	Jerque-Bera	Probability	No. o Obs.
A.P.	5575.68	5070.50	11017.00	1358.00	7675.19	0.2860	1.4604	2.4728	0.2904	22
Assam	4423.68	4408.00	7894.00	1144.00	2345.29	0.10382	1.4660	2.1966	0.3334	22
Bihar	2859.82	2722.50	5709.00	901.00	1432.99	1.9110	1.4384	1.4384	0.4871	22
Gujrat	8112.05	5986.50	15994.00	1906.00	5308.47	0.3771	1.4904	2.6105	0.2711	22
Harayana	9004.50	7999.00	17372.00	2325.00	5623.17	0.3183	1.5220	2.3739	0.3051	22
H.P.	5385.63	5216.50	9554.00	1677.00	2828.32	0.1381	1.5332	2.0421	0.3602	22
J&K	4304.59	3905.50	6854.00	1747.00	1734.80	0.1025	1.5395	1.9938	0.3690	22
Karnatak	6915.86	5179.00	30794.00	1493.00	6414.84	2.4068	9.7483	62.9832	0.0000	22
Kerala	5812.86	4628.00	11957.00	1493.00	3828.26	0.4138	1.5611	2.5257	0.2828	22
M.P.	4604.00	4034.00	10338.00	1334.00	2761.74	0.4496	1.9192	1.8120	0.4041	22
Maharastra	9736.77	7720.00	19213.00	2397.00	6365.82	0.3121	1.4547	2.5461	0.2799	22
Manipur	4586.46	4400.00	8544.00	1258.00	2557.85	0.1509	1.5134	2.1095	0.3483	22
Nagaland	5884.27	5114.50	11287.00	1329.00	3499.61	0.1883	1.4745	2.2632	0.3225	22
Orissa	3973.09	3520.00	6970.00	1298.00	2077.87	0.2271	1.4823	2.3005	0.3166	22
Punjab	10596.36	8990.00	20037.00	2630.00	6498.27	0.2656	1.4794	2.3781	0.3045	22
Rajasthan	4627.05	4223.50	8910.00	1192.00	2766.64	0.2485	1.4952	2.3020	0.3163	22
Tamil	6549.41	5343.00	12851.00	1483.00	4283.56	0.3119	1.4794	2.4764	0.2899	22
Tripura	3553.27	3460.00	6085.00	1275.00	1581.98	0.1208	1.6768	1.6558	0.4364	22
U.P.	3993.82	3771.50	7026.00	1254.00	2127.72	0.1817	1.4954	2.1962	0.3335	22
W.B.	5696.41	4914.50	10442.00	1745.00	3134.47	0.3200	1.5546	2.2910	0.3180	22

Note: Relevant Statistics have been computed on the basis of data as given in Table 1.

**Table: 5 - Per capita Expenditure of States on Education (Rev. Acc.)
(1981-2002) ; Some Relevant Statistics**

States	Mean	Median	Maximum Value	Minimum Value	Standard Dev.	Skewness	Kurtosis	Jerque-Bera	Probability	No. o Obs.
A.P.	204.91	164.00	532.00	42.00	144.10	0.9253	2.7960	3.1773	0.2042	22
Assam	305.14	220.50	969.00	47.00	264.94	1.2146	3.7079	5.8884	0.0532	22
Bihar	160.77	141.00	483.00	33.00	121.83	1.1298	3.6426	5.0593	0.0796	22
Gujrat	306.90	235.50	785.00	52.00	236.58	0.8337	2.4028	2.8755	0.2375	22
Harayana	277.77	204.50	724.00	54.00	218.10	0.9369	2.5510	3.4037	0.1823	22
H.P.	513.18	364.50	1410.00	102.00	431.58	1.0594	2.7859	4.1573	0.1250	22
J&K	364.41	273.00	896.00	69.00	270.85	0.7624	2.3669	2.4991	0.2866	22
Karnatak	240.50	168.50	673.00	45.00	199.19	1.0258	2.9117	3.8659	0.1447	22
Kerala	358.04	273.00	902.00	83.00	261.44	0.8505	2.5253	2.8588	0.2394	22
M.P.	162.95	142.00	411.00	32.00	114.28	0.7946	2.6592	2.4216	0.2980	22
Maharastra	324.50	238.00	897.00	60.00	263.65	1.0058	2.8332	3.7347	0.1545	22
Manipur	567.77	494.50	1558.00	129.00	405.99	1.0186	3.2163	3.8472	0.1460	22
Nagaland	537.90	417.50	1244.00	153.00	312.32	0.5924	2.3062	1.7278	0.4215	22
Orissa	204.05	154.50	534.00	40.00	151.91	0.7339	2.3264	2.3911	0.3025	22
Punjab	353.59	272.00	951.00	81.00	278.03	1.0331	2.8096	3.9467	0.1389	22
Rajasthan	247.59	188.00	631.00	42.00	192.44	0.7454	2.2238	2.9895	0.2739	22
Tamil	295.72	242.00	781.00	48.00	236.17	0.8613	2.4913	2.9554	0.2281	22
Tripura	483.00	396.00	1409.00	77.00	386.36	1.2067	3.5886	5.6574	0.9590	22
U.P.	163.91	145.00	392.00	31.00	117.28	0.6520	2.1681	2.1931	0.3340	22
W.B.	227.77	194.50	644.00	44.00	171.09	1.0807	3.2126	4.3245	0.1150	22

Note: Relevant Statistics have been computed on the basis of data as given in Table 2.

