

Chapter VII

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Chapter VII

Findings and Hypothesis Testing

I. Introduction

Since Gujarat state's inception, the growth process in the regions of Gujarat, have experienced ups and downs in the economic activities. Not much attention has been paid to the short term activities as long as long term shows an upward trend. In the economic growth process, it is theoretical noticed that dependence agriculture is reduced, while the economy depend on the secondary and tertiary sectors. In most of the countries it has found out that in the initial stage of economic growth agriculture sector becomes the provider for labour, food products wage goods and raw material to blaze us industrial tertiary sector. Any economy reaching structural transformation experience reduction in agriculture sector share (with subsequent reduction in share of employment) and share of secondary and tertiary sector is increased.

Instability in the production at the country level may not necessarily show the picture existing at disaggregated levels of states and districts. Besides prices, the environmental factors such as rainfall and irrigation are the most important causes of variations in production across the application space where inputs fertilizers are sensitive to water availability (Ray 1983)¹.

At the regional level instability can be attended by looking at interrelationship between different regions, which can be taken up in an inter-regional set up. For such an analysis data required is information relating to linkage sectors of different regions. As such information is not easy to collect, analysis instability in terms of structure of the economy. Income as variable is selected for analysis as it is a comprehensive measure of economic activity and also as income data is readily available.

State Domestic Product is available for all the sectors at the aggregate level. Instability is looked at disaggregated level in terms of activities within broader

¹ Ray S.K. (1983), "An Empirical Investigation of the Nature and causes of for growth and Instability in Indian Agriculture, 1950-80, Indian Journal of Agricultural Economics, 38 (459-474)

sectors, which is only available for industry and agriculture. For agriculture output is opted for sectoral analysis.

The study period is determined by availability of data for different variables. Data on SDP though is available from 1960-61 onwards for the fair tests and results, it was found fit just to take 1980-81 and a decade pre liberalized period till 2010-11 though available information was 2011-12. The base year have had a change every decade or more. Thus 1980-81 is the base year for 80s decade, 1993-94 prices for 1993-94 to 2004-05 and 2004-05 as base year for the period 2006-07 to 2010-11 and 2005-06 years figures are not available. The income data for disaggregated sectors is analysed for the period 1980-81 to 2010-11. Wadhwa (1983)² has shown instability in Gujarat at macro-economic level and sectoral levels upto 1980-81 in his study.

II. Gujarat at the Forefront but Some Concerns

Gujarat with the accelerated economic reforms since 1992-93 is the front line state. Its performance in terms of economic growth has always been better than that of all states of India. State enjoys entrepreneurial culture, with high standard of living high per capita income and high savings. Government takes an initiative and promotes private initiative and in the recent years (global) peoples participation in development process. It also enjoys several natural advantages through endowments. It also have a diversified structure of economy with a large industrial sector and highly commercialized agriculture and allied activities, with a large degree of urbanization (43% in 2011) Gujarat highest producer of salt, pharmaceuticals, chemicals, edible oil, cotton and now leading state in growth of agriculture area i.e. wheat and cotton is the 4th richest, 2nd most industrialized, third urbanized and the largest investor in the BSE share market. The total wealth in the hand of top industrialist 7 out of 10 are Gujaratis holding 80% commercial investment wealth.

Gujarat grew in an imbalanced fashion and volatile in the last 25 years but has picked up double digit GDP growth after 2005 to 2011. Economic growth was mainly sustained by secondary and tertiary sectors and agriculture had its positive impact

²Wadhwa Kiran (1983), "Performance of Gujarat's Economy: Growth and Stability", in D.T. Lakdawala (ed.) Gujarat Economy: Problems and Prospects, SPIESR Monograph 10, Allied Publishers Pvt. Ltd.

since 2005-06 specifically in 2008-09, 2009-10 and 2010-11, the years when agriculture produce in these 3 years averaged 21.5%. In 2010-11 (NSDP) Net State Domestic Product at 2004-05 prices was Rs.365295 crores and per capita was Rs.52708.

Table (1) Sectoral Shares of NDP Gujarat at Constant Prices

Sr. No.	Primary	Secondary	Tertiary	Net State Domestic Product
1960-61	41.80	25.70	32.70	738
1970-71	46.10	23.10	30.80	2189
1980-81	40.80	27.20	32.00	6547
1990-91	27.60	34.60	37.80	10839
1999-00	19.80	35.40	44.80	8643
2000-01	19.78	31.90	48.32	93455
2001-02	22.78	38.86	48.36	93455
2002-03	18.16	37.74	44.10	101603
2003-04	18.79	37.59	41.66	140538
2004-05	19.50	36.50	44.00	93455
2005-06	20.60	37.10	42.30	173638
2006-07	20.60	37.30	42.10	213964
2007-08	20.30	37.30	42.40	239253
2008-09	19.20	37.70	44.10	249480
2009-10	18.2	36.9	44.9	284732
2010-11	19.8	36.8	41.4	315764
2011-12	21.5	36.1	42.4	342088

Source: CSO Delhi and Statistical Abstract of Gujarat state Directorate of Economics and Statistics, Gandhinagar upto 2007-08 Indian Economic Survey and 2012

In the 1960s and 1970s the primary sector in Gujarat had a lower income share of agriculture than seen in NDP India (Table 1). In the 60s and 70s, share of primary sector in the state remained stagnant between 1960-61 and 1980-81. In the latter half of 1980s the share of agriculture in Gujarat started declining rapidly. In 1990-91 the share of primary sector in Gujarat was 27.6%. In Gujarat primary sector's share had fallen by 1999-2000 audit was of NDP. But it declined from 22.2% in 2005-06 to 14.4%. In 2009-10 and in 2010-11 it rose to 15.6% and 15.1%, and the secondary sector recorded the fastest growth in Gujarat. Gujarat is said to be the leader among Indian states right from 1980-81 onwards. A marked increase in share of secondary sector was seen between 1980-81 and 1990-91 when it increased from 27% to 35% and since then it has been consistently around 35% of the NSDP or marginally up or down. However, the share of tertiary sector in 2007-08 was 45% and in 2010-11 it was 48%.

Growth in primary sector as well as secondary sector is highly fluctuating in the state. This can be seen from sectoral shares in Table 1 and 3. While the long term trend in primary sector is of decline (42% in 1960-61 to 20% in 2007-08 and 16% in 2010-11). Thus one can say it is marked by fluctuations. In terms of income agriculture is no more a dominant sector in Gujarat, though percentage wise it is less record agriculture product in last three years 2008-09 to 2011-12. The average growth increase was above 12% in agriculture. After 1980-81, manufacturing replaced agriculture as the single largest activity contributing to SDP. The share of secondary sector upto mid 80s remained around 27%, thereafter there were large fluctuations. After 1999-2000, the share has been maintained between 35-36%. The tertiary sector on the other hand, shows a smooth, long term upward trend and depicts least fluctuations in its share in NSDP matching a trend of moving towards high developed state.

Broadly it can be seen that the tertiary sector lags behind the country as a contributor in Gujarat. The share of secondary sector in Gujarat has increased much more rapidly than Indian especially after mid-80s. After mid-80s, the share of primary sector in total NSDP also started recording a steep fall, declining from 41% (1980-81) to 16% (2010-11).

The linear growth rate in the state NSDP averaged at 5% over the period 1960-61 to 2011-12. Gujarat's SDP during this period 1960-61 to 1980-81 was characterized by wide fluctuations from year to year and did not show substantial upward trend. Since 1970-71 fluctuations in SDP were reported to be more frequent and intense. Distance between upswing decreased from 2 to 1 year and variations in rate of growth were much sharper. In the post 1991-92 period, Gujarat improved its growth performance remarkably, its annual growth accelerating from 4.8% (in 80s) to 7.18% in the period of 1990-91 to 2010-11. The growth acceleration was very noticeable after 1999-00 as can be seen from the trend growth at 9.07% in the overall NSDP between 1999-00 to 2010-11.

Table (2) Rate of Growth of NDP, SDP of Major Sectors for Gujarat 1980-81 to 2010-11

	Growth Rate (%)	
	1980-81 to 1989-90 (at 1980-81 prices)	
SDP (Gujarat)	4.8	0.80
Agriculture	0.33	0.00
Primary sector	0.57	0.01
Manufacturing	7.19	0.82
Secondary sector	7.05	0.88
Tertiary sector	6.53	0.98
SDP per capita	2.92	0.62
	1999-91 to 1999-00 (at 1999-00 prices)	
SDP (Gujarat)	5.58	0.90
Agriculture	1.60	0.07
Primary sector	1.45	0.08
Manufacturing	5.24	0.81
Secondary sector	5.78	0.86
Tertiary sector	7.73	0.99
SDP per capita	3.61	0.79
	2000-01 to 2010-11 (at 1999-00 prices)	
SDP (Gujarat)	19.66	0.99
Agriculture	16.25	0.99
Primary sector	19.83	0.99
Manufacturing	24.66	0.99
Secondary sector	28.76	0.98
Tertiary sector	10.40	0.96
SDP per capita	26.02	0.94

Source: For 1960-61 to 1970-71, Wadhwa (1983). For remaining, CSO (various years) and Socio-Economic Review, Directorate of Economics and Statistics, Gujarat State, Gandhinagar 2012-13.

