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## Introduction

Gujarat has been and continues to be amongst the leading States of India from the economic development perspective. The domestic product of the State accounts for more than 7 per cent of the net domestic product of the country at fixed (2004-05) prices. In recent years, the growth of the economy of the State has been faster than the growth of the national economy which has resulted in an accelerated increase in the average individual income in real terms. Latest information suggests that the per capita income in the State at real terms is the ninth highest in India. Among the major States of the country, States with a population of at least 20 million at the 2011 population census, Gujarat has third highest per capita income at 2004-05 prices in the year 2010-11.

The bright economic development perspective of Gujarat is however in sheer contrast to its human development scenario which, at best, can be termed as average by national context. The latest National Human Development Report of India suggests that although the human development index in Gujarat remains well above the national level, yet the progress in human development has been slow in the State so that the State has slipped in terms of ranking in human development index vis-a-vis other States/Union Territories of the country. Similarly, despite rapid economic progress, very close to one fourth of the population of the State continues to live below the poverty line according to estimates prepared by the Planning Commission.

The contrasting economic growth and development and human development and population scenario in Gujarat suggests that there is a disconnect between the pace of the growth in the economy and the progress in terms of human development and population transition. The rapid economic growth and development that the State has witnessed in recent years does not appear to have translated in an acceleration in human development and transition in population.

In this paper, we attempt to analyse the disconnect between economic growth and human development that is so pervasive in Gujarat. We also attempt to explore and identify factors or conditions that appear to be responsible for this disconnect and suggest some policy and programme measures that can connect economic growth and development processes with human welfare programmes and activities in a manner that the dividends of rapid economic growth and development are translated into an accelerated yet sustained improvements in the human development situation in the State.

The paper is organised as follows. The next section of the paper presents an analytic overview of human development scenario of the State. In addition to analysing the trend in the human development index, this section focuses on social class and regional disparities in different dimensions of human welfare that are relevant to human development and the quality of life. Moreover, an attempt has also been made to identify those dimensions of human welfare which are lagging behind in the State.

## Human Development in Gujarat

Human development is all about expanding the real freedom that the people enjoy. The focus of human development is on the removal of major forces of unfreedom, the most important of which are poverty, systematic social and gender deprivation and neglect of public services. Theoretical underpinnings of human development are located in the capability approach – what people are capable of doing and being (functionings). Capability is a set of functionings that reflects the freedom of an individual to make choices of desired livings. Dimensions of capability include endowment, individual capacity and social opportunity. The three dimensions are complementary and reinforce each other. The paradigm of human development, therefore, has three core values: 1) sustenance – the ability to keep the individual alive; 2) self-esteem; and 3) freedom from servitude and poverty. As such, human development encompasses: 1) formation or expansion of human capabilities; and 2) creating opportunities in the social and economic production system so that people can effectively use the capabilities that they have gained for their own benefit as well as for the benefit of the society and the economy.

Human development index (HDI) is the universally used indicator to measure and monitor the progress towards human development. HDI is a composite index which reflects the three core values of human development: 1) sustenance measured in terms of the expectation of life at birth; 2) self-esteem measured in terms of educational status; and 3) freedom from servitude and poverty measured through per capita income. HDI has been developed with the explicit purpose shifting the focus of development from increasing average income to human welfare and quality of life.

Estimates of HDI for Gujarat are available from the National Human Development Reports for different years of the period 1980 through 2010 (Government of India, 2002; 2011). The 2002 report provides estimates of HDI for India and States for the years 1981, 1991 and 2001. On the other hand, the 2011 report provides estimates of HDI for India and States for the period 1999-2000 and 2007-08. Estimates of HDI available from the two reports are not strictly comparable because of different indicators used in the estimation of HDI. The 2001 report has used the following indicators for the estimation of HDI:

Health attainment	Expectation of life at age 1 Infant mortality rate
Education attainment	Literacy rate (7 years and above) Intensity of formal education
Economic attainment	Per capita real consumption expenditure adjusted for inequality

On the other hand, the 2011 report uses the following indicators for estimating HDI:

Health attainment	Expectation of life at age birth
Education attainment	Literacy rate (7 years and above) Adjusted mean years of schooling
Economic attainment	Per capita real consumption expenditure adjusted for inequality