**Table: 6 - Per Capita Expenditure of States on Medical & Public Health (Rev. Acc)
(1981-2002): Some Relevant Statistics**

States	Mean	Median	Maximum Value	Minimum Value	Standard Dev.	Skewness	Kurtosis	Jerque-Bera	Probability	No. of Obs.
A.P.	72.7272	58.50	173.00	22.00	45.0060	1.0129	2.8941	3.7722	0.1516	22
Assam	64.72	59.00	151.00	17.00	38.52	0.8390	3.0647	2.5850	0.2746	22
Bihar	41.09	37.50	120.00	9.00	27.94	1.2558	4.3448	7.4406	0.0242	22
Gujrat	84.8182	69.50	197.00	21.00	54.6327	0.9809	2.6919	3.6156	0.1640	22
Harayana	78.6818	63.00	176.00	28.00	43.4187	1.1178	2.9279	4.5858	0.1009	22
H.P.	189.4545	146.50	430.00	55.00	125.87	0.9716	2.6393	3.5805	0.1669	22
J&K	165.59	118.50	413.00	44.00	114.9860	1.0326	2.8708	3.9251	0.1404	22
Karnatak	82.54	63.00	216.00	18.00	55.63	0.9735	2.9935	3.4749	0.1759	22
Kerala	88.22	73.50	214.00	24.00	58.25	0.8902	2.6910	2.9934	0.2239	22
M.P.	58.00	49.50	139.00	22.00	30.2797	1.2076	3.7423	5.8527	0.0536	22
Maharastra	83.68	73.00	174.00	25.00	41.0335	0.8454	2.8385	2.6443	0.2665	22
Manipur	191.3182	123.00	1335.00	19.00	273.9057	3.5179	15.2141	182.1290	0.0000	22
Nagaland	255.50	259.50	463.00	135.00	93.6761	0.4038	2.2418	1.1250	0.5698	22
Orissa	61.0909	50.00	133.00	20.00	33.9984	1.0145	2.8533	3.7934	0.1501	22
Punjab	115.59	90.50	328.00	28.00	88.3761	1.3746	3.7646	7.4645	0.0239	22
Rajasthan	79.5000	62.00	176.00	23.00	47.08	0.7995	2.4269	2.6451	0.2664	22
Tamil	91.9546	70.50	204.00	21.00	56.558	0.7556	2.2781	2.5712	0.2765	22
Tripura	155.86	95.00	1270.00	19.00	258.2808	3.8818	17.295	242.57	0.0000	22
U.P.	48.3636	43.50	102.00	13.00	25.1330	0.4299	2.2465	1.1982	0.5492	22
W.B.	73.9546	57.50	179.00	24.00	48.5283	1.1393	3.0056	4.7594	0.0926	22

Note : Relevant Statistics have been computed on the basis of data as given in Table 3.

Table:7- Inter-State Human Poverty : Per Capita State Domestic Product Deprivation Index

	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00	00-01	01-02
A.P.	.7357	.7015	.7234	.6757	.7747	.7640	.8084	.7468	.6874	.6792	.6350	.6177	.6686	.6393	.6239	.5405	.5578	.6003	.5944	.7582	.6031	.5944
Assam	.8595	.8007	.7862	.7410	.7414	.7516	.7850	.7845	.8587	.8147	.7157	.7434	.7608	.7835	.7944	.7550	.8077	.8230	.8143	.8913	.8536	.8007
Bihar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Gujrat	.4187	.3537	.4071	.2156	.3450	.4451	.3966	.5587	.3690	.4422	.4278	.5204	.3633	.4171	.2695	.2583	.2513	.2322	.2643	.5628	.3233	.2807
Harayana	.1764	.2116	.1868	.2242	.3034	.2094	.2839	.3523	.2048	.2885	.1485	.1658	.2693	.2684	.2292	.2124	.1358	.1494	.1725	.5088	.2446	.2007
H.P.	.5512	.5570	.5994	.5786	.7119	.6431	.6554	.6629	.6039	.6195	.6063	.5987	.5858	.6412	.6286	.6258	.7881	.8208	.6715	.8052	.7151	.6907
J&K	.5107	.5437	.5266	.5107	.5436	.5598	.5713	.7117	.6859	.7423	.8030	.8178	.8234	.7966	.8095	.8092	.8551	.9378	.8416	.9075	.9524	.8711
Karnatak	.6576	.6803	.6809	.6160	.6491	.6979	.6775	.6735	.6824	.6852	.6565	.5693	.5942	.6028	.5666	.5487	.5628	.5486	.5673	.0000	.5942	.5628
Kerala	.6576	.7356	.7028	.6645	.7068	.7444	.7366	.7407	.7848	.7579	.7238	.6737	.6602	.6764	.6486	.5591	.5567	.5082	.5807	.7502	.5740	.5628
M.P.	.7496	.8051	.7926	.7655	.8760	.8333	.8974	.7976	.8026	.8043	.7578	.8171	.8121	.7828	.7924	.7557	.7753	.7868	.7718	.8638	.6450	.7007
Maharashtra	.1348	.2033	.2473	.1959	.2775	.2442	.2813	.2606	.2207	.1739	.1580	.2384	.1412	.1142	.1305	.0124	.0140	.0672	.0844	.4793	.0541	.0512
Meghalaya	.7935	.8140	.8278	.8136	.8367	.8167	.8204	.7691	.8365	.7301	.7313	.7332	.7420	.7532	.7694	.7079	.7519	.8844	.7338	.8434	.8489	.8007
Nagaland	.7525	.7267	.6543	.6495	.6652	.6827	.7051	.5988	.5866	.6245	.6197	.6172	.5954	.5362	.5406	.4908	.4830	.7183	.5851	.7599	.7566	.6307
Orissa	.7704	.7987	.8384	.7363	.8677	.8054	.8340	.8935	.8530	.8303	.9265	.8517	.8635	.8707	.8518	.7862	.8827	.8590	.8513	.9113	.9170	.8628
Punjab	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.4078	.0000	.0000
Rajasthan	.8317	.8367	.8233	.7358	.8709	.8760	.9084	.8972	.8109	.8365	.7318	.7691	.7336	.8044	.7590	.7430	.7120	.7166	.7483	.8519	.8325	.7711
Tamil	.6634	.6364	.7129	.6838	.6746	.6524	.6492	.6124	.6485	.6276	.5860	.5786	.5665	.5158	.4867	.4745	.4708	.4576	.4949	.6990	.4824	.4711
Tripura	.7837	.7874	.7729	.7942	.8403	.8464	.8662	.8472	.7947	.8107	.8814	.8842	.9067	.9151	.9444	.9119	.9546	.9701	.9094	.9465	.9712	.9444
U.P.	.7958	.8594	.8251	.8368	.8866	.8581	.8763	.8719	.8680	.8476	.8378	.8284	.8366	.8568	.8542	.8350	.8459	.8545	.8475	.9103	.9058	.8512
W.B.	.5119	.5668	.5554	.5026	.5055	.5546	.5794	.5274	.6125	.6308	.6459	.6537	.6899	.7066	.6643	.6122	.6232	.6118	.6376	.7852	.6828	.6512
\bar{X}	.6177	.6309	.6332	.5970	.6538	.6493	.6666	.6653	.6455	.6473	.6297	.6339	.6307	.6340	.6182	.5819	.6014	.6273	.6086	.7321	.6478	.6207
σX	.2544	.2504	.2446	.2483	.2485	.2467	.2478	.2337	.2523	.2408	.2560	.2440	.2523	.2566	.2670	.2714	.2926	.2986	.2732	.2320	.2892	.2711
C.V.	41.19	39.69	38.63	41.59	38.01	37.99	37.18	35.13	39.08	37.20	40.65	38.49	40.01	40.48	43.18	46.64	48.65	47.60	44.90	31.69	44.64	45.12