This high growth can be attributed to economic policy reforms. Apparently, Gujarat has benefited from liberalization much more than the other states (Dholakia, 2007). This has created disparities among different regions but higher growth is the outcome of regional imbalances (Galbranth).

In 1990s decade upto mid-2000s, long term agriculture growth rate hovered at 1.6% along with primary sector (1.45%). Thus agriculture sector showed hardly any upward growth trend in its value added. The linear growth rate of the primary sector after 1999-00 accelerated to 9%. Agriculture sector along grew at nearly 10% and above double digit in the period 2007-08 to 2010-11. The regression results for various sectors confirm this fact.

Secondary sector on the other hand showed very low growth upto mid-1970s. In the 80s growth in manufacturing sector was quite high at 7%, coming down to 5%

in the nineties. Thus this period was volatile for the industries sector. After this period, secondary sector has shown a steady increase in growth at nearly 11%. Tertiary sector on the other hand has registered a steady growth throughout the period. Service sector growth rate is the outcome of economic activities, which increased more after liberalized period, whence private sector entry, lessening of licence raj, open market operations, tertiary sector registered a steady growth.

The fluctuations in trend of Gujarat's income is the result of fluctuations in some major economic sectors and possibly also a reflection of the changing structure of the economy when new activities have been unable to offset impact of declining economic activities.

The behaviour of the various components of the SDP (Table 2 depicts the index of value added by various sectors), during the period 1981 to 2011, shows that nearly all sectors recorded ups and downs in growth. Agriculture sector had shown largest fluctuation in value added with no discernable upward trend. Between 1980-81 and 1992-93 high rate of growth was found in fishing, manufacturing, utilities, services particularly banking and insurance, transport and communications. Mining & quarrying and forestry related activities depicted a fluctuating rate of growth. The trend seemed significant for manufacturing, utilities, trade, banking, real estate and other services. The R^2 for these sectors ranged from 0.82 to 0.99. Beyond 1992-93, manufacturing growth slowed down, but the activities showing high upward trend were construction, utilities, transport, storage and communication, trade, real estate and other service. The trend was also significant for these sectors, the R^2 ranging from 0.81 to 0.99 (Table 4). Agriculture started depicting a very high growth rate after 2000, as growth between 1994 and 2005 was quite negligible at 1.6% and not significant. For the second innings i.e. from 2004-05 to 2010-11. All the sectors have shown growth of the millennium decade. Primary growth at 21.75% secondary at 33.70% and tertiary at 7.62% per capita income grew by 48.43% whereas total net state domestic product at 59.18%.

The above discussion reveals volatility in growth of the agriculture sector in Gujarat. After 2000, both agriculture and manufacturing recorded growth rates exceeding 10% per annum, but manufacturing remained the most important

contributor to Gujarat economy. Agriculture follows manufacturing in terms of value added. It remains the single largest employment generator and hence its prominence in Gujarat economy cannot be denied.

Certain structural changes are evident. In the early years of state's formation, the NSDP shared a close relationship with behaviour of the agriculture sector. Agricultural performance affected total output in the state. The rate of growth in agriculture and that of SDP were found to be significantly correlated (Correlation coefficient of 0.52). The rate of growth of manufacturing on the other hand showed no relationship with that of SDP, even though it showed a positive rate of growth. Coefficient of the rate of growth between SDP and manufacturing then was insignificant at 0.11. The performance of NSDP post 1980-81 though still influenced by agriculture sector, follows the trend of other two sectors, mainly manufacturing and tertiary activities.

Table (3) Correlation Coefficient between Growth in NSDP, Agriculture and Non-agriculture Sectors

	Agriculture	Manufacturing	Tertiary
1980-81 to 1992-93	0.48	0.84	0.73
1993-94 to 2004-05	0.52	0.98	0.96
2005 -06 to 2007 -08	0.85	0.99	0.99
2008-09 to 2010-11	0.95	0.99	0.97

Source: Authors' calculations

After 2004-05, NSDP growth while attributable to size of manufacturing and tertiary sectors is also significantly correlated with the agriculture sector. Manufacturing and tertiary sectors have taken centre stage as contributors to Gujarat economy. Even though the relationship between SDP and behaviour of agriculture has weakened, instability in agriculture on its own, affects around 18% of the economic activity. Needless to add that while Gujarat economy in terms of income generation is relatively insulated from the performance of agriculture, but unstable agriculture still affects around 41% of population and 65% of the working population in rural areas in 2004-05.

Table (4): Growth Rate of Major sectors, Gujarat (1980-81 to 2010-11)

	Sector	1980-81 to 1992-93 (at 1980-81 prices)		1993-94 to 2004-05 (at 1993-94 prices)		2006-07 to 2010-11 (at 2004-05 prices)
		Growth	R ²	Growth	R ²	Growth %
1	Agriculture	0.34	0.00	1.61	0.07	13.70
2	Forestry & logging	-0.67	0.31	1.40	0.87	4.50
3	Fishing	8.92	0.57	-1.57	0.53	
4	Mining & quarrying	1.69	0.22	1.41	0.46	
5	Sub Total Primary	0.57	0.01	1.45	0.07	18.20
6	Manufacturing	7.20	0.82	5.24	0.81	12.65
7	Construction	4.49	0.69	7.92	0.85	14.11
8	Electricity, gas and WS	12.66	0.82	7.38	0.92	
9	Sub Total Secondary	7.05	0.88	5.78	0.86	
10	Transport, storage & com.	7.13	0.72	11.63	0.98	17.07
11	Trade, hotels and restaurants -	5.21	0.92	7.30	0.95	
12	Banking & Insurance	13.42	0.91	5.64	0.91	13.54
13	Real estate, business services	3.10	1.00	6.14	0.97	
14	Public administration	4.73	0.80	5.64	0.73	12.43
15	Other services	5.22	0.98	8.71	0.98	
16	Sub Total Tertiary	6.53	0.98	7.73	0.99	42.74
17	Net state domestic product	4.81	0.80	5.59	0.90	9.7
18	Per capita NSDP(Rs.)	2.92	0.62	3.61	0.79	6.9

Source Authors' calculations based on CSO data for various years

During the 2000s decade, the trend is again being reversed and evidence points to a high and significant relation emerging between the agriculture and overall GDP (0.85). Of late the primary sector is being integrated with the rest of the economy. Agriculture and manufacturing sectors together account for nearly 57% of the state's income. The service sector Table (4) taken together though contributes around 43% to SDP, components except trade, restaurants and hotels are important. Activities like transportation, construction, trade and other services which have a high growth rate over a period, have just a nominal share in SDP. The main thrust that has been provided in the post liberalized period is that SDP behaviour like activities pertaining to agriculture, manufacturing sectors and infrastructure playing the main role in them. NSDP grew in 2006-07 to 2010-11 at 2004-05 prices to 9.7% and per capita NSDP by 6.9% in the same period. Here it shows positively among all the sectors by providing correlation coefficient 0.95 of agriculture with GSDP with 0.95

in the period 2008-09 to 2010-11 due to its growth average of 18.17% in 3 years still share of manufacturing and testing during the period shows a better correlation with GSDP in the same period with 0.99 and 0.97.

III. Analytical view of Socio Economic Development in Gujarat

The State of Gujarat has been the front runner in the overall economic development of the country, there exist tremendous regional disparities in the levels of socio-economic development. The State of Gujarat has been the front–runner in the overall economic development of the country, as is evident from the fact that with mere 6 per cent of geographical area and 5 per cent of the population of India, the State contributes to 21 per cent of the country’s exports, 11 per cent of industrial production and 6.42 per cent of the national GDP at constant prices.³ Despite all these, there exist tremendous regional disparities in the levels of socio–economic development. The “disparity model” divides Gujarat State into four distinct regions i.e., Saurashtra; north Gujarat; central Gujarat and south Gujarat. The serious-ness of the emerging acute regional imbalances has not yet received the public attention it deserves. If the State were to achieve a balanced growth without any further delay to removal regional disparities. The identification of levels of development becomes a highly subjective exercise due to lack of general consensus on the “superiority” of any single technique, in the absence of any specific guidelines from the vast literature on the subject.