Estimates of HDI for India and for its major States are given in table 1 for the years 1981 and 1991 and for the periods 1999-2000 and 2007-08. HDI in Gujarat increased from 0.360 in 1981 to 0.527 during 2007-08, an absolute increase of 0.167 points over a period of around 26 years. During the same period, the HDI in India increased from 0.302 to 0.467 implying an absolute increase of 0.165 points which suggests that increase in HDI in Gujarat has been a shade faster than the increase in HDI in India as a whole (Figure 1). However, the rank of Gujarat in HDI vis-a-vis other major States of India decreased from 4 in 1981 to 6 in 1991 and since then it appears to have remained unchanged. During the period between 1981 and 2007-08, the absolute increase in HDI in Gujarat has been larger than the absolute increase in HDI in only four States - Uttar Pradesh, Madhya Pradesh, Bihar and Orissa. Even in Rajasthan, the increase in HDI between 1981 and 2007-08 has been larger than that the absolute increase in HDI in Gujarat in absolute terms (Table 1).

On the other hand, increase in HDI in Gujarat between 1999-2000 and 2007-08 has been significantly slower than in India as a whole. In India, the HDI increased by 0.080 absolute points during this period whereas in Gujarat, HDI increased by only 0.061 absolute points. In fact, the absolute increase in HDI in Gujarat between 1999-2000 and 2007-08 has been larger than the increase in HDI in only two States - Rajasthan and Haryana - and has been substantially slower than the increase in Kerala, Assam, Andhra Pradesh and even in Madhya Pradesh, Uttar Pradesh and Orissa which are categorised amongst the poorest States of the country.

Table 1 also suggests that human development situation in Gujarat has been and continues to be substantially poorer than the human development situation in Kerala, the leading State of India in terms of human progress, not only in terms of the level of human development but also the in terms of the pace of improvement as is reflected through the HDI. The increase in HDI in Gujarat has also been slower than the increase in HDI in Karnataka, West Bengal, Andhra Pradesh, Assam and Rajasthan, although the level of HDI in these States is lower than that in Gujarat. Obviously, Gujarat needs especial efforts towards human welfare and improvements in the quality of life of the people which get reflected in an acceleration in the improvement in HDI.