Note: The Deprivation Indices (DI's) have been computed on the basis of data as given in Table 1 and mathematical formulation of Eq.2.1.

Table: 8- Inter-State Growth of Human Deprivation in terms of per capita State Domestic Product of states (1981-2002): Regression Results

States	Inter-cept	t	D ₁	D ₂ t	R ²	Adj R ²	RSS	SER	D.W. Statistics	F
A.P.	8.923 (164.48)	-.0071** (-.882)	-.184 (-1.239)	+.0062** (.550)	.523	.444	.127	-.0839	1.593	6.591
Assam	8.990 (275.91)	-.0037** (-.776)	-.210 (-.776)	+.0160* (2.359)	.313	.198	-.0457	-.0504	1.400	2.731
Bihar	---	---	---	---	---	---	---	---	---	---
Gujarat	8.116 (45.905)	+.0250** (.959)	.388 (.801)	-.0494** (-1.339)	.185	.049	1.346	.2734	1.825	1.362
Harayana	7.651 (35.807)	+.0136** (.431)	-.225 (-.385)	+.0017** (.039)	.029	-.133	1.965	.3304	1.846	.177
H.P.	8.664 (158.15)	+.0101** (1.253)	-.240 (-1.599)	+.0138** (1.206)	.512	.431	.129	-.0847	1.724	6.299
J & K	8.430 (223.33)	+.0456* (8.191)	.385 (3.727)	-.0315* (-4.003)	.938	.928	.0613	+.05837	1.519	90.855
Karnataka	8.794 (9.998)	.0023** (0.017)	2.252 (.935)	-.177** (-.965)	.159	.019	33.304	1.3602	2.445	1.138
Kerala	8.820 (159.79)	0.1080** (1.328)	.115 (.761)	-.0236* (-2.055)	.587	.518	.131	.0854	1.702	8.536
M.P.	8.984 (215.43)	.0018** (.287)	.124 (1.083)	-.0106** (-1.218)	.180	.043	.0749	.0645	2.507	1.313
Maharastra	7.639 (14.358)	.00375** (.048)	.01632 (.011)	-.0623** (-.562)	.326	.214	12.185	.8228	1.465	2.908
Meghalaya	9.036 (267.33)	-.00858** (-1.722)	-.305 (-3.292)	.02193* (3.111)	.319	.289	.0491	.05227	2.617	3.884
Nagaland	8.902 (125.05)	-.0183** (-1.740)	-.610 (-3.127)	.04253* (2.865)	.397	.296	.218	.1101	1.747	3.950
Orissa	8.994 (305.83)	.01343* (3.114)	.0387 (.484)	-.00867** (-1.422)	.455	.364	.03681	.04522	2.766	5.00
Punjab	---	---	---	---	---	---	---	---	---	---
Rajasthan	9.038 (209.218)	-.0025** (-.353)	-.191 (-1.612)	.00791** (.878)	.333	.222	.0803	0.668	1.682	2.998
Tamilnadu	8.844 (140.125)	-.01111** (-1.191)	-.183 (-1.061)	.00423** (.324)	.649	.590	.171	.0976	1.871	11.088
Tripura	8.960 (448.9)	.00861* (2.926)	.0739 (1.351)	-.00235** (-.566)	.858	.834	.0171	.03086	1.768	36.159
U.P.	9.026 (514.65)	.0086** (1.492)	-.0749 (-1.560)	.002346** (.642)	.318	.204	.01324	.02712	1.788	2.798
W. B.	8.517 (185.60)	.01924* (2.844)	.257 (2.043)	-.0177** (-1.847)	.684	.632	.0906	.0709	1.577	13.00

Note :

- (i) Figure in the parenthesis are t-ratios.
- (ii) * - denotes statistically significant at 5% level of significance.
- (iii) ** - denotes statistically insignificant at 5% level of significance.
- (iv) D₁=0 – First Dummy variable for pre-economic reform (1981-91) period;
- (v) D₂=1 – Second Dummy variable for post-economic reform (1992-2002) period.