(A) Methodology and Data Sources

The main aim of the study was to identify the levels of socio–economic development of the districts of Gujarat. The development was measured with the help of indicators in the fields of agriculture, industry, human resources and infrastructure. The data considered for the study pertain to the two periods’ viz., the pre– reform period i.e. 1991 and post-reform period i.e., 2011. The district wise information on various indicators was collected and compiled from the reports published by the State Bureau of Economics and Statistics, Directorates of Agriculture, Horticulture and Animal Husbandry, Gandhinagar and office of the BSNL, Ahmedabad. Due to non–

³<http://www.techno-preneur.net/gujarat1/policies.htm>.

availability of data on life expectancy at the district level and also the quality of health services provided in Gujarat, the number of beds in hospitals, number of allopathic hospitals and number of primary health centers were taken into consideration in this study. The most commonly used method—factor analysis. This method was used by Narain et al. (1991), Seeta Prabhu and Sarker (1992) and Shaban and Bhole (2000).

(B) Factor Analysis

The factor analysis begins by postulating a model which assumes that the variance in the materials is explained by an underlying structure composed of certain smaller number of variables. The first component/factor is obtained on the basis of correlation matrix R, the factor loading being the Eigen vector f_i corresponding to the maximum Eigen value of the correlation matrix. It is linearly dependent on the constituent variables and has the maximum sum of squared correlation with the variables. The composite index for the purpose was obtained as under by linearly combining the variables X_{ij} ($j = 1, 2, \dots, m$), the weight for the j^{th} variable being the j^{th} element in the vector f_i .

$$Y_{ij} = \sum_{j=1}^m X_{ij} f_{ij}$$

Regionalization was done on the basis of a single but most significantly correlated factor. More than one factor can also be used for the purpose.

The factor analysis was used to derive factor loadings and component scores for all the sectors. In the calculation of the scores, how-ever, we did not use standardized variables as is the usual practice, for it distorts the dispersion of the original indicators, instead we divided each indicator by its mean in order to remove the scale bias in the data [Seeta Prabhu and Sarker, 1992). The aggregate index of development for each district was derived by summing up the component scores for each of the four sectors. This method takes care of multi-collinearity as weights are used directly depending on the correlation between variables. Factor score is multiplied with percentage variance explained to get value of indices.

After working out the index using factor analysis, grouping of the districts into high, medium and low development was done employing the following formula:

$$\text{Level of development} = X \pm 0.5 S$$

The districts having the index values of less than equal to $X - 0.5 S$ are grouped as low-developed; the districts having index values in between and are classified as medium-developed and the districts having index values higher than are considered as high-developed districts for the respective period. This analysis was done separately for both the periods pre and post regulation period and the indices were finally constructed.

IV. Indicators of Development

In this section, we examine the relative importance of fifty seven indicators for the year 1991 and the period 2011. The indicators with higher magnitude of loading values are considered as basis in identification and naming of the dimension. The dimension-wise loading values of various indicators for the period 1991 and 2011 are given in Table 5, 6 and 7.

Table (5): Loading values of Different Indicators (1991)

Sr. No.	Agricultural Loading Values	1991
1	Percentage of gross irrigated to gross cropped area	0.851
2	Percentage of double cropped area to net source	0.616
3	Percentage of net area sown	0.528
4	Percentage of forecast to total area of the district	0.582
5	Average area per holding	0.644
6	Number of tractors	0.640
7	Number of poultry	0.628
8	Productivity of Cereals	0.643
9	Productivity of Pulses	0.589
10	Productivity of Cotton	0.633
11	Productivity of Groundnut	0.589
12	Productivity of Sugarcane	0.598
13	Fertilizer used	0.606
14	Agricultural workers / 1000 Hectare of G.C.A.	0.611
15	Cropping Intensity	0.611
16	Productivity of food grains	0.525
17	Percentage of total area under food grains to gross cropped area	0.510
18	Percentage of permanent pastures and other grazing land	0.421
19	Percentage of uneconomic land	0.326
20	Percentage of doubled cropped area to net area sown	0.260
20	Percentage of agricultural workers to total workers	0.256

21	Productivity of total oil seeds	0.368
22	Productivity of wheat	0.234

Table (5): Loading values of Different Indicators (1991)

23	Per person net source percentage variation	31.590
24	Productivity of bajra	0.509
25	Number of milk producers co-operative	0.513
26	Number of primary agricultural credit societies	0.495
27	Number of livestock per 1000 G.C.A.	0.483
28	Veterinary Dispensaries	0.428
29	Number of electric pum psets	0.404
30	Number of sheep and goats	0.230
	Percentage Variation expected	31.59
	Infrastructural Loading Values	
31	Length of roads	0.783
32	Number of registered two wheelers	0.686
33	Number of registered motor cars / Jeeps	0.675
34	Village electrified	0.487
35	Number of co-operative banks	0.476
36	Number of bank offices	0.468
37	Number of telephones	0.467
38	Number of Commercial banks	0.362
	Percentage Variation expected	18.88
	Industry	
39	Percentage of factory workers to total workers	0.793
40	Percentage of urban population	0.737
41	Number of employees in working factories	0.649
42	Number of working factories	0.638
43	Number of small scale and medium industries	0.605
	Percentage Variation expected	24.08
	Human Resource	
44	Density of population	0.813
45	Percentage of Literacy	0.810
46	Percentage of female	0.764
47	Number of persons employed through employment exchanges	0.656
48	Number of primary schools	0.626
49	Number of colleges for higher education	0.623
50	Number of Allopathic hospitals	0.618
51	Percentage of SC and ST Population	0.605
52	Number of Secondary schools	0.575
53	Number of beds in hospitals	0.573
54	Percentage of workers to total population	0.539
55	Population growth rate	0.509
56	Number of primary health centres (PHCs)	0.296
57	Sex ratio	0.258
	Percentage Variation expected	13.36

Table (6) Loading values of Different Indicators (2011)

Sr. No.	Agricultural Loading Values	2011
1	Percentage of gross irrigated to gross cropped area	0.895
2	Percentage of net area sown	0.826
3	Percentage of forecast to total area of the district	0.226
4	Average area per holding	0.276
5	Number of tractors	0.624
6	Number of poultry	0.482
7	Productivity of Cereals	0.785
8	Productivity of Pulses	0.506
9	Productivity of Cotton	0.685
10	Productivity of Groundnut	0.702
11	Productivity of Sugarcane	0.482
12	Fertilizer used	0.716
13	Agricultural workers / 1000 Hectare of G.C.A.	0.375
14	Cropping Intensity	0.741
15	Productivity of food grains	0.746
16	Percentage of total area under food grains to gross cropped area	0.548
17	Percentage of permanent pastures and other grazing land	0.292
18	Percentage of uneconomic land	0.435
19	Percentage of doubled cropped area to net area sown	0.785
20	Percentage of agricultural workers to total workers	0.481
21	Productivity of total oil seeds	0.681
22	Productivity of wheat	0.805
23	Per person net source percentage variation	27.150
24	Productivity of bajra	0.460
25	Number of milk producers co-operative	0.783
26	Number of primary agricultural credit societies	0.622
27	Number of livestock per 1000 G.C.A.	0.312
28	Veterinary Dispensaries	0.584
29	Number of electric pump sets	0.285
30	Number of sheep and goats	0.365
	Percentage Variation expected	15.41
	Infrastructural Loading Values	
31	Length of roads	0.768
32	Number of registered two wheelers	0.715
33	Number of registered motor cars / Jeeps	0.898
34	Village electrified	0.910
35	Number of co-operative banks	0.646
36	Number of bank offices	0.659
37	Number of telephones	0.612
38	Number of Commercial banks	0.712
	Percentage Variation expected	9.32
	Industry	

39	Percentage of factory workers to total workers	0.810
40	Percentage of urban population	0.823
41	Number of employees in working factories	0.760
42	Number of working factories	0.715
43	Number of small scale and medium industries	0.710
	Percentage Variation expected	26.10
	Human Resource	
44	Density of population	0.910
45	Percentage of Literacy	0.930
46	Percentage of female	0.862
47	Number of persons employed through employment exchanges	0.543
48	Number of primary schools	0.564
49	Number of colleges for higher education	0.723
50	Number of Allopathic hospitals	0.652
51	Percentage of SC and ST Population	0.412
52	Number of Secondary schools	0.610
53	Number of beds in hospitals	0.376
54	Percentage of workers to total population	0.360
55	Population growth rate	0.312
56	Number of primary health centres (PHCs)	0.278
57	Sex ratio	0.293
	Percentage Variation expected	15.41

Table (7) Loading values of Additional Indicators (2011)

Sr. No.	Additional Indicators
1	Total Irrigated area
2	Percentage of Area Sown more than once
3	Percentage of total cropped area
4	Percentage of cultivator
5	Percentage of water lifting device
6	Percentage of bends available in rural area
7	Percentage of Number of market committees
8	Percentage of Number of main yards
9	Percentage of storages of Gujarat State Warehousing
10	Percentage of main source lighting electricity
11	Percentage of lighting
12	Percentage of total main source of drinking water
13	Percentage of tap water from treated source
14	Percentage of none of the assets
15	Percentage of primary teachers + secondary
16	Percentage of primary students + secondary
17	Percentage of dropout std. 1 to 7

Note: Additional 4 indicators are taken for load values for 2011

The First Sector: The first dimension explained 31.59 and 29.54 per cent respectively, of the total variation in the correlation for the period 1991 and 2011 and it was named as “Agricultural Indicators”. This implies that agriculture remains the predominant sector, which provides employment of more than 50% workers, plummeted in terms of the proportion of the State’s income it provided. ‘Percentage of gross area irrigated to gross cropped area’ had highest magnitude of loading value (0.851) and (0.895) indicating that irrigation had greater bearing on agricultural development during the period 1991 and per cent of double cropped area to net area sown (0.814) in the period 2011. Other important indicators in the year 2011 included ‘number of milk producers’ cooperative societies, productivity of groundnut, cropping intensity’, etc. A few more indicators are important to know increased growth through housing structure.

