



## A STUDY OF INDUSTRIAL PRODUCTIVITY OF FACTORIES OF GUJARAT VS OVERALL INDUSTRIAL PRODUCTIVITY SCENARIO OF INDIA

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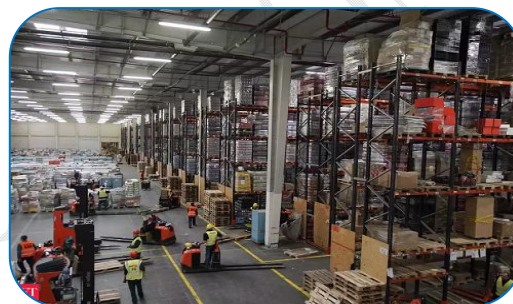
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### **PURPOSE:**

To check the Industrial productivity of Gujarat in India

### **FINDINGS :**

There is no significant ups and down in productivity values in last 15 years of study period. Comparing to India, productivity of Gujarat factories is higher, thus it can be concluded that factories of Gujarat utilising their input more efficient way to generate output compare to factories of India. During year 2011-12, productivity value is 0.89 which is highest of all time, and indicates that during this year factories of Gujarat utilising their input most efficient way to generate output. During year 2013-14, productivity value is 0.84 which is highest of all time, and indicates that during this year factories of India utilising their input most efficient way to generate output.



### **DURATION OF STUDY:**

The duration of the study here is from 1999-2000 to 2013-14. That is, the duration of the study is kept at 15 years.

### **INTRODUCTION**

In recent years there is a considerable amount of discussion and theoretical analysis of the concept of 'productivity'. Production of any commodity takes place as a result of the combined part played by different factors of production, such as land, labour, capital and organisation. In technical terms, these are called 'inputs' and what is produced or the product is called the 'output'. The ratio of all the, inputs and the total output measures the productivity of all the factors that combine to produce the output.

The ratio between the output of any one of the factors of production and the amount of that particular factor which has gone into the process of production as input, measures the productivity of that particular factor of production. But in general discussions and also theoretical analysis, the major interest appears to have centred\* round productivity of labour. And, therefore, when the term 'productivity' is used without any qualifications, generally it is understood as productivity of labour. Productivity of labour is generally measured in terms of 'output per man-hour' or 'output per unit of labour time'.

The great interest in productivity is due to the fact that productivity of labour affects, to a considerable extent, the cost of production and prices of commodities, and labour productivity is intimately related to wage rates and level of income and standard of living of workers.

It must be understood that input of labour is only one among the various inputs in the process of production. In the broadest sense or in the most comprehensive sense, the aggregates of all inputs and aggregates of all outputs have got to be taken into account to measure productivity in the economy.

Productivity of the economy in its broadest sense is the ratio of all inputs and all outputs of goods and services. When we speak of productivity in general or productivity in the economy, the concept implies the level of efficiency of the various factors of production or of various inputs. Increasing productivity in its broad sense implies more efficient use of all the factors of production than before and reducing to a greater extent than before, the degree or extent of wastage of various factors of production or inputs. Obviously, the objective is to increase productivity to the maximum possible extent. This implies making the best use of all the factors and cutting down wastes to the maximum possible extent. In other terms, it implies production of maximum possible goods and services with all the available resources in the economy. It means to have maximum possible output from the various inputs that have gone into the process of production.

### IMPORTANCE OF PRODUCTIVITY ANALYSIS

In one sense, productivity is a statistical measure. It, therefore, serves as an effective tool of economic analysis. Productivity indices serve as "an objective and scientific indication of the changes in economic and industrial organisation of a country". Productivity indices are 'bench-marks' or 'barometer' of the country's industrial and economic growth and changes taking place in the growth of the economy and consequently, these productivity indices help forecasts of industrial and economic growth.

The productivity indices (especially labour productivity) help to formulate the wage policy and the conditions of work in industrial establishments. Productivity indices are very significant. "From the point of view of general planning, such data are extremely significant since they permit

- (a) A comparison between enterprises within an industry;
- (b) A comparison with comparable industries in other countries; and
- (c) An estimate of the degree to which progress is being made over the entire industry".

Productivity indices are of significance and helpful in estimating the degree of protection to be granted to a particular industry; they are useful in formulating fiscal and taxation policies and adopting labour welfare measures and schemes. Productivity indices are helpful in forecasting economic trends and in formulating planning and allocation of resources into different channels.