**Table : 9 - Per Capita Inter –state Domestic Product Deprivation (1981-2002) :
Per Annum Growth Rates**

States	Growth rate (in percentage) during		Shift in per annum growth during Post – reform (1992-02) period
	Pre-economic reform era (1980-81&1990-91)	Post -economic reform era (1991-92 & 2001-02)	
A.P.	(-) 0.71	(-)0.09	No shift
Assam	- (0.37)	(+)1.23	Upward shift
Bihar	---	---	---
Gujarat	+ (2.5)	(-)2.44	No shift
Harayana	+ (1.36)	(+) 1.53	No shift
H.P.	+ (1.01)	(+) 2.39	No shift
J & K	+ (4.56)	+ (1.41)	Downward shift
Karnataka	+ (0.23)	- (17.47)	No shift
Kerala	+ (1.08)	- (1.28)	Downward shift
M.P.	+ (0.18)	+ (0.88)	No shift
Maharashtra	+ (0.375)	- (5.885)	No shift
Meghalaya	-(0.858)	+ (1.335)	Upward shift
Nagaland	- (1.83)	+ (2.423)	Upward shift
Orissa	+ (1.43)	+ (0.476)	No shift
Punjab	---	---	---
Rajasthan	- (0.225)	+ (0.566)	No shift
Tamilnadu	- (1.11)	- (0.688)	No shift
Tripura	+ (0.861)	+ (0.626)	No shift
Uttar Pradesh	+ (0.386)	+ (0.620)	No shift
W.B.	+ (1.924)	+ (0.154)	No shift

Note :

Growth rates for pre-economic and Post-economic reform period have been calculated on the basis of coefficients of t and D_2t as given in Table 8.

States	2000-01	2001-02	2002-03	2004-04	2004-05	2005-06 (RE)	2006-07 (BE)
1	2	3	4	5	6	7	8
Andhra Pradesh	13.3	12.5	11.7	11.6	10.0	13.1	11.7
Arunachal Pradesh	6.4	13.3	12.1	9.1	10.7	10.8	8.6
Assam	25.5	21.9	22.4	22.3	17.3	20.8	19.2
Bihar	23.7	20.7	18.4	18.9	15.8	18.4	17.7
Chhattisgarh	13.1	12.4	11.0	10.8	12.3	13.9	13.5
Goa	11.9	10.5	12.0	12.1	13.9	12.6	10.2
Gujarat	13.6	12.7	13.5	11.2	11.5	12.6	12.8
Haryana	14.6	13.8	13.7	10.2	11.6	14.2	14.3
Himanchal Pradesh	17.0	16.2	14.5	12.4	13.5	14.1	15.4
Jammu & Kashmir	11.1	11.6	10.9	11.1	9.7	9.3	9.4
Jharkhand	-	16.2	19.0	14.2	14.9	15.8	15.5
Karnataka	17.7	16.0	14.8	12.9	12.7	14.1	13.2
Kerala	20.0	19.0	17.6	15.7	16.2	16.4	17.6
Madhya Pradesh	16.3	12.5	12.2	9.9	8.8	9.8	12.2
Maharashtra	22.3	22.1	18.9	15.5	14.0	15.4	16.3
Mainpur	20.2	13.7	13.3	13.1	15.3	15.0	12.6
Meghalaya	16.6	17.9	15.3	15.2	15.0	17.4	14.8
Mizoram	16.2	16.0	14.5	12.0	13.8	13.2	13.5
Nagaland	13.8	11.0	11.0	10.8	11.0	10.9	11.6
Orissa	15.9	14.6	14.3	12.2	12.6	13.1	12.6
Punjab	13.2	11.7	12.1	10.2	10.1	11.9	11.4
Rajasthan	18.8	18.2	15.5	14.1	13.8	17.0	16.5
Sikkim	14.2	8.0	7.6	11.8	8.8	10.5	9.4
Tamil Nadu	18.0	17.3	13.8	12.6	11.2	13.2	13.2
Tripura	19.3	18.6	19.2	18.3	20.0	15.2	14.9
Uttaranchal	21.5	21.1	20.0	17.6	18.4	16.2	15.9
Uttar Pradesh	16.8	16.0	14.6	9.1	12.5	15.3	15.2
West Bengal	17.1	16.2	15.9	11.8	14.9	13.4	15.7
NCT Delhi	15.1	13.7	12.1	10.9	13.1	12.9	15.2
All States	17.4	16.1	15.0	12.6	12.7	14.3	14.4
All States (per cent to GDP)	2.9	2.7	2.6	2.4	2.3	2.5	2.4

Source : State Finances : A Study of Budgets of 2006-07, RBI, Mumbai

Table: 11 - Inter-State Human Poverty : Educational (Per Capita) Deprivation Index