The Second Sector: The key variable for this dimension was ‘per cent of factory workers’ to total workers’ indicating the highest value of loading (0.793) for the period 1991 and the ‘pro-portion of urban population to total population’ (0.823) for the period 2011. The growth in urban population is a historical trend and Gujarat can’t be an exception. People naturally migrate to cities when given the opportunity due to social and economic reasons as motivating factors.

The Third Sector: This dimension explained 13.36 and 16.20 per cent variation in the total correlation matrix for the period 1991 and 2011, respectively and named as “Human Resources Indicators”. The objective of human development is to create an enabling environment for people to enjoy long, healthy and creative lives. Thus, human resource indicators play important role in the development front. The loading values presented in Tables ‘6/7’ point out that the per cent of literates have relatively higher magnitude particularly among females.

This implies that the State of Gujarat has realized the true significance of education as part of the overall process of higher growth.

The Fourth Sector: The variable, ‘length of roads’ had the highest positive association with this dimension in both the periods. It has been globally emphasized

that the developing countries should rapidly increase investment in rural infrastructure to reduce agricultural input access constraints, easy and timely movement of all commodities and thus improving overall standard of living. The fourth sector is named as Infrastructural Indicators and explained about 9 and 11 per cent, respectively in 1991 and 2011. The State is aware of the fact that both industry and infrastructure should keep pace with each other so that the balance of regional development is not affected. The Government of Gujarat for the first time in the country had enacted Gujarat Infrastructure Development Act which will accelerate the process of setting up infrastructural projects.

Factor analysis resulted into four components for both the periods (based on Kaiser's criteria of Eigen value to be higher than 1). It may be concluded that a broad and fair representation of the whole continuum of inter-district dis-parities for the selected indicators can be made in a simple structure of four orthogonal factors for both the periods Table (8) and Table (9) which accounted for about 78 to 81 per cent of the total variance. The results for each period are presented separately in Tables 8 and 9 respectively.

Table (8): Percentage of total variance explained by each factor for the period 1991

Factor	Eigen Value	Per cent	Cumulative Per cent
1	18.01	31.59	31.59
2	13.73	24.08	55.67
3	7.62	13.36	69.03
4	5.06	8.88	77.91

Source: Compiled by the Researcher

Table (9): Percentage of total variance explained by each factor for the period 2011

Factor	Eigen Value	Per cent	Cumulative Per cent
1	15.28	27.15	27.15
2	13.08	23.01	64.40
3	8.40	15.41	70.23
4	6.86	9.32	81.02

Source: Compiled by the Researcher

V. Inter-District Disparities

Gujarat became a separated state from bilanguagial Maharashtra state with huge public anxieties and cry. There were regional disparities but, such conditions cannot rid of backwardness as there are such regional disparities as are seen Gujarat among various districts that are scattered, having different climate, fertility of land and natural endowments.

Since 1997, the State has maintained constant lead in terms of new industrial investment. Though the Gujarat economy is flying high, the regional disparity within the state needs an immediate attention. The Centre has also initiated a carrot-and-stick policy to ensure efficient and timely implementation of development projects at the State level. The State is being adjudged on the basis of selected development targets which would be key to timely release of Central budgetary allocation to the States and this move would also address the issue of regional and sub-regional inequalities, The aggregate index of socio-economic development was therefore, obtained to rank each district in relation to others.

It may be seen from Table 10, that out of 19 districts in the State in 1991, the district of Ahmedabad ranked first and the district of Dang ranked last in overall socio-economic development. The number of districts have increased from 19 to 25 in the year 2001 Tapi as a separate district was added to the number making 26 districts in 2011, due to bifurcation of some of the districts. The results of composite indices presented for 2001 revealed that the district of Surat replaced Ahmedabad district and occupied the first position in 2001 in the overall socio-economic development. The district of Kachchh was found to be at the last position along with Dangs in 1991. In Surat, employment has grown between six to seven per cent every year for the last three decades.

VI. Regional Imbalances and Classification of the Districts

A suitable classification of the districts from the assumed distribution of the mean of the development indices would provide a better feature of levels of development. The details regarding absolute population and proportion of population

in different regions of the State in 1991 are given in Table and Fig.1. It may be seen from the Table that three districts of middle Gujarat as well as Gandhinagar and Surat districts were put in the category of high-developed districts. These districts constituted more than 36 per cent of the total population of the State. Two districts of North Gujarat viz., Mehsana and Sabarkantha, two districts of South Gujarat viz., Bharuch and Valsad and all the districts of Saurashtra region placed in the medium-developed districts accounting for about 48 per cent of the total population, whereas the districts of Dang, Kachchh, Banaskantha and Panchmahals were found to be low-developed. The population covered by these districts was about 16 per cent.

Table (10): The composite indices of socio-economic development of districts of Gujarat by composite indices

Rank	Districts	1991	Districts	2011
1	Ahmedabad	0.7253	Ahmedabad	0.775
2	Gandhinagar	0.4645	Vadodara	0.767
3	Kheda	0.2345	Rajkot	0.712
4	Surat	0.1772	Sabarkantha	0.640
5	Vadodara	0.1547	Junagadh	0.603
6	Mehsana	0.1305	Surat	0.597
7	Sabarkantha	0.0945	Mehsana	0.575
8	Rajkot	0.0485	Banaskantha	0.559
9	Valsad	-0.0056	Bhavnagar	0.558
10	Bhavnagar	-0.0268	Kachchh	0.544
11	Junagadh	-0.0559	Kheda	0.525
12	Bharuch	-0.0666	Anand	0.498
13	Amreli	-0.1218	Jamnagar	0.479
14	Jamnagar	-0.1311	Surendranagar	0.456
15	Surendranagar	-0.1372	Panchmahals	0.429
16	Banaskantha	-0.1767	Bharuch	0.418
17	Panchmahals	-0.1922	Valsad	0.414
18	Kachchh	-0.2351	Dohad	0.402
19	Dang	-0.8807	Gandhinagar	0.379
20			Patan	0.378
21			Navsari	0.376
22			Amreli	0.359
23			Tapi	0.353
24			Porbandar	0.318
25			Narmada	0.292
26			Dang	0.219

Source: Compiled by the Researcher from Census figures 1991 and 2011 Gujarat.

Table (10) socio-economic development composite indices for the period 1991 and period 2011. In 1991 Ahmedabad district was at the rank number one with 0.7253 indices and it has maintained the same rank with 0.775. This shows that the overall development of Ahmedabad could attain the growth to the extent of 22 points which is not enough to show/state that the growth in the previous year for the available infrastructure had multiplied. In among other districts like Vadodara, Rajkot, Sabarkantha, Vadodara was 0.1547 indices in 1991 against 2011 it is at 0.767 at 2nd rank. Similar is the situation of Rajkot which is a rank three with 0.712 indices in 2011 against 0.0485 indices in 1991. And Rajkot in 1991 was in the semi developed state, similarly Sabarkantha and Junagadh in 2011 could cop up with the indices 0.640 and 0.603 respectively. The matter to be noted here is Banaskantha was in the less developed level and Junagadh with higher position. This shows that the whole scenario of these two districts which are mainly an agricultural economy had the proper infrastructure and their use. This infrastructure mainly is water supply, electricity, housing, roads, and the support of the government institutions through agricultural finance, irrigational facility as well as electricity at a time of need, proper finance at lower rate of interest both from cooperative as well as other schedule banks. The important aspect is the government policy of providing the ownership cards to the land owners in the rural areas though the fragmented land which provided individual farmer with 2.81 average hectare as holding for the use of agriculture production (Niti Mehta 2006), overs and above this it is the finance invested by the private sector which is coming forward with the changed government policy. Farmers were provided for long term finance for purchasing land or digging wells as well as medium term loans for equipment like plough, animals, to compensate with the incomes, electric motors, diesel pumps and provide irrigational facilities if they do not enjoy the ground water from wells but the most important and useful the infrastructural aspect is the surfaced roads both in districts as well as state roads. Along with that marketing yard, APMC markets, warehousing facilities, adding a new aspect of crop insurance against natural calamities. As discussed earlier government provides inputs and subsidize it which includes high quality seeds, which would mature and grow in short time and the farmers not knowing about the fertility of land can approach the agricultural department who makes the arrangement for checking