Figure 1  
HDI in Gujarat and India

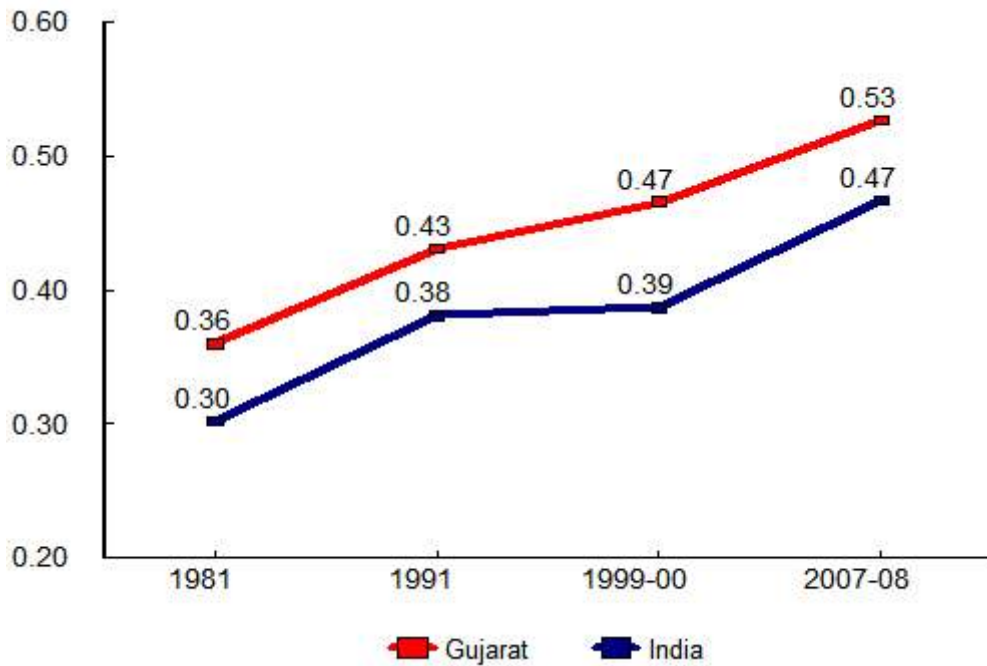


Table 1  
HDI in major States of India

Country/State	1981	1991	1999-00	2007-08	Increase	
					1981/ 2007-08	1999-2000/ 2007-08
Kerala	0.500	0.591	0.677	0.790	0.290	0.113
Punjab	0.411	0.475	0.543	0.605	0.194	0.062
Maharashtra	0.363	0.452	0.501	0.572	0.209	0.071
Tamil Nadu	0.343	0.466	0.480	0.570	0.227	0.090
Haryana	0.360	0.443	0.531	0.552	0.192	0.021
Gujarat	0.360	0.431	0.466	0.527	0.167	0.061
Karnataka	0.346	0.412	0.432	0.519	0.173	0.087
West Bengal	0.305	0.404	0.422	0.492	0.187	0.070
Andhra Pradesh	0.298	0.377	0.368	0.473	0.175	0.105
Assam	0.272	0.348	0.336	0.444	0.172	0.108
Rajasthan	0.256	0.347	0.387	0.434	0.178	0.047
Uttar Pradesh	0.255	0.314	0.316	0.380	0.125	0.064
Madhya Pradesh	0.245	0.328	0.285	0.375	0.130	0.090
Bihar	0.237	0.308	0.292	0.367	0.130	0.075
Orissa	0.267	0.345	0.275	0.362	0.095	0.087
<b>India</b>	<b>0.302</b>	<b>0.381</b>	<b>0.387</b>	<b>0.467</b>	<b>0.165</b>	<b>0.080</b>

Source: Government of India (2002; 2011)

## Decomposition of the Change in Human Development Index

Traditionally, the human development index (HDI) has been calculated as the simple, unweighted, average of three indexes - index of economic attainment (I), index of health attainment (H) and index of education attainment (E). More specifically,

$$HDI = (I + H + E)/3 \quad (1)$$

Equation (1) suggests that the change in human development index D may be examined in terms of the change in the index of economic attainment (I), index of health attainment (H), and index of education attainment (E). Similarly, the difference in the index D between two States can also be examined in terms of the difference in I, difference in H and the difference in A. It is straightforward to show that

$$HDI_2 - HDI_1 = (I_2 - I_1)/3 + (H_2 - H_1)/3 + (E_2 - E_1)/3 \quad (2)$$

There are two problems in the above formulation of the human development index. First, it does not take into account the interaction between income, health and education. It is well known that the level of income, status of health and achievements in education are inter-related so that change in income levels induces a change in the health status and achievement in education. Similarly, it is well known that improvements in health and better achievements in education contribute to increase in income. However, the human development index defined by equation (1) treats economic attainments in the three dimensions of human development independent of each other.

The human development index defined by equation (1) is essentially an example of additive aggregation. An undesirable property of additive aggregation is full compensability it implies, whereby poor attainment in one dimension of human development index can be compensated by sufficiently higher attainment in other components of human development.

In order to circumvent the two problems which constitute the main critique of the traditional human development index (HDI), the human development index is now calculated on the basis of the geometric mean rather than the arithmetic mean of attainment indexes in the three dimensions of human development (United Nations, 2011). This modified human development index, to be denoted by the index *D* is calculated as:

$$D = \sqrt[3]{I * H * E} \quad (3)$$

$$D = i * h * e$$

$$i = \sqrt[3]{I}, etc.$$

United Nations now estimates the human development index for its member countries on the basis of equation (3). The HDI estimated in the National Human Development Reports are however based on equation (1).

Estimates of the modified human development index  $D$  for India and its constituent States for the period 1999-2000 and 2007-08 are presented in table 2 along with the absolute increase in the index between 1999-2000 and 2007-08. It may be seen from the table that estimates of the modified human development index  $D$  is invariably lower than the traditional human development index presented in table 1. For India as a whole the index  $D$  is estimated to be 0.366 for the period 1999-2000 and 0.443 for the period 2007-08. Similarly, the index  $D$  is estimated to be 0.453 and 0.514 during 1999-2000 and 2007-08 respectively in Gujarat. The reason that the index  $D$  based on equation (3) is invariably less than the traditional human development index based on equation (1) is that the index  $D$  takes into consideration the inequality in attainment in different dimensions of human development whereas the traditional human development index does not take into consideration this inequality in attainment in different dimensions of human development.