	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00	00-01	01-02
A.P.	.9098	.8655	.8766	.8284	.8342	.8809	.8640	.8371	.8738	.8659	.9496	.9332	.8672	.8913	.8961	.9668	.9157	.9226	.7086	.9217	.9082	.75
Assam	.8689	.9808	.9221	.7515	.8342	.8511	.7160	.7980	.8677	.8689	.7734	.7500	.5915	.6544	.6846	.7330	.5588	.6738	.5915	.7743	.4743	.37
Bihar	.9836	.9412	.9610	.9704	.9786	.9830	1.000	1.000	1.000	.9665	.9892	.9950	1.000	1.000	1.000	.9985	.9941	.9951	.8231	.9498	.9082	.95
Gujrat	.8279	.7983	.8247	.7929	.6898	.7362	.7560	.7264	.7231	.7500	.7014	.7252	.7043	.6854	.6918	.7074	.6490	.6194	.4437	.6804	.6801	.53
Harayana	.8115	.7731	.8312	.8166	.7914	.8340	.7960	.7296	.7785	.7896	.7878	.8193	.7268	.7883	.7867	.7979	.7843	.6919	.4639	.7348	.7376	.59
H.P.	.4180	.3866	.5065	.4911	.5187	.5660	.4920	.4007	.3200	.3049	.2158	.4208	.2932	.3806	.4014	.4404	.1902	.0988	.0000	.1219	.0938	.02
J&K	.6885	.6050	.6818	.6805	.6471	.7064	.6800	.6450	.5846	.6159	.5360	.6535	.3484	.5087	.5430	.5958	.5216	.4695	.4287	.5766	.4914	.46
Karnatak	.8852	.8571	.8701	.8698	.8503	.8766	.8320	.7720	.8154	.8659	.8525	.8317	.7318	.7689	.7778	.8054	.6961	.7100	1.000	.7998	.7235	.63
Kerala	.5738	.5042	.6234	.5976	.6150	.6340	.5640	.6254	.6862	.7043	.5360	.6535	.5539	.5631	.5341	.6275	.3314	.5074	.5106	.6260	.5035	.43
M.P.	.9918	.9748	.9935	.9704	.9840	.9872	.9560	.9218	.9446	1.000	1.000	.9827	.9549	.9515	.9785	.9894	1.000	.9984	.7447	.9580	.9808	1.00
Maharashtra	.7623	.7395	.7987	.7751	.7647	.7872	.7040	.7134	.7292	.7043	.7050	.7104	.6491	.6718	.6828	.6878	.6529	.5222	.5167	.6170	.4904	.47
Meghalaya	.1967	.1092	.1688	.2367	.2727	.2298	.2040	.2638	.0000	.0000	.0036	.0000	.0000	.1806	.1505	.3047	.0000	.0000	.2623	0.000	0.000	.17
Nagaland	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0400	.0854	.0000	.3119	.1980	.0000	.0000	.0000	.1216	.1582	.2949	.4984	.3764	.14
Orissa	.9262	.9244	.9481	.9467	.9358	.9702	.9000	.8893	.8923	.9482	.9820	.9332	.8296	.8951	.8925	.9125	.8314	.8567	.6796	.8435	.9203	.86
Punjab	.5902	.5882	.6753	.6509	.6631	.7277	.7120	.6384	.5569	.5305	.5863	.6708	.5589	.6660	.6828	.7225	.6235	.4926	.3609	.6178	.4662	.39
Rajasthan	.9098	.8824	.8961	.8817	.8717	.9149	.8720	.8339	.8831	.8933	.8345	.8688	.8120	.7864	.7778	.8115	.7353	.7414	.5845	.8138	.8022	.67
Tamil	.8607	.8319	.8312	.8343	.8342	.8128	.7880	.7883	.8369	.7744	.6691	.7153	.6767	.7063	.7276	.7722	.6510	.6392	.4903	.7043	.6438	.54
Tripura	.6230	.5462	.5584	.4970	.4545	.5447	.3680	.3583	.1723	.2439	12.59	.3267	.2206	.4039	.4265	.5415	.2216	.3526	.3195	.3749	.0242	.00
U.P.	1.000	1.000	1.000	1.000	1.000	1.000	.9680	.9609	.9908	.9329	.9532	1.000	.9699	.9825	.9767	1.000	.9784	1.000	.7350	1.000	1.000	.89
W.B.	.8934	.8067	.8117	.8521	.8663	.8894	.8000	.8306	.8523	.9085	.7698	.8812	.8221	.8524	.8835	.9306	.8471	.8814	.6963	.7529	.8285	.76
\bar{X}	.7361	.7013	.7390	.7222	.7203	.7466	.6986	.6866	.6774	.6877	.6486	.7092	.6254	.6669	.6747	.7173	.6152	.6166	.5327	.6682	.6027	.53
σX	.2631	.2704	.2581	.2490	.2469	.2499	.2530	.2466	.2999	.2934	.3157	.2572	.2746	.2587	.2617	.2471	.2931	.2896	.2223	.2556	.2998	.28
C.V.	35.75	38.55	34.92	34.48	34.27	33.47	36.21	35.91	44.27	42.67	48.67	36.27	43.90	38.78	38.79	34.45	47.64	46.97	41.73	38.25	49.74	53

Note: The Deprivation Indices (DI's) have been computed on the basis of data as given in Table 2 and mathematical formulation of Eq.2.1.

Table: 12 - Inter-State Growth of Human Deprivation in terms of per capita expenditure on Education : Regression results

States	Inter-cept	t	D ₁	D ₂ t	R ²	Adj R ²	RSS	SER	D.W. Statistics	F
A.P.	9.058 (198.41)	.00239** (.354)	.219 (1.755)	-.0140** (-1.472)	.150	.008	.0897	.0706	2.33	1.057
Assam	9.101 (98.117)	- 0.117** (-.852)	.261 (1.028)	-.0262** (-1.353)	.656	.599	.370	.1434	1.776	11.46
Bihar	9.171 (357.62)	.003051** (.807)	.175 (2.493)	-.0132* (-2.465)	.325	.213	.0283	.03966	2.355	2.89
Gujarat	9.015 (143.15)	- .0142** (-1.524)	.165 (.965)	-.0101** (.772)	.578	.507	.171	.0974	2.255	8.205
Harayana	9.006 (127.38)	- .00436** (-.418)	.326 (1.682)	-.0228** (-1.544)	.409	.310	.215	.1093	2.199	4.147
H.P.	8.640 (12.218)	-.0554** (-.531)	3.856 (1.991)	-.265** (-1.797)	.486	.400	21.527	1.0936	2.169	5.670
J & K	8.858 (100.30)	-.0154** (-1.186)	-.233 (-.965)	.009451** (.513)	.513	.432	.366	.1366	2.635	6.327
Karnataka	9.080 (157.65)	-.00548** (-.645)	.00317 (.020)	-.00271** (-.225)	.326	.214	.143	.0891	1.753	2.915
Kerala	8.634 (89.56)	.01171** (.824)	.296 (1.119)	-.0333** (-1.656)	.306	.191	.400	.1491	2.505	2.65
M.P.	9.192 (217.22)	-.00127** (-.204)	.02204 (.190)	-.00166** (-.188)	.042	-.118	.07708	.0654	2.080	.261
Maharastra	8.974 (213.15)	-.0101** (-1.622)	.375 (3.254)	-.0280* (-3.193)	.846	.820	.0763	.0651	2.026	32.88
Meghalaya	9.242 (5.923)	-.493* (-2.143)	-5.399 (-1.263)	.545** (1.676)	.278	.158	104.80	2.4129	1.759	2.310
Nagaland	1.468 (1.103)	.262** (1.336)	-.406 (-1.111)	.04422** (.159)	.497	.413	76.304	2.059	1.543	5.92
Orissa	9.138 (210.54)	.000437** (.068)	.0367 (.309)	-.00743** (-.820)	.356	.249	.0811	.0671	1.899	3.318
Punjab	8.796 (91.838)	-.00902** (-.639)	.638 (2.433)	-.0387** (-1.940)	.462	.372	.395	.1481	1.732	5.147
Rajasthan	9.111 (193.27)	-.00489** (-.703)	.118 (.917)	-.0124** (-1.257)	.613	.549	.0957	.0729	2.412	9.515
Tamilnadu	9.085 (159.52)	-.0154** (-1.836)	.102 (.654)	-.00802** (-.675)	.693	.642	.140	.0881	2.184	13.54
Tripura	9.060 (12.701)	-.142** (-1.350)	4.335 (2.219)	-.219** (-1.431)	.477	.390	21.903	1.1031	0.820	5.47
U.P.	9.228 (214.80)	-.00598** (-.944)	.0784 (.667)	-.00239** (-.267)	.167	.028	.0795	.0664	2.62	1.204
W. B.	9.053 (214.79)	-.00230** (-.371)	.210 (1.823)	-.0119** (-1.351)	.241	.114	0.765	.0652	2.067	1.904