the land fertility at the farmers farms spot. The whole theme of this discussion is how agriculture productivity and growth makes a dent with the same way Sabarkantha as well as Junagadh in terms of irrigational facilities to the extent of 3.5 times in 2011 against 1991. Similar is the situation of Junagadh which today is enjoying number one position in foodgrains as well as trees and plantation, not only that Junagadh has an upper hand in terms of allied products in the primary sector. Junagadh is also doing well in medium sized engineering firms and that is why Sabarkantha from the low developmental position of eleventh last time in 1991 has managed to be in the list of developed districts at number 7 could reach the rank number 4 in 2011. Similarly Bhavnagar was last time at number 10 have attained at number 5 on 2011. Similarly Bharuch, Jamnagar as well as Kutch with the proper and increased infrastructure Kachchh 18th out of 19 in 1991 this time i.e. in 2011 its rank number is 10 which is very big achievement for Kachchh which had faced natural calamity of a big disaster in toto. The death casualty was dream for the society which the same society with the help of government had changed their tables in terms of socio-economic developmental level. But example of Gandhinagar is an example which shows that Gandhinagar could not maintained its position in 1991 it was 2nd and in 2011 it is at number 19. Though Gandhinagar is proving to be an IT and educational hub as well as government administrative employment, there is no extra economic activity, that is why from number 2 in 1991 to number 19 in 2011. But Dangs had maintained its last number. Banaskantha moved from 16th to 8th rank. All in all Ahmedabad, Vadodara, Rajkot, Surat, Jamnagar, Kheda, Bhavnagar these are few districts which have factories as well as engineering cum factorial background and the wages are high which today are more than double compared to agricultural workers. So there is migration for higher wages and taste of living in rural area for uplifting the standard of living along with this people are attracted by the city culture. And that is why the population in urban areas is high from the remote areas like Amreli, Panchmahals, Dohad and the growth rate also due to one of these reasons either higher wages or culture or entertainment or education cum job opportunities more and more people migrate to centres like Surat where manual cum semi-skilled labour is required and semi-skilled and a high skilled (knowledge) migrates towards districts like Vadodara and Rajkot as well as Ahmedabad with this ranking system the other aspect which

needs attention is the per capita income, effective literacy, access to safe drinking water in households, infant mortality, life expectancy, per capita power consumption, population served per bank office, population below poverty line both in urban and rural areas and OSR is discussed below.

Table (11): Districts by Developmental Level – (1991)

Region	Districts	Absolute	Population %
	High-developed		
Middle Gujarat	Ahmedabad, Kheda, Vadodara	11332000	27.43
North Gujarat	Gandhinagar	409000	0.98
South Gujarat	Surat	3398000	8.23
	Medium-developed		
North Gujarat	Mehsana, Sabarkantha	4699000	11.37
Saurashtra	Amreli, Bhavnagar, Jamnagar, Junagadh,	11227000	27.18
	Rajkot, Surendranagar		
South Gujarat	Bharuch, Valsad	3720000	9.00
	Low-developed		
Kachchh	Kachchh	1263000	3.06
Middle Gujarat	Panchmahals	2957000	7.16
North Gujarat	Banaskantha	2163000	5.24
South Gujarat	Dang	144000	0.35
			100.00

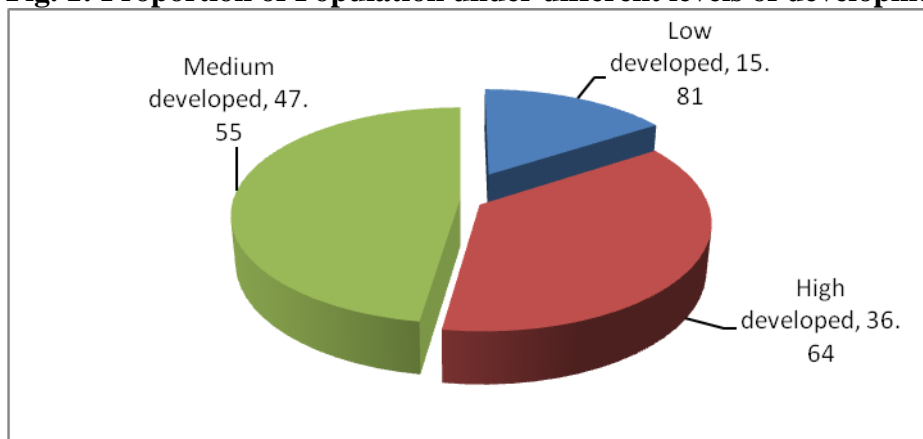
Source: Hrima H.Thaker and A.L. Shiyani, Journal of Rural Development, Vol. 28, 4 Oct. –Dec. 2009

It may be inferred that high-developed districts of the State were relatively more thickly populated as compared to medium or low- developed districts as noticed in Table 12. As we are concerned for getting the results for district development for the period 2011 it needs that no discussion for table (11) needs to be done for the period 1991.

Region-wise classification of districts under different levels of development for the period 2011 is given in Table 12 and Fig.2. The districts of Ahmedabad, Vadodara, Rajkot, Sabarkantha, Junagadh ranging between one to five and Surat were found to be losing place down development in both the periods (Tables 6 and 7). The district of Mehsana which was placed in medium-developed group during the pre-reform period (1991) have had made its place in high-developed group during the post-reform period i.e. 2011. Similarly, the common districts having medium level of development in both the periods were Jamnagar and Surendranagar. Other districts with medium level of development in 2011 included Panchmahals, Dohad (bifurcated from the district of Panchmahals) and Dang. After the communal strife that had

erupted in Banaskantha, Kachchh which was lingering in 1991 developed along with their agricultural cum industrial growth is in the level of Rajkot the high developed district in 2011.

Fig. 1: Proportion of Population under different levels of development (1991)



Source: Compilation from Table: 11

Table (12) Districts by Developmental Level - 2011

Developed			Semi-Developed			Less Developed		
Districts	Area	Population	Districts	Area	Population	Districts	Area	Population
Ahmedabad	8107	7214225	Anand	3204	2092745	Porbandar	2316	585449
Vadodara	7546	4165626	Jamnagar	14184	2160119	Narmada	2817	590297
Rajkot	11198	3804558	Surendranagar	10423	1756268	Dang	1766	113821
Sabarkantha	7394	3120506	Panchmahals	5231	2390776			
Junagadh	8831	2743082	Bharuch	6509	1551019			
Surat	4549	6081322	Valsad	3008	1705678			
Mehsana	4401	2035064	Dohad	3642	2127086			
Banaskantha	10743	3120506	Gandhinagar	2140	1391753			
Bhavnagar	10034	2880365	Patan	5792	1343734			
Kachchh	45679	2092371	Navsari	2246	1329672			
Kheda	3953	2299885	Amreli	7397	1514190			
			Tapi	3139	807022			
	122435	39557510		66915	20170062		6899	1289567

Source: Compiled by Researcher
Statistical Abstract of Gujarat State 2012

Wadi scheme has become the hallmark of agriculture, while dairy as a full time activity has become the new lifeline for Dangs. But, its HRD, Infrastructure, Industrial growth appears to be dipped down where Gujarat has highlighted that use of agro-based technologies, new connectivity and communication linkages and an

expanded network of roads have instilled faith in the development of Dang (The Times of India, date. 08-1-2008). It was the tribal areas further observed that the districts of Kachchh and Banaskantha have remained at the low ebb of development in 1991 but have done very well in agriculture between 1996-97 to 2011, specifically between 2004-05 and 2010-11 and has uplifted their position as high developed districts. During 2011, the districts of Anand (bifurcated from the district of Kheda), Mehsana and the three districts, viz., Bharuch, Navsari and Valsad of South Gujarat were placed in high-developed group. A noteworthy point is that all the districts of Saurashtra region, were placed in the medium-developed group in the pre-reform period, but except the district of Rajkot, Junagadh, Bhavnagar and Kachchh districts of this region were shifted to high-developed group in the post-reform period. This shows that regional imbalances are glaring and growing. Rapid economic changes resulted in increased regional disparities and the development gains have trickled down unevenly among the regions within the State. This selective path of development being followed is bound to pose major impediments for the overall growth of the State economy in the long run so far as distributive justice is concerned.