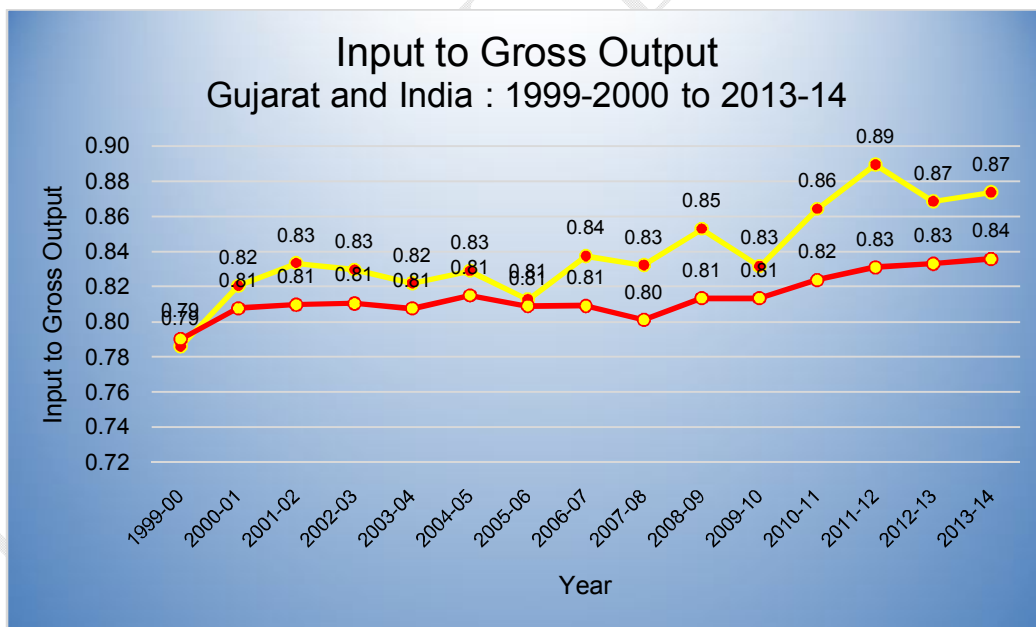
At the plant or departmental level, labour productivity indices can be used for evaluating the effect of the various schemes of scientific management or schemes of rationalisation. If a new scheme of incentives or of labour welfare is introduced in a factory, the labour productivity indices become useful in evaluating their effects. This means these indices can be an effective instrument of management policies.

Thus, labour productivity indices are useful to economic policy-makers to know the effects of new schemes they have introduced; useful to businessmen and trade union leaders to evolve and pursue more realistic policies which are likely to be successful.