Note :

- (i) Figure in the parenthesis are t-ratios.
- (ii) * - denotes statistically significant at 5% level of significance.
- (iii) ** - denotes statistically insignificant at 5% level of significance.
- (iv) D₁=0 – First Dummy variable for pre-economic reform (1981-91) period;
- (v) D₂=1 – Second Dummy variable for post-economic reform (1992-2002) period.

**Table:13 - Inter-State Education (Per Capita) Expenditure Deprivation (1981-2002):
Per Annum Growth Rates**

States	Growth rate (in percentage) during		Shift in per annum growth during Post-reform (1992-02) period
	Pre-economic reform era (1980-81&1990-91)	Post -economic reform era (1991-92 & 2001-02)	
A.P.	(+) 0.239	(-)1.16	No shift
Assam	(-) 1.17	(-)3.79	No shift
Bihar	(+).305	(-)1.015	Downward shift
Gujarat	(-)1.42	(-)2.43	No shift
Harayana	(-) 0.44	(-)2.72	No shift
H.P.	(-) 5.54	(-)32.04	No shift
J & K	(-)1.54	(-)0.59	No shift
Karnataka	(-)0.548	(-)0.819	No shift
Kerala	(+) 1.171	(-)2.159	No shift
M.P.	(-) 0.127	(-)0.293	No shift
Maharashtra	(-) 1.01	(-)3.81	Downward shift
Meghalaya	(-) 49.3	(-)103.8	No shift
Nagaland	(+) 26.2	(+) 30.06	No shift
Orissa	(+) 0.044	(-)0.699	No shift
Punjab	(-) 0.902	(-)4.77	No shift
Rajasthan	(-) 0.489	(-)1.729	No shift
Tamilnadu	(-) 1.54	(-)2.342	No shift
Tripura	(-) 14.20	(-)36.10	No shift
Uttar Pradesh	(-) 0.598	(-)0.837	No shift
W.B.	(-) 0.23	(-)1.42	No shift

Note : Growth rates for Pre-economic and Post-economic reform period have been calculated on the basis of coefficients of t and D₂t as given in Table 12.

States	2000-01	2001-02	2002-03	2004-04	2004-05	2005-06 (RE)	2006-07 (BE)
1	2	3	4	5	6	7	8
Andhra Pradesh	4.7	4.4	4.0	3.7	3.2	3.5	3.4
Arunachal Pradesh	5.0	4.9	4.5	3.5	4.5	3.3	3.2
Assam	4.7	4.2	3.7	3.5	2.9	4.3	4.9
Bihar	5.9	4.9	4.2	3.8	3.1	4.6	4.4
Chhattisgarh	4.1	4.3	4.0	3.3	3.3	3.8	4.7
Goa	4.4	3.8	4.0	4.5	4.7	4.9	3.7
Gujarat	3.4	2.8	3.2	2.7	2.8	3.1	3.2
Haryana	3.3	3.0	3.3	2.4	2.7	3.1	3.5
Himanchal Pradesh	5.6	4.9	4.5	4.3	4.6	4.4	4.6
Jammu & Kashmir	4.9	5.5	5.2	5.5	4.9	4.5	4.7
Jharkhand	-	4.9	4.2	4.1	3.7	6.9	6.3
Karnataka	5.1	4.9	4.2	3.4	3.0	3.5	3.5
Kerala	5.3	5.8	4.8	4.3	4.5	5.0	4.9
Madhya Pradesh	5.1	4.1	4.1	3.3	3.1	3.6	3.9
Maharashtra	3.9	4.3	3.7	3.2	2.7	3.3	3.4
Mainpur	4.8	3.4	2.9	3.2	2.6	2.9	3.1
Meghalaya	5.6	6.6	5.9	5.5	4.9	5.0	4.7
Mizoram	5.4	5.4	5.0	5.0	4.3	3.8	3.9
Nagaland	5.2	4.1	4.6	4.0	5.7	3.8	3.9
Orissa	4.2	3.7	3.8	3.2	4.0	4.2	3.7
Punjab	4.5	3.9	3.5	3.0	2.9	3.6	3.7
Rajasthan	5.2	5.2	4.2	4.0	3.7	4.6	4.5
Sikkim	3.7	2.2	2.0	2.9	2.6	2.6	2.2
Tamil Nadu	4.9	4.9	4.1	3.8	3.2	4.2	4.0
Tripura	4.0	3.7	3.8	3.4	3.5	4.8	5.1
Uttaranchal	3.1	4.4	3.8	3.4	3.9	4.8	5.2
Uttar Pradesh	4.0	3.6	3.8	2.7	3.8	5.4	6.4
West Bengal	5.6	5.0	4.9	3.7	4.2	4.1	4.5
NCT Delhi	7.2	6.7	6.3	6.0	6.6	7.1	8.4
All States	4.7	4.4	4.1	3.5	3.5	4.2	4.4
All States (per cent to GDP)	0.77	0.73	0.69	0.66	0.63	0.72	0.74