Table (13): Socio Economic Development Levels by Area and population in percentage

Level of development	Year	Number of districts	Area (%)	Population (%)
High	1991	5	16.33	36.65
	2011	11	62.80	66.78
Medium	1991	10	48.48	47.55
	2011	12	33.60	33.81
Low	1991	4	35.19	15.80
	2011	3	3.6	0.31
Total	1991	19	100.00	100.00
	2011	26	100.00	100.00

Source: Compiled by the Researcher

Relative share of area and population affected under different levels of socio-economic development presented in Table (13) indicated that though the number of high and low-developed districts was 5 and 4, respectively in 1991, it increased to 11 each in 2011. The area and population covered by high and low-developed districts during the post-reforms period increased substantially. This implies that though the various developmental programs of government have resulted in an improvement in the various sectors of economy during the last decade, they also gave rise to vast

regional inequalities. Niti Mehta (2006) also found tremendous imbalances in the levels of development in Gujarat. She further noted that the lack of higher education and appropriate skill formation reduced the capacity of households to take up diversified economic activities and dictated the choice of occupation. It is therefore, suggested to tighten the implementation mechanism of various policy reforms keeping in view the less developed districts as well. Though the number in less developed districts effects only the population of 0.31% with the area of 3.6 % as in 2011 study but, this also needs a proper set up to monitor, though much has been done through government policies.

VII. CSR and OSR through Social and Economic Indicators

Its resilient economy has endured everything from natural calamities like droughts and earthquakes as well as manmade ones like recession, riots, etc. The dropout rate in class I-V was just 3.24% in 2006-07. The HDI for Gujarat has improved from 0.462 in 1991 to 0.565 in 2001. The GDI for Gujarat has also risen from 0.453 to 0.551 during 1991-2001 (GoG, 2007-08). Table (14) shows some other important socio-economic indicators of Gujarat, as compared to the all India situation.

Table (14) Gujarat Social and Economic Indicators

Indicator	2011
Geographical Area	6%
Population in 2011	4.99%
Contribution to GDP (at constant prices at 2004-05	7.4
The per capita income at constant prices (in Rs. As per 2004-05 estimates)	52708
Effective Literacy Rate (excluding population of 0-6 age group)	78.03%
Access to safe drinking water in households (Tap/hand pump/ Tube well)	92.59%
Infant Mortality Rate (per '000) births (2010-11)	41
Life Expectancy at birth (2006-2010) and 2011-2015	
(i) Male (years) (2006-10) (2011-15) = 71 years	62.0
(ii) Female (years) (2006-10) (2011-15) = 73 years	64.9
Per capita power consumption (2006-10) in KWH	1572
Population served per bank office nos.	11449
Vehicle Density per sq.km. in March 2010	40
Population below poverty line (2009-10)	
(Based on URP consumption)	
Rural %	21.54
Urban %	5.16
Combined %	10.14
OSR (females per 1000 males) in 2011	918
CSR (Females per 1000 males) in 2011	888

Compiled by the Researcher

Source: Socio-Economic Review of Gujarat State and Statistical Outline of Economic Indicators, 2012-13, Gandhinagar. Indicators: (Figures as in 2001, unless the otherwise specified)

Table (14) above shows geographical area of Gujarat at 6% compared to India area. Share of population is at 4.99%. Contribution to GDP share was Rs.365295 crores at 2004-05 prices is 7.48%. Per capita is Rs.52708 at constant prices 2010-11 whereas per capita income was Rs.52708 against India's per capital Rs.35993 at constant (2004-05 prices). Effective literacy rate excluding 0-6 age group population was 78.03% access to safe drinking water in households 92.50% whereas infant mortality rate (2010-11) per '000 births was 41. Life expectancy at birth (2010-11) being male 71 years and female 73 years.

Table (15) OSR in Districts of Gujarat between 1991 and 2011

District	Percentage of urban population		Fall between 2001 and 2011		
	1991	2011	1991	2001	2011
Gujarat	37.67		934	918	-16
Ahmedabad	80.09	87.93	897	903	06
Surat	59.96	87.74	901	788	-113
Rajkot	54.69	85.44	946	924	-22
Porbandar	48.69	82.37	960	947	-13
Jamnagar	46.13	79.23	949	938	-11
Vadodara	45.26	89.74	913	934	21
Bhavnagar	37.85	82.26	944	931	-13
Gandhinagar	35.00	87.53	934	920	-14
Junagadh	29.05	82.21	960	952	-08
Navsari	27.35	88.92	958	961	03
Anand	27.34	88.16	912	921	09
Valsad	27.04	88.84	957	926	31
Surendranagar	26.58	82.30	921	9298	28
Bharuch	25.74	88.33	925	924	-01
Amreli	22.46	81.42	985	964	-21
Mehsana	22.40	88.27	951	925	-26
Patan	20.12	83.15	944	935	-09
Kheda	20.07	86.72	924	937	13
Panchmahals	12.51	86.65	934	945	11
Banaskantha	11.00	80.38	934	936	02
Sabarkantha	10.89	84.58	965	950	-15
Narmada	10.14	87.48	947	960	13
Dohad	9.56	82.09	976	986	10
Kachchh	NA	80.83	964	907	-57
The Dangs	00.00	88.32	983	1007	24
					-

Source: Statistical Abstract of Gujarat State-2005, Part-I, page 5, Directorate of Census Operation, Gujarat State, Directorate of Economics and Statistics, Government of Gujarat, Gandhinagar and Source:<http://www.i.gujaratindia.com/usefulinfo/Socio%20Economic%20Review/ser03/ser1-14.htm>

Per capita power consumption in 2011 table (15) was 1512 kwtt. Population per bank clients 11449. Density of vehicle per se. km. in 2010 was 40. Population below poverty line based at URP consumption rural percentage 21.54. Urban percentage 5.16. Combined 10.14%. OSR (female per 1000 males) were 918 and CSR (female per 1000 males) in 2011 were 888.

VIII. Hypothesis Testing

Gender Disparity among districts have increased and so is with urbanization.

From the table (15) OSR focusing on and specifically CSR shows the figures of percentage increase in urbanization and gender disparity have increased. With the rise in the percentage of urban population, disparity among male female population has also widened; this has already been highlighted Table (15) for percentage of urbanization between 1991 and 2011 in districts of Gujarat, where percentage-wise Surat district from 59.96 urban population in 1991 it rose to 87.74% in 2011. Rajkot from 54.69% in 1991 rose to 85.44% in 2011, Gandhinagar population rose from 35% in 1991 to 87.53% in 2011. Mehsana from 22.40% in 1991 to 88.37% in 2011 and Kachchh in particular once destroyed by nature has 80.83% in 2011 urban population all of them except Vadodara whose urban population has also increased.

Child Sex Ratio in Gujarat

It is evident from Table (15) and Table (16) that the CSR in Gujarat is lower than the OSR, which means that the OSR would decline even further in the coming decades. A matter of concern is that between 1991 and 2011, the CSR has fallen below the OSR even in the tribal majority districts. Mehsana, Rajkot, Ahmedabad and Gandhinagar were amongst those districts in India, which recorded the lowest SR in Census 2001. Of the twenty five districts in Gujarat, only eleven recorded a CSR more than 900, whereas fourteen other districts of Gujarat have a CSR less than 900. One district has a CSR less than 800 (pp-184 Gujarat Human Development Report, 2004).

Table (16): CSR in Districts of Gujarat between 1991 and 2011

District	Percentage of Urban Population	1991	2001	Fall between 1991 and 2011		
Gujarat	37.67	928	878	886	-50	-42
Ahmedabad	80.09	896	813	859	-83	-34
Surat	59.96	944	873	837	-71	-108
Rajkot	54.69	916	853	854	-63	-62
Porbandar	48.69	909	896	874	-13	-15
Jamnagar	46.13	916	843	898	-73	-18
Vadodara	45.26	934	872	894	-62	-40
Bhavnagar	37.85	925	885	885	-40	-40
Gandhinagar	35.00	888	816	847	-72	-41
Junagadh	29.05	934	901	904	-33	-30
Navsari	27.35	955	912	941	-43	-34
Anand	27.34	896	873	976	-23	-19
Valsad	27.04	976	947	889	-29	-50
Surendranagar	26.58	905	861	914	-44	-16
Bharuch	25.74	955	909	879	-46	-41
Amreli	22.46	923	901	845	-22	-44
Mehsana	22.40	899	797	884	-102	-54
Patan	20.12	903	862	887	-41	-19
Kheda	20.07	900	880	923	-20	-13
Panchmahals	12.51	970	934	890	-36	-47
Banaskantha	11.00	934	906	890	-28	-44
Sabarkantha	10.89	933	876	899	-57	-34
Narmada	10.14	985	952	937	-33	-48
Dohad	9.56	1001	964	937	-37	-64
Kachchh	NA	929	918	973	-11	-16
The Dangs	00.00	999	973	963	-26	-36

Source : Statistical Abstract of Gujarat State-2005, Part-I, page 5, Directorate of Census Operation, Gujarat State, Directorate of Economics and Statistics, Government of Gujarat, Gandhinagar.