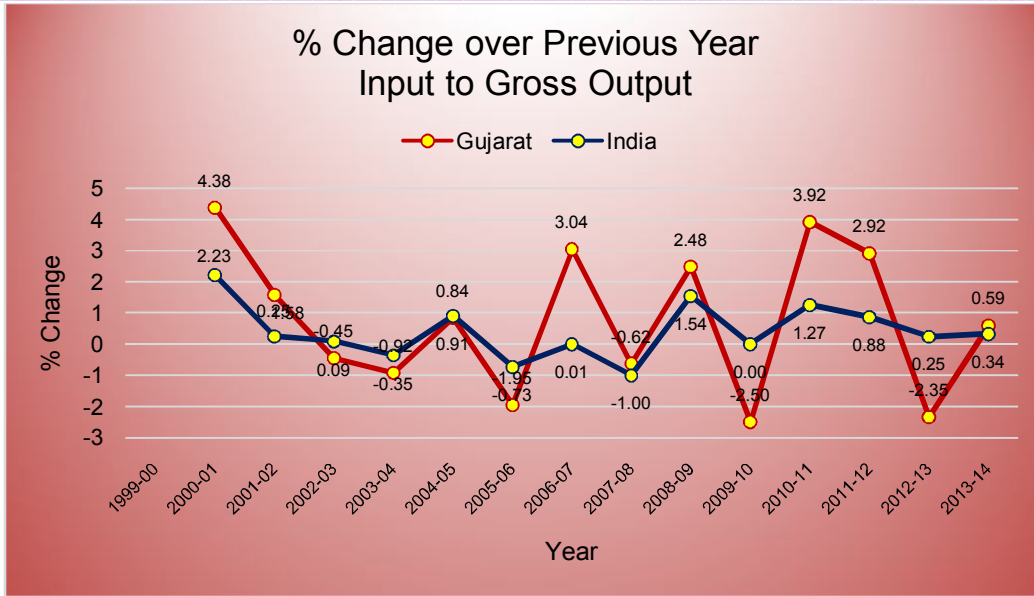
1. INPUT TO GROSS OUTPUT

TABLE 1 - INPUT TO GROSS OUTPUT

Input to Gross Output						
year	Input to Gross Output		% Change over Previous Year		% Change over Year 1999-2000	
	Gujarat	India	Gujarat	India	Gujarat	India
1999-00	0.79	0.79				
2000-01	0.82	0.81	4.38	2.23	4.38	2.23
2001-02	0.83	0.81	1.58	0.25	6.04	2.48
2002-03	0.83	0.81	-0.45	0.09	5.56	2.58
2003-04	0.82	0.81	-0.92	-0.35	4.58	2.22
2004-05	0.83	0.81	0.84	0.91	5.47	3.15
2005-06	0.81	0.81	-1.95	-0.73	3.41	2.39
2006-07	0.84	0.81	3.04	0.01	6.55	2.40
2007-08	0.83	0.80	-0.62	-1.00	5.89	1.38
2008-09	0.85	0.81	2.48	1.54	8.52	2.94
2009-10	0.83	0.81	-2.50	0.00	5.81	2.94
2010-11	0.86	0.82	3.92	1.27	9.95	4.25
2011-12	0.89	0.83	2.92	0.88	13.16	5.16
2012-13	0.87	0.83	-2.35	0.25	10.51	5.42
2013-14	0.87	0.84	0.59	0.34	11.16	5.78



GRAPH 1 - INPUT TO GROSS OUTPUT



**GRAPH 2 - % CHANGE OVER PREVIOUS YEAR - INPUT TO GROSS OUTPUT**

**INTERPRETATION**

Input to Gross Output helps us to understand how efficient input utilised to generate output by factories. Higher the ratio value indicates the efficiency of the factory.

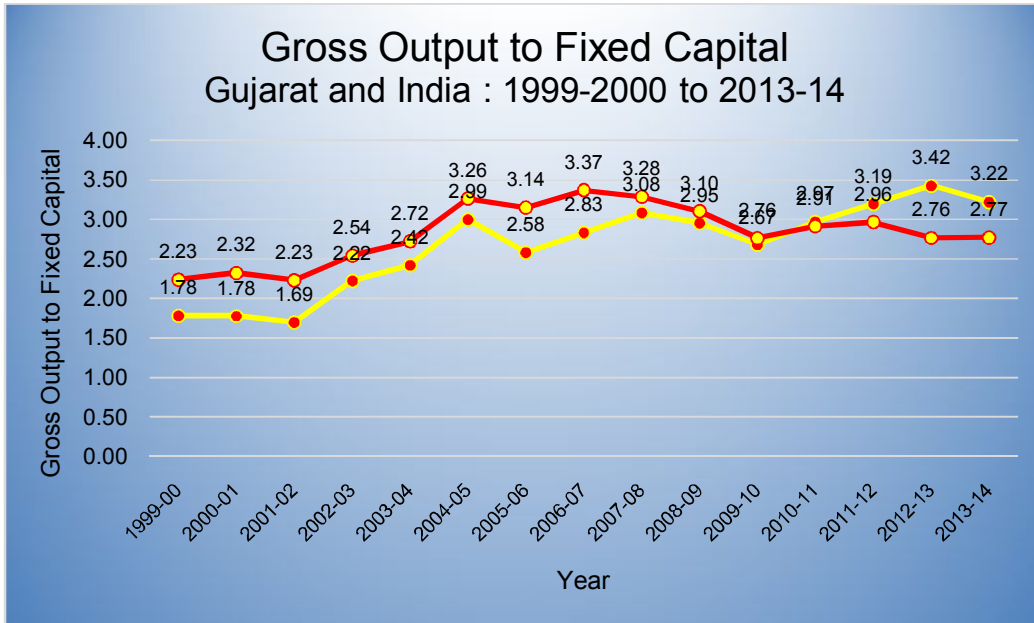
Based on the table no 1 it can be observed that there is no significant ups and down in Input to Gross Output ratio values in last 15 years of study period. Comparing to India, Input to Gross Output ratio of Gujarat factories is higher, thus it can be concluded that factories of Gujarat utilising their input more efficient way to generate output compare to factories of India. During year 2011-12, Input to Gross Output ratio value is 0.89 which is highest of all time, and indicates that during this year factories of Gujarat utilising their input most efficient way to generate output. During year 2013-14, Input to Gross Output ratio value is 0.84 which is highest of all time, and indicates that during this year factories of India utilising their input most efficient way to generate output.

**2. GROSS OUTPUT TO FIXED CAPITAL**