Table 2  
The index  $D$  in India and States

India/States	1999-2000	2007-08	Increase
Kerala	0.656	0.780	0.124
Punjab	0.538	0.600	0.062
Maharashtra	0.476	0.546	0.070
Tamilnadu	0.457	0.546	0.089
Haryana	0.497	0.542	0.045
Gujarat	0.453	0.514	0.061
Karnataka	0.410	0.498	0.088
West Bengal	0.386	0.455	0.069
Andhra Pradesh	0.341	0.452	0.111
Assam	0.298	0.421	0.122
Rajasthan	0.376	0.409	0.034
Uttar Pradesh	0.298	0.344	0.046
Madhya Pradesh	0.256	0.339	0.082
Bihar	0.239	0.308	0.069
Orissa	0.220	0.315	0.095
India	0.366	0.443	0.077

Source: Author's calculations

Table 2 suggests that the increase in the index  $D$  in Gujarat has been the fourth slowest during the period 1999-2000 through 2007-08. Only three States - Haryana, Rajasthan and Uttar Pradesh - have recorded slower improvement in the index  $D$  than the improvement in Gujarat. In Kerala and Assam, on the other hand, the absolute increase in the index  $D$  has been nearly two times the absolute increase in the index  $D$  in Gujarat. Even in States like Bihar and Madhya Pradesh, the absolute increase in the index  $D$  has been larger than that in Gujarat during the period under reference.



It is straightforward to show that the change in the modified human development index  $D$  can be decomposed as:

$$D_2 - D_1 = (i_2 - i_1)*h_1*e_1 + (h_2 - h_1)*i_1*e_1 + (e_2 - e_1)*i_1*h_1 + (i_2 - i_1)*(h_2 - h_1)*e_1 + (i_2 - i_1)*(e_2 - e_1)*h_1 + (h_2 - h_1)*(e_2 - e_1)*i_1 + (i_2 - i_1)*(h_2 - h_1)*(e_2 - e_1) \quad (4)$$

The first term on the right of equation (4) reflects the contribution of the change in the index of economic attainment on the index  $D$ . Similarly, the second term reflects the contribution of the change in the index of health attainment while the third term reflects the contribution of the change in the index of education attainment. The remaining terms on the right are interaction terms which reflect the contribution of simultaneous change in either any two or all the three dimensions of human development.

Using equation (4), the contribution of the change in different dimensions of human development - health attainment, education attainment, economic attainment - to the change in the index  $D$  can now be estimated as

Change in economic attainment	$(i_2 - i_1)*h_1*e_1 + [(i_2 - i_1)*(h_2 - h_1)*e_1 + (i_2 - i_1)*(e_2 - e_1)*h_1]/2 + [(i_2 - i_1)*(h_2 - h_1)*(e_2 - e_1)]/3$
Change in health attainment	$(h_2 - h_1)*i_1*e_1 + [(i_2 - i_1)*(h_2 - h_1)*e_1 + (h_2 - h_1)*(e_2 - e_1)*i_1]/2 + [(i_2 - i_1)*(h_2 - h_1)*(e_2 - e_1)]/3$
Change in education attainment	$(e_2 - e_1)*i_1*h_1 + [(i_2 - i_1)*(e_2 - e_1)*h_1 + (h_2 - h_1)*(e_2 - e_1)*i_1]/2 + [(i_2 - i_1)*(h_2 - h_1)*(e_2 - e_1)]/3$

In table 3, we have decomposed the increase in the index  $D$  between 1999-2000 and 2007-08 for India and for its major States according to equation (4). Results of the decomposition analysis are revealing. In India, the index  $D$  increased by around 0.08 points between 1999-2000 and 2007-08. This increase in the index  $D$  has been the result of an increase of around 0.02 points in all the three dimensions of human development. the index of health attainment, an increase of around 0.03 points in the index of economic attainment and an increase of 0.03 points in the index of education attainment. Among different States of India, the increase in the index  $D$  has been the largest in Kerala followed by Assam and Andhra Pradesh. Kerala, Assam and Andhra Pradesh are the only three States in India where the index  $D$  increased by more than 0.10 points during the eight years between 1999-2000 and 2007-08. By contrast, the increase in the index  $D$  has been the least in Rajasthan. Other States where the index  $D$  increased by less than 0.05 points between 1999-2000 and 2007-08 are Haryana and Uttar Pradesh.

Relatively sharp increase in the index  $D$  in Kerala and Assam has largely been due to a sharp increase in the index of economic attainment. Similarly, very slow increase in the index  $D$  in Rajasthan, Haryana and Uttar Pradesh appears to be due to a decrease, not increase, in the index of economic attainment. Rajasthan, Haryana and Uttar Pradesh are the only three States in India which have recorded a decrease in the index of economic attainment between 1999-2000 and 2007-08. Barring these three States, the increase in the index of health attainment has been the slowest in the remaining States of the country. Table 3 suggests that the progress towards human development in India has been the slowest in the dimension of health, largely erratic in the dimension of income and largely consistent in the dimension of education.