Table (17) Sectoral Distribution of NSDP-Gujarat among Sectors 1980-81 to 2010-11 (in crores)

Sr. No.	Year	Primary	Secondary	Tertiary	Total	NSDP
1	1960-61	41.8	25.7	32.5	100	738
2	1970-71	46.1	23.1	30.8	100	2189
3	1980-81	40.8	27.2	32.0	100	6547
4	1990-91	27.6	34.6	37.8	100	10839
5	1999-00	19.8	35.4	44.8	100	NA
6	2000-01				100	86431
7	2001-02	18.95	36.05	45.00	100	93455
8	2002-03	18.16	37.74	44.10	100	101603
9	2003-04	18.79	37.54	41.66	100	118525
10	2004-05	19.5	36.5	44.0	100	17265
11	2005-06	20.6	37.1	42.3	100	197270
12	2006-07	20.6	37.3	42.1	100	-
13	2007-08	20.3	37.3	42.4	100	NA
14	2008-09	19.8	37.7	44.1	100	NA
15	2009-10	18.2	36.9	44.9	100	284732
16	2010-11	19.8	36.8	41.4	100	315862
17	2011-12	21.5	36.1	42.4	100	-

Note: GSDP is taken on the basis of Gujarat State

Key indicators of Gujarat 2008-09

Source: Socio-Economic Review, Gujarat State 2011-12

(ii) Hypothesis Testing through NSDP of Gujarat at constant prices

Taking into account table one, focusing on NSDP. It points out that figures taken in table (17) shows sectoral distribution of Gujarat state NSDP in percentage amount in 1980-81 the share of primary sector was 40.8% secondary sector share was 27.2% and tertiary was at 32%, the NSDP was to be extent of 6457 cr. in 1990-91 primary sector with 27.6%, secondary with 34.6% and tertiary sector at 37.8% and NSDP was 10839 r. Similarly in 1999-2000 primary sectors achieved 19.8%, secondary sectors 35.4% and tertiary sector with 44.8% in 2001-02 the share of primary sector was 18.95%, secondary sector 36.05% and tertiary 45% and NSDP was 93455 cr. which shows that primary sector throughout the period was marginally decreasing and remained between 19 and 22%. Similarly secondary sector which was 35.4% in 1999-2000 was 36.05% which means that it ranged between 35 and 38%. Similarly tertiary sector in the same period ranged between 42 and 45% but in terms of amount in crores one can say that though there was no depreciation of currency between the period 1990-91 and 2001-02. The increase in NSDP was by 8.64 times. Again in 2010-11 and thereafter agriculture sector has done very well in terms of agriculture growth, foodgrains grew 2.55%, rice 2.65%, wheat 3.65%, cotton 4.10% groundnut and oil seeds more than 3 times it were only pulses which had not maintained the tempo of agricultural growth, but throughout the period when the agricultural growth of the nation between 1996-97 to 2007-08 is concerned the overall growth was just 3.2% and Gujarat state had achieved 7.6% and between the period 2007-08 and 2011-12 agriculture had done so well that is in this period the achievement had been to the extent of 215% in which rice production went upto 2.45 in which rice production went up to 2.45 times and wheat more than 4 times and wheat more than 4 times in percentage. Similarly secondary sector had maintained its percentage i.e. 36.8% and taking the whole period 1990-91 to 2010-11 it had been between 35% and 38%. Gujarat had always been in industry of growth rate and out of the total exports in industrial product Gujarat accounts for 16% to 21% and lastly taking into account the tertiary sector it was 41.4% in 2010-11 and taking to account the growth percentage from 1990-91 to 2010-11 it was between 38 to 45% but the highlight of this was in 2010-11 NSDP was Rs.315832 cr. which was 29.14 times

more in 2010-11 compared to 1991-92 period from this it can be said that the regional disparities is bound to show a wider gap both between the period as well as the districts. The SDP is used for the whole state as data individual districts in terms had not available.

(iii) Demography Gender Literacy, Area-wise, Sectoral and HRD Traits

Hypothesis testing demographic, Gender, Literacy, Area-wise and sectoral as well as infrastructure traits important for economic – socio growth.

Table (18) Hypothesis testing - Demographic, Gender, Literacy, Area-wise and sectoral and HRD Traits Important for Economic Socio Growth

Sr. No	Details of factors	1991	2001	2011
1	Population (in lakhs)	413	507	604
2	Decadal Population Growth	21.2	22.7	19.3
3	Children Sex Ratio (per thousand males)	100	883	886
4	Sex Ratio Female (per 1000 males)	934	920	918
5	Percent of Urban Population	34.5%	37.4%	42.6%
6	Density (persons per sq. km)	211	258	308
7	Literacy	61.3%	69.1%	79.31%
8	Expectation of life at birth			
		F	62.4%	64.9%
		M	64.4%	72.5
9	Net Per Capita Income		17227	75115
10	State Domestic Product	10831	86431	315192

Source: Compiled by the researcher

Table (18) focuses on the above matter in which population in lakhs has been taken showing 413 lakh in 1991 and 604 lakhs in 2011 making it 49.89% growth in last two decades and decadal growth had gone down comparing it with last decade with 3.4% which was less by 1.9% compared to 1991 percentage of 21.2% it was only 2011 when child sex ratio had improved by 3 points from 883 in 2000-01 to 886 in 2010-11. But sex ratio female had been 918 against 1000 males i.e. 16 points less compared to 1991 figures. It is a matter of dismay and discredit but it is nature's win so as for the population. Urban population rose by 23.47% taking percentage wise which 34.5% in 1991 and rose to 42.6% in 2011 and density rose from 211 per sq. km. in 1991 to 308 per sq.km. in 2011. Literacy rate went up from 61.3% to 79.31% in 2011. A rise of more than 18% in a two decades net per capita income rose more than 8 times in last two decades and state domestic product rose by 29.10 times i.e. Rs.10831 cr. to Rs.315192 cr. in 2011.

IX. Hypothetical Sectoral Test

(1) Agriculture

As earlier discussed at different places the development process can either begin with the industrial sector priority or agricultural sector development. India is a country with huge population and till date more than 60% population is in the rural areas. Number of persons directly or indirectly are getting their income from this sector. Many industries particularly food processing industry and even basic need for the existent need for agriculture for the sector which has played a very important role for the economic development for the Indian economic and though its overall share in terms of percentage in the Gujarat state domestic product is decreasing decade by decade, its importance cannot be denied or ignored. Thus, the discussion undertaken here is inter-woven in the table to follow.

Table (19) Agricultural growth and yield in area, product (1990-91, 2000-01, 2010-11)

		Pre-literalized 1990-91			2000-01			Post liberalized 2010-11		
		Area	Prod	Yield	Area	Prod	Yield	Area	Prod	Yield
1	Total cereals in '000 hect	3800 (100)	4459 (100)	1174 (100)	2975	2936	987	4015 (105.65)	9349 (209.66)	2328 (198.20)
2	Total Pulses	949 (100)	623 (100)	657 (100)	743	249	335	890 (93.78)	722 (115.89)	812 (19.87)
3	Total foodgrains	4748 (100)	5083 (100)	1070 (100)	3718	3185	857	4905 (103.31)	1007 (198.13)	2053 (191.87)
4	Total oilseeds	2818 (100)	2044 (100)	725 (100)	2861	1738	607	3110 (110.36)	5142 (251.67)	1653 (228.00)
5	Cotton* in kgs	1042 (100)	1531 (100)	250 (100)	1675	1283	130	2623 (251.98)	9825 (641.74)	637 (254.18)
		1980-81	1990-91							
(1)	Chemical fertilizers in tones	421309 (100)	753498 (178.85)	-	-	789432 (187.38)	-	-	1733056 (411.35)	-
(2)	Area irrigated in '00 hect	-	-	-	-	-	-	-		-
	Total net	24376 (26.22)	-	-	-	-	-	-	28060 (29.7%)	-
	Gross area	19105 (27.37)	-	-	-	-	-	-	33410 (31.84%)	-
	Double crop	112.21%	-	-	-	-	-	-	122.64%	-

Note: A = Area, P = Production, Y = Yield per hectare

*Cotton in '000 bales of 170 kgs each

Source: Compiled by researcher

Table (19) Agricultural growth and yield the highlight of it has been the growth of cereals, foodgrains, oil seeds and cotton area-wise though it has grown marginally or reduced marginally accept cotton where area used for cultivation was