Source : State Finances : A Study of Budgets of 2006-07, RBI, Mumbai

Table: 15 - Inter-State Human Poverty : Medical & Public Health (Per Capita) Deprivation Index

	80-81	81-82	82-83	83-84	84-85	85-86	86-87	87-88	88-89	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00	00-01	01-02
A.P.	.8968	.9032	.8780	.8848	.8777	.8756	.9073	.8981	.8904	.8918	.9156	.8983	.8647	.9813	.8750	.8444	.8233	.8308	.7677	.9422	.7683	.9422
Assam	.9365	.9355	.9106	.9818	.8633	.8756	.9516	.8858	.9178	.9433	.9156	.8475	.8872	.9829	.8751	.8521	.8372	.8385	.9150	.9682	.8065	.9516
Bihar	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	.9746	1.000	1.000	1.000	1.000	1.000	1.000	1.000	.9824	.8944	1.000
Gujrat	.9048	.8710	.8537	.8788	.8561	.8705	.8589	.8765	.8459	.8351	.8377	.7966	.7744	.9751	.8050	.8249	.8465	.7077	.6431	.8987	.7273	.9422
Harayana	.8492	.8065	.7805	.7939	.6978	.7720	.8629	.8642	.8664	.8969	.9091	.8898	.8496	.9953	.8700	.8521	.8558	.7731	.7167	.9372	.7889	.9422
H.P.	.6349	.5645	.5935	.7091	.5396	.5648	.6613	.6574	.5822	.5206	.3506	.1441	.0902	.8989	.2300	.3463	.1907	.1654	.0000	.7077	.0000	.8113
J&K	.7222	.7097	.6992	.7091	.6043	.6218	.6855	.7191	.7808	.6237	.4935	.3390	.1880	.9114	.3100	.3930	.3674	.2808	.2663	.7538	.0674	.8222
Karnatak	.9286	.9113	.8780	.9273	.8705	.8653	.8911	.8981	.8801	.8763	.8831	.8220	.7368	.9743	.7900	.8132	.6651	.7462	.7649	.9213	.6950	.9286
Kerala	.8730	.3629	.8699	.9455	.8489	.8808	.8952	.9012	.8664	.8247	.7597	.7288	.7477	.9658	.7100	.6926	.5209	.6269	.6856	.8878	.6188	.0000
M.P.	.8968	.8952	.8699	.8909	.8849	.8756	.9032	.8920	.8870	.9381	.9610	.9831	.9549	.9938	.9550	.9572	.9907	.9269	.8555	.9724	.8387	.9813
Maharashtra	.8730	.8145	.7642	.8000	.7626	.7565	.8105	.8549	.8356	.8351	.8377	.8136	.7594	.9743	.8250	.8016	.7860	.7462	.7932	.9380	.7625	.9422
Meghalaya	.7460	.8065	.9431	.8121	.7986	.7824	.5806	.8272	.6712	.5928	.5974	.3983	.3910	.0000	.5700	.6187	.6093	.5231	.5184	.7705	.1202	.8813
Nagaland	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.8258	.0000	.0000	.0000	.0000	.0000	.1813	.7420	.1261
Orissa	.9127	.9032	.8537	.8788	.8705	.9119	.9234	.9259	.9007	.9381	.9545	.9576	.9323	.9953	.9550	.8949	.8977	.8923	.8442	.9657	.8592	.9613
Punjab	.8492	.8306	.8293	.8303	.7410	.8031	.8427	.8519	.7500	.7268	.7013	.6271	.6090	.9572	.7450	.7782	.6837	.5808	.5014	.8601	.2962	.8613
Rajasthan	.8889	.9032	.8293	.8788	.8417	.8601	.8831	.8920	.8767	.8866	.8636	.8475	.7820	.9751	.7900	.7977	.7860	.7538	.7252	.9313	.7713	.9422
Tamil	.9048	.8548	.8049	.7818	.8345	.8497	.8871	.8858	.8904	.8454	.7922	.7373	.6767	.9642	.7450	.7198	.6651	.6500	.6544	.9095	.6833	.9365
Tripura	.9206	.8790	.8699	.8788	.8345	.8290	.8468	.8333	.7295	.6701	.5844	.5508	.6241	.9495	.6800	.7899	.7070	.5962	.6317	.0000	.4516	.8913
U.P.	.9683	.9677	.9512	.9455	.9640	.9845	.9677	.9599	.9486	.9278	.9416	1.000	.9398	.9899	.9700	.9650	.9349	.8846	.9490	1.000	1.000	.9813
W.B.	.8810	.8710	.8537	.8848	.8921	.8964	.9194	.9352	.9178	.8866	.8182	.8983	.8647	.9837	.9100	.8444	.8140	.8385	.7422	.9313	.7302	.9422
\bar{X}	.8294	.8145	.8016	.8206	.7791	.7938	.8139	.8279	.8019	.7830	.7558	.7127	.6835	.9147	.7305	.7393	.6991	.6681	.6578	.8510	.6003	.8713
σX	.2074	.2078	.2034	.2035	.2080	.2080	.2125	.2037	.2074	.2199	.2407	.2788	.2851	.2137	.2584	.2346	.2529	.2526	.2508	.2124	.2996	.2074
C.V.	25.01	25.51	25.37	24.80	26.69	26.20	26.10	24.60	25.86	28.09	31.84	39.11	41.72	23.36	35.38	31.73	36.18	37.81	38.12	24.95	49.91	23.36

Note: The Deprivation Indices (DI's) have been computed on the basis of data as given in Table 3 and mathematical formulation of Eq. 2.1.