Table 3  
Decomposition of the change in the index  $D$  in India and States

India/States	Total change in the index $D$ between 1999-2000 and 2007-08	Change in the index $D$ attributed to the change in the		
		Index of health attainment	Index of economic attainment	Index of education attainment
Kerala	0.124	0.010	0.076	0.038
Punjab	0.062	0.010	0.016	0.036
Maharashtra	0.070	0.013	0.028	0.028
Tamilnadu	0.089	0.014	0.037	0.039
Haryana	0.045	0.015	-0.004	0.034
Gujarat	0.061	0.019	0.022	0.019
Karnataka	0.088	0.015	0.034	0.039
West Bengal	0.069	0.011	0.025	0.033
Andhra Pradesh	0.111	0.014	0.049	0.047
Assam	0.122	0.022	0.076	0.025
Rajasthan	0.034	0.016	-0.019	0.037
Uttar Pradesh	0.046	0.018	-0.002	0.030
Madhya Pradesh	0.082	0.017	0.030	0.035
Bihar	0.069	0.010	0.022	0.037
Orissa	0.095	0.016	0.053	0.026
India	0.077	0.017	0.026	0.034

Source: Author's calculations.

In Gujarat, the increase in the index  $D$  during the period 1999-2000 and 2007-08 has been the fourth slowest in the major States of the country. Absolute increase in the index  $D$  in Gujarat during the period under reference has been around 0.060 which is well below the national average. This increase has been the result of an increase of around 0.02 points in all the three attainment indexes - index of health attainment, index of economic attainment and index of education attainment. In case of the index of health

attainment, the increase in Gujarat has been the second highest in the country - next only to Assam. However, in the index of economic attainment, the increase in Gujarat has been the second lowest, next only to Punjab if States where the index of economic attainment has decreased are excluded from the analysis. Similarly, the increase in the index of education attainment in Gujarat has been the lowest amongst the major States of the country. It appears that Gujarat has faltered in the dimension of economic attainment and in the dimension of education attainment as far as the progress towards human development is concerned so that the gain in the these two dimensions of human development in Gujarat during the period 1999-2000 through 2007-08 has been well below the national average whereas the gain in the index of health attainment is above the national average. The relatively poor progress in the index of economic attainment in Gujarat appears surprising as the State has recorded rapid economic growth during the same period. Obviously, dividends of rapid economic growth have not been translated into improved quality of life of the people in Gujarat. This observation is supported by the evidence that despite rapid economic growth and progress, the increase in the education attainment index in Gujarat has been the slowest among different States of India during the period 1999-2000 through 2007-08. The relatively slow progress of Gujarat in terms of the human development index thus appears to be largely due to the poor performance of the State in the dimensions of economic attainment and education attainment. On the other hand, the State appears to have performed relatively better than most of the major States in terms of improvements in the health status of the people as measured through the expectation of life at birth.

It would be interesting to analyse how Gujarat differs from Kerala, the most advanced State of India in terms of human development. The modified human development index  $D$  is estimated to be 0.780 in Kerala during the year 2007-08 whereas it was 0.514 in Gujarat. This means that the index  $D$  in Kerala is higher than that in Gujarat by about 0.267 absolute points. Around 20 per cent of this difference is due to the difference in health attainment whereas around 38 per cent is due to the difference in education attainment. Finally, around 42 per cent of the difference is due to the difference in economic attainment in the two States. Similarly, the modified human development index in Gujarat is higher than the modified human development index in India as a whole by 0.071 points. More than 70 per cent of this difference is due to the difference in economic attainment measured in terms of inequality adjusted real per capita consumption expenditure while around 26 per cent of the difference is due to the difference in health attainment. Finally, the difference in the education attainment between Gujarat and India accounts for only around 3 per cent of the difference in the modified human development index  $D$  between Gujarat and India. In other words, in terms of human development, Gujarat lags behind Kerala mainly in the dimensions of economic attainment measured in terms of inequality adjusted real per capita consumption expenditure and education attainment measured in terms of literacy in

population aged at least 7 years and adjusted mean years of schooling. On the other hand, Gujarat is more advanced than the country as a whole mainly because of relatively better position in the dimension of economic attainment.

Table 4  
Decomposition of the difference in the index  $D$  in India and States  
in reference to Gujarat

India/States	Difference in the index $D$ relative to Gujarat	Difference in the index $D$ attributed to the difference in the		
		Index of health attainment	Index of economic attainment	Index of education attainment
Kerala	0.267	0.054	0.112	0.100
Punjab	0.086	0.010	0.053	0.023
Maharashtra	0.033	0.005	-0.010	0.038
Tamilnadu	0.032	0.001	-0.008	0.039
Haryana	0.028	-0.002	0.017	0.013
Gujarat	0.000	0.000	0.000	0.000
Karnataka	-0.015	-0.002	-0.022	0.008
West Bengal	-0.059	0.004	-0.062	-0.001
Andhra Pradesh	-0.062	-0.014	-0.041	-0.007
Assam	-0.093	-0.069	-0.039	0.015
Rajasthan	-0.104	-0.012	-0.059	-0.034
Uttar Pradesh	-0.170	-0.041	-0.106	-0.023
Madhya Pradesh	-0.175	-0.054	-0.107	-0.014
Bihar	-0.206	-0.016	-0.143	-0.046
Orissa	-0.199	-0.046	-0.132	-0.020
India	-0.071	-0.019	-0.050	-0.003

Source: Author's calculations.

Table 4 depicts the position of Gujarat in human development and in its different dimensions vis-a-vis other major States of India. Gujarat had the sixth highest modified human development index  $D$  in the country, next only to Kerala, Punjab, Maharashtra, Tamil Nadu and Haryana. In terms of the health dimension of human development also, Gujarat ranks sixth amongst the major States of the country. On the other hand, in terms of the economic dimension of human development, Gujarat ranks fourth in the country, next only to Kerala, Punjab and Haryana. Even Maharashtra lags behind Gujarat in the economic dimension of human development. However, in the education dimension of human development, measured in terms of literacy rate in population aged 7 years and above and adjusted mean years of schooling, Gujarat ranks only eighth among the major States of the country. The education attainment index in Kerala, Punjab, Maharashtra, Tamil Nadu, Haryana, Karnataka and Assam has been

estimated to be higher than that in Gujarat according to the National Human development Report 2011. The education attainment index in Gujarat is very close to the national average. This is however not the case in the index of health attainment and in the index of economic attainment where the situation in Gujarat is relatively better than the national average.

## Inter-district Variations

District level estimates of HDI and associated indexes of health attainment, economic attainment and education attainment are presented in table 6 for the year 2001. These indexes are based on different indicators than the indicators used in the National Human Development Reports. Moreover, indicators used at the State level are different from the indicators used at the district level. As such, district level estimates of HDI are not comparable with the State level estimates of HDI. Moreover, State level HDI available through the Gujarat Human Development Report 2004 is not comparable to the HDI for the State available through National Human Development Reports.

Table 5  
Indicators used for estimating human development index in Gujarat Human Development Report 2004

Domain of human development	Indicator used at the State level	Indicator used at the district level
Health	Infant mortality rate	Infant mortality rate
Income	Per capita income	Per capita bank deposits
Education	Adult literacy rate, Proportion of children attending school	Adult literacy rate, Proportion of children attending school

District level estimates of the indexes of health attainment, economic attainment and education attainment are given in table 6. We have used these indexes to estimate the modified human development index  $D$  for each of the 25 districts of the State as they existed in 2004 according to equation (3) and the modified human development index  $D$  so obtained is also presented in the table for each district. The index,  $D$ , is estimated to be the highest in district Gandhinagar (0.533) but the lowest in district Banaskantha (0.133). Moreover, inter-district disparity or inequality in human development, as measured the index,  $D$  is very sharp in the State. Reduction in this disparity can go a long way in improving the human development situation in the State as a whole.

Table 6  
Human development in district of Madhya Pradesh

District	Index of health attainment	Index of economic attainment	Index of education attainment	Human development index ( <i>D</i> )
Gujarat	0.674	0.107	0.666	0.363
Gandhinagar	0.674	0.298	0.756	0.533
Ahmedabad	0.738	0.217	0.761	0.496
Navsari	0.812	0.202	0.733	0.494
Valsad	0.742	0.202	0.700	0.472
Kachch	0.531	0.308	0.547	0.447
Rajkot	0.829	0.131	0.656	0.415
Jamnagar	0.770	0.129	0.619	0.395
Surat	0.724	0.116	0.713	0.391
Anand	0.652	0.118	0.716	0.380
Porbandar	0.713	0.106	0.689	0.373
Kheda	0.625	0.118	0.705	0.373
Junagadh	0.700	0.106	0.685	0.370
Bharuch	0.763	0.066	0.715	0.330
Bhavnagar	0.676	0.066	0.646	0.307
Narmada	0.722	0.061	0.637	0.304
Amreli	0.710	0.037	0.646	0.257
Mehsana	0.621	0.037	0.721	0.255
Patan	0.664	0.032	0.630	0.237
Surendranagar	0.535	0.032	0.615	0.219
Vadodara	0.770	0.021	0.646	0.219
Sabarkantha	0.615	0.021	0.702	0.209
Panchmahals	0.517	0.018	0.582	0.176
Dahod	0.406	0.018	0.502	0.154
The Dangs	0.447	0.013	0.561	0.148
Banaskantha	0.440	0.011	0.484	0.133

Source: Mahatma Gandhi Labour Institute (2004)

For the purpose of comparison, we have estimated the State level indexes of health attainment, economic attainment and education attainment from the district level indexes by taking the weighted average of district level estimates of the three indexes. The weight used for the purpose of averaging was the proportion of the population of the district to the population of the State at the 2001 population census. The State level indexes of health attainment, economic attainment and education attainment so obtained are also presented in table 6. These estimates suggests that the modified human development index *D* in Gujarat was 0.363 around the year 2001. The primary reason for very low level of the index *D* is the very low index of economic attainment as measured through per capita bank deposits. This exercise also suggests that in twelve

districts of the State, the index  $D$  was higher than the State average. These districts are: Gandhinagar, Ahmedabad, Navsari, Valsad, Kachch, Rajkot, Jamnagar, Surat, Anand, Porbandar, Kheda and Junagadh. In the remaining districts, the index  $D$  was estimated to be less than the State average.

The district level modified human development index  $D$  differs from the State level index because of the differences in the index of health attainment, index of economic attainment and the index of education attainment. It is possible to analyse the relative contribution of the district-State difference in the three dimensions of human development to the district-State difference in the index  $D$ . Results of this exercise are given in table 7. The table suggests that different dimensions of human development are responsible for the observed district-State difference in the modified human development index,  $D$ , in different districts of the State. In district Gandhinagar, the district having relatively the best human development scenario in the State, almost entire difference in the district index  $D$  from the State average is the result of the difference in the index of economic attainment. This shows that the per capita bank deposits in district Gandhinagar is well above the State average. On the other hand, the index of health attainment in the district, in fact, is marginally lower than the State average suggesting the infant mortality rate in the district is almost the same as the State average. In district Kachch also, the difference in the index of economic attainment in the district from the State average is very wide because of which the index  $D$  in the district is well above the State average despite the fact that both the index of health attainment and the index of education attainment is substantially lower than the State average in the district. On the other hand, in Vadodara, Sabarkantha, Panchmahals, Dahod, The Dangs and Banaskantha districts of the State, exceptionally low modified human development index  $D$  is largely due to very low index of economic attainment compared to the State average. It appears that per capita bank deposits in these districts is substantially lower than the State average.

In general, variation in the modified index of human development  $D$  across the districts of the State appears largely the result of the variation in the index of economic attainment across the districts. The coefficient of variation in the index of health attainment across the districts of the State is estimated to be 0.175 while that in the index of education attainment is estimated to be 0.112. By comparison, the coefficient of variation in the index of economic attainment across the districts of the State is estimated to be 0.859 which indicates that the disparity or inequality in economic attainment as measured through per capita bank deposits is very high across the districts of the State. Reducing inter-district disparity or inequality in economic attainment is obviously very crucial for reducing inter-district disparity in human development. However, per capita bank deposits is not a very sensitive indicator of the standard of living and the use of any other indicator reflecting the economic dimension of human development may reflect entirely different situation at the district level.

Table 7  
Decomposition of the difference in the index  $D$  in districts of Gujarat  
in reference to Gujarat

India/States	Difference in the index $D$ relative to Gujarat	Difference in the index $D$ attributed to the difference in the		
		Index of health attainment	Index of economic attainment	Index of education attainment
Gandhinagar	0.170	-0.000	0.152	0.019
Ahmedabad	0.133	0.013	0.101	0.019
Navsari	0.130	0.026	0.090	0.014
Valsad	0.109	0.013	0.088	0.007
Kachch	0.084	-0.033	0.143	-0.027
Rajkot	0.051	0.027	0.027	-0.002
Jamnagar	0.032	0.017	0.024	-0.009
Surat	0.028	0.009	0.011	0.009
Anand	0.017	-0.004	0.013	0.009
Porbandar	0.010	0.007	-0.001	0.004
Kheda	0.010	-0.009	0.012	0.007
Junagadh	0.007	0.005	-0.001	0.003
Bharuch	-0.033	0.014	-0.055	0.008
Bhavnagar	-0.056	0.000	-0.053	-0.003
Narmada	-0.059	0.008	-0.062	-0.005
Amreli	-0.106	0.005	-0.108	-0.003
Mehsana	-0.108	-0.008	-0.108	0.008
Patan	-0.126	-0.002	-0.119	-0.006
Surendranagar	-0.144	-0.022	-0.114	-0.008
Vadodara	-0.144	0.013	-0.154	-0.003
Sabarkantha	-0.155	-0.009	-0.151	0.005
Panchmahals	-0.187	-0.023	-0.152	-0.012
Dahod	-0.209	-0.042	-0.143	-0.024
The Dangs	-0.215	-0.034	-0.167	-0.014
Banaskantha	-0.230	-0.034	-0.171	-0.025

Source: Author's calculations

It is also clear from table 7 that compared to inter-district variations in the index of education attainment, the inter-district variations in the index of health attainment are relatively sharper with the difference from the State average being the largest in district Dahod. Other districts where the index of health attainment is substantially lower than the State average are Kachch, The Dangs and Banaskantha. On the other hand, the difference in the index of education attainment from the State average is also the largest in Banaskantha, Dahod and Kachch districts. Out of these three districts, the index of economic attainment is also the lowest in The Dangs and Banaskantha districts.



## Conclusions

The purpose of this paper was to present an analytical perspective of human development in Gujarat based on the human development index which is now the universally used index of human progress despite all of its limitations and criticism. The paper has not attempted to estimate the human development index afresh but used the available information from both National and State Human Development Reports to analyse the human situation in Gujarat in some detail. The paper has also attempted to analyse how the three dimensions of human development - health, income and education - has contributed to human progress in the State.

The analysis presented in this paper reflect both plus and minus aspects of human development in Gujarat. The plus point is that human development situation in Gujarat, as measured through the modified human development index continues to be well above the national average. The minus point, on the other hand, is that the improvement in the human development situation in recent years, as measured through the increase in the modified human development index, has been tardy with very slow improvement in the inequality adjusted real per capita consumption expenditure. The State has recorded impressive growth in the economy in recent years as is reflected through the growth of real net State domestic product. However, it appears that the dividends of the impressive economic growth that the State has witnessed have not been translated in the consumption expenditure of the average individual of the State. This disconnect between economic growth and per capita consumption expenditure calls for analysing the quality of economic growth that the State has witnessed in the recent past.

Another important issue that the present paper highlights is some very strong inter-district disparity or inequality in the human development situation in the State. This disparity suggests that reducing and ultimately eliminating the inter-district disparity or inequality in the human development situation can contribute significantly in hastening the pace of human progress in the State. Once again, most of the inter-district disparity in human development is the result of the inter-district disparity in economic attainment which implies that most of the economic progress in the State appears to have been confined to only a few districts of the State.

One major limitation in measuring and monitoring human development in Gujarat is that there is no standardisation of the estimation of human development index. The human development index estimated in the National Human Development Reports is based on different set of indicators than the human development index estimate in the State Human Development Report. Similarly, the district level human development index is based on a different set of indicators than the indicators used in estimating the State human development index even in the State Human Development Report. As such, the human development indexes are not comparable across time as well as across administrative units. The reason for choosing different set of indicators for estimating

the human development index at national, State and district level is basically the availability of information. In any case, this situation introduces a significant degree of subjectivity in measuring and monitoring human development situation. There is a need of eliminating this subjectivity in measuring and monitoring the human development situation by selecting a standard set of indicators for the three dimensions of human development and institutionalising appropriate mechanism to generate information necessary for estimating these indicators at State and district and even below district levels. There is however little initiative in this regard.

Gujarat is probably the only State in India which has established a separate Directorate of Human Development to squarely focus on measuring and monitoring human development situation in the State as well as in its constituent districts, talukas, panchayats and villages. It is the need of the time that the Directorate of Human Development develops standardised methodology and approaches that introduces objectivity in measuring and monitoring human development situation not only at the State level but right up to the village level. Such an approach is necessary for invigorating human development efforts in the State.

## References

- Government of India (2002) *National Human Development Report 2001*. Government of India, Planning Commission.
- Government of India (2011) *India Human Development Report 2011. Towards Social Inclusion*. Government of India. Planning Commission, Institute of Applied Manpower Research, and New Delhi, Oxford University Press.
- Mahatma Gandhi Labour Institute (2004) *Gujarat Human Development Report 2004*. Ahmedabad, Mahatma Gandhi Labour Institute.
- United Nations (2011) *Human Development Report 2011. Sustainability and Equity: A Better Future for All*. New York, United Nations Development Program.