2.5 times oil seeds 10.36% foodgrain 5.31% the case of area for pulses was 6.22% less and for cereals it was 5.65% wise more during past two decades i.e. 1991 and 2011. Production wise cereals from 44.59 lakh tonnes rose to 93.49 lakhs tonnes the rise of 2.10 times and focusing on yield there was rise by 98.20% between the period 1999-2011. Talking about foodgrains production it increased by 98.13% and yield by 91.87% yield during these two decades. But it has been in oil seeds particularly groundnuts where production rose to 2044 to 5142 tonnes an increase of 151.57% and yield rose to 2.28 times over 1991 period i.e. 725 kg to 1653 kg. the record production so far oil seeds are concerned. Lastly the role of cotton in which Gujarat has a share of more than 60% national production in 1991 the production was to the extent of 153000 bales of 170 kgs. Each rose to 9.83 lakhs bales the rise of 6.42 times. Similarly yield rose from 250 gms to 637 gms, the rise by 2.54 times in continuation of same table number (20) the use of chemical fertilizers highlights the increase of production view and the extent of productivity. The use of chemical fertilizers which was an absence scenario before the establishment of Gujarat state. The use of fertilizer comparing with 1980-81 period such chemical use are to the extent use of 411.35% i.e. against the use of 421309 tons in 1980-81 and 753418 ton in 1990-91, the use of advance technology product chemical fertilizers used in 2010-11 where 1733056 tones which means that it was 2.3 times more than 1991 figure and 4.11 times more than 1980-81. The other highlight of increasing the production of agriculture has been the role of irrigation which has shown the growth of agriculture production wise, yield wise which is leading Gujarat among all the states of India. In 1990-91 the total area was 24.376 lakh out of which gross area for irrigation was to the extent of 29.105 lakh hectares and during 1990-91 double cropping irrigation facility were irrigation intensity was 112.21%. The whole scenario area wise it increased to 28.06 lakh hectares an increase of 29.7% area 33.410 gross area accounting to 31.85% over 1991 figures and irrigational intensity increase from 1120.21% in 1991 to 122.64% in 2011.

(ii) Industry and Employment

Table (20) focuses on growth in employment, production industrial sector and disparities in pre and post liberalized period. Table 21 shows number of registered factories in 1990-91 17561 number rose to 37546 an increase by 213.18% and

working factories 14661 rose to 26088 an increase of 77.94%. Considering working capital which was Rs.2839 cr. in 1990-91 to 79207 cr. an increase of 27.9% similarly productive capital rose by 22.04 times. i.e. it was Rs.351173 cr. in 2010-11 against Rs.15937 cr. Employment rose by 85.56% which was 1387157 persons employees against 747569 employees important among these is value added which was 4468 cr. in 1990-91 rose to Rs.89448 cr. showing an increase of 20.02 times.

Table (20) Growth in Employment Production in Industrial Sector and Disparities in pre and pro liberalized period (in crore) (1990-91 to 2010-11)

S.No.	Factor details	1990-91	2000-01	2010-11
1	Number of factories regd.	17561	27089	37546 (213.80)
2	Factories workers	14661	18880	26088 (177.94)
3	Working capital (in cr.)	2839	15328	79207 (278.9)
4	Productive capital (in cr.)	15937	87416	351173 (2203.51)
5	Employees	747569	777597	1387157 (185.56)
6	Output (in cr.)	27593	127977	806783 (292.56)
7	Net Added Value (in cr.)	4468	16856	89448 (2001.97)
8	Intake total workers in lakhs	66.20	212.55	247.43
9	% of total population	40.23	41.95	40.98
10	Non-workers	246.89	294.15	356.72
11	% of total population	59.77	58.05	57.08

Similarly intake situation of workers went up from 66.20 lakh to 247.43 lakhs in 2010-11 making it percentage wise 40.23% of total population in 1990-91 to 40.98% of total population interestingly non-workers were 246.89 lakhs to 356.72 lakhs in 2010-11 i.e. percentage of total population of 59.77% to 57.08% this shows that with the increase technology Gujarat economy the number of non-worker percentage wise had gone down. Finding the job opportunities or migration to rural areas has been in a big way.

Table (21) is all the health indicators. Here it will be wise to state that birth rate, crude death rate, total fertility rate and maternal mortality rate, infant mortality rate and life expectancy at birth has been discussed below and in previous discussion. Table (21) shows some selected health indicators. Crude Birth Rates per thousand, in

1971 figure shows 40 per thousand population, which was 27.5 in 1991 has gone down to 21.3 SRS in 2011 which shows birth rates going down by 46.75% showing that awareness among middle class and higher income has been the leading factor which can be known from (CDR - Crude Death Rate going down from 16.4 per thousand population to 6.7 SRS 2011).

Table (21) Health Indicators (1971 – 2011)

S. No.	Particulars	1971	1991	2001	Current level
1	Crude Birth Rate (CBR) (Per 1000 population)	40	27.5	24.9	21.3 (SRS 2011)
2	Crude Death Rate (CDR) (Per 1000 population)	16.4	8.5	7.8	6.7 (SRS 2011)
3	Total Fertility Rate (TFR)	5.6	3.1	2.9	205 (SRS 2010)
4	Maternal Mortality Ratio (MMR) (per lakh live births)	-	389 (1992-93)	202 (SRS-1999-01)	148 (SRS 2007-09)
5	Infant Mortality Rate (IMR) (Per 1000 live births)	144	69	60	41 (SRS 2011)
6	Child (0-4) Mortality Rate (Per '000 live births)	57.3	31.7	18.5	12.9 (SRS 2010)
7	Current Contraceptive Use – any method (%)	-	49.3 NFHS-I	59 NFHS-II	66.6 NFHS-III
8	Life Expectancy at birth				
	Male	NA	62.4	62.9	64.9
	Female	NA	64.4 (1998-02)	65.2 (2002-06)	69.0 (2006-10)

Source: Socio-Economic Review 2011-12, Gandhinagar, Gujarat

This also proves regarding health consciousness of the society as a whole as well as the health services, medical insurances specifically micro insurance providing public companies and entry of number of private companies, natural funds government policies have done marvels in reduction of CBR.

Table (22) Recognized Educational Trait

Name of Institute	1990-91	2000-01	2010-11
Universities	7	7	10
College Arts, Com., Sci	235	422	693
Teacher Training Coll. BED	40	42	254
Secondary /Higher Secondary	5122	6343	9844
Primary Pre Primary School	16074	18468	46723

Table (22) points at the higher education and professional aspects in 1990-91 there were 7 universities the number rose to 10 an increase of 3 colleges towards arts, commerce, science facilities there were 235 colleges in 1990-91 rose to 693 i.e. an increase of 458 colleges. In 1990-91 training B.Ed. colleges were 40 and the number rose to 254 in 2011. In these two decades specifically the last decade i.e. the period between 2000 and 2001 government as well as NGOs started self finance courses,

giving private investors to enter this field. Gujarat technical university where all the professional courses like IT (computer knowledge) Technical education including degree as well as diploma courses affiliated to polytechnic education to boys and girls, MBA level course was established along with of Law University, Agricultural University etc. Number of corporates and NGOs have entered the educational field under compulsion for corporate responsibility a statutory clause laid down by government are making big bugs under the heads of corporate social responsibility and likewise. Secondary and higher secondary schools number rose from 5122 in 1990-91 to 40723 in 2010-11. The most impressive point of Gujarat Government's policy has been the increase in the enrollment above 100% and brought down the drop out in male and female at all levels of education.

IV. Poverty and Development

Table (23) Poverty in Gujarat/% People living below BPL

	Urban	Rural	Average Total
2004-05	39.10	20.10	31.60
2009-10	26.76	17.90	23.0
2011-12	21.54	10.14	16.63

Table (23) focuses on poverty in Gujarat and people living below poverty line. The figures available are for the period 2004-05, 2009-10 and 2011-12. Interestingly in 2004-05 urban BPL shows there are 39.10% under BPL and in rural areas it was 10.10% with an average total of 31.60% BPL in 2011-12 urban BPL number rose to 21.54% and between the period 2004-05 to 2011-12 the rural areas came down to 10.14% both ways in the urban areas the decrease of 11.86% whereas the rural areas the decrease to the extent of 9.96% making it the total of BPL taking both the areas together that is ruro-urban area the average BPL number was 16.63%.

The development to whatever extent an economy achieves, the figures of growth rate that any economy achieves for its economic development can only be praised is the stage when people living below poverty line are nil or minimum otherwise any government under democratic shall be blamed that only for the sake of votes care at the time of elections. The growth can thus be measured with the least number of poor in any economy increase in employment opportunities.

With all the above explanations finding of results, i.e. the outcome of whole discussion specifically in this chapter can only be tasted and tested if the things are put in the right direction in chapter to follow i.e. chapter number 8.