Table: 16 - Inter-State Growth of Human Deprivation in terms of Per Capita Expenditure on Medical & Public Health : Regression Results

States	Inter-cept	t	D ₁	D ₂ t	R ²	Adj R ²	RSS	SER	D.W. Statistics	F
A.P.	9.088 (234.67)	.001436* (.2520)	.0709 (.669)	-.00695** (-.861)	.122	-.024	.0645	.0598	2.64	.836
Assam	9.135 (248.03)	-.00149** (-.0275)	-.0859 (-0.852)	.00388** (0.505)	.123	-.023	.0584	.0569	2.40	.840
Bihar	---	---	---	---	---	---	---	---	---	---
Gujarat	9.094 (150.52)	-.00530** (-.595)	-.0574 (-.347)	.00291** (.231)	.151	.009	.157	.0934	2.310	1.065
Harayana	8.938 (163.08)	.01328** (1.644)	.220 (1.466)	-.0192** (-1.684)	.197	.063	.129	.0848	1.877	1.471
H.P.	8.831 (9.078)	-.0300** (-.209)	.260 (.098)	-.0833** (-.411)	.251	.126	40.72	1.504	2.834	2.011
J & K	8.908 (24.681)	-.0176** (-.331)	-.629 (-6.37)	.009711** (.129)	.302	.185	5.608	.5582	3.121	2.590
Karnataka	9.120 (153.02)	-.00401** (-.457)	-.139 (-.854)	.00438** (.352)	.305	.189	.153	.0922	2.59	2.64
Kerala	9.116 (11.131)	-.00846** (-.070)	4.425 (1.973)	-.302** (-1.767)	.328	.216	28.87	1.266	1.365	2.93
M.P.	9.07 (327.36)	.00558** (1.367)	.210 (2.679)	-.0130* (-2.25)	.414	.316	.0331	.0429	2.684	4.239
Maharastra	8.983 (176.99)	.0023** (.431)	-.0404 (-.291)	.00142** (.134)	.048	-.111	.111	.0785	2.17	0.300
Meghalaya	9.099 (10.169)	-.0331** (-.251)	-4.084 (-1.666)	.204** (1.069)	.199	.065		1.3837	2.48	1.489
Nagaland	---	---	---	---	---	---	---	---	---	---
Orissa	9.074 (334.61)	.00636** (1.591)	.151 (2.033)	-.0119** (-2.112)	.234	.106	.0317	.0419	2.198	1.128
Punjab	9.068 (58.60)	-.0147** (-.642)	.129 (.304)	-.00954** (-.296)	.223	.094	1.031	.2393	2.90	1.724
Rajasthan	9.073 (182.75)	.000236** (.032)	-.0760 (-.559)	.000932** (.090)	.148	.006	.106	.0768	2.449	1.040
Tamilnadu	9.050 (120.52)	.000863** (-.078)	-.231 (-1.123)	.00697** (.445)	.262	.139	.243	.1161	2.13	2.13
Tripura	9.205 (10.142)	-.0362** (-.270)	2.086 (.839)	-.144** (-.763)	.164	.025	35.45	1.4034	2.27	1.18
U.P.	9.182 (470.80)	-.00257** (-.893)	-.0176 (-.329)	.00317** (.779)	.064	-.092	.0614	.0302	1.411	.409
W. B.	9.086 (193.13)	.000539** (.078)	.129 (.999)	-.00968** (-.987)	.129	-.016	.0953	.0728	2.55	.890

Note :

- (vi) Figure in the parenthesis are t-ratios.
- (vii) * - denotes statistically significant at 5% level of significance.
- (viii) ** - denotes statistically insignificant at 5% level of significance.
- (ix) D₁=0 – First Dummy variable for pre-economic reform (1981-91) period;
- (v) D₂=1 – Second Dummy variable for post-economic reform (1992-2002) period

**Table: 17 - Inter-state Medical & Public Health (Per Capita) Expenditure Deprivation (1981-82) :
Per Annum Growth Rates**

States	Growth rate (in percentage) during		Shift in per annum growth during Post – reform (1992-02)period
	Pre-economic reform era (1980-81 & 1990-91)	Post -economic reform era (1991-92 & 2001-02)	
A.P.	(+) 0.1436	(–) 0.55	No shift
Assam	(–) 0.149	(+) 0.239	No shift
Bihar	---	---	---
Gujarat	(–) 0.53	(–) 0.23	No shift
Harayana	(+) 1.328	(–) 0.592	No shift
H.P.	(–) 3.00	(–) 11.33	No shift
J & K	(–) 1.76	(–) .789	No shift
Karnataka	(–) 0.401	(–) 0.037	No shift
Kerala	(–) 0.846	(–) 31.046	No shift
M.P.	(+) 0.558	(–) 0.742	Downward shift
Maharashtra	(+) 0.23	(+) 0.372	No shift
Meghalaya	(–) 3.31	(+) 17.09	No shift
Nagaland	---	---	---
Orissa	(+) 0.636	(–) 0.554	No shift
Punjab	(–)1.47	(–) 2.424	No shift
Rajasthan	(+) 0.024	(+) 0.1168	No shift
Tamilnadu	(+) 0.086	(+) 0.783	No shift
Tripura	(–) 3.62	(–) 18.02	No shift
Uttar Pradesh	(–) 0.257	(+) 0.06	No shift
W.B.	(+) 0.054	(–) 0.914	No shift

Note : Growth rates for Pre-economic and Post-economic reform period have been calculated on the basis of coefficients of t and D_2t as given in Table 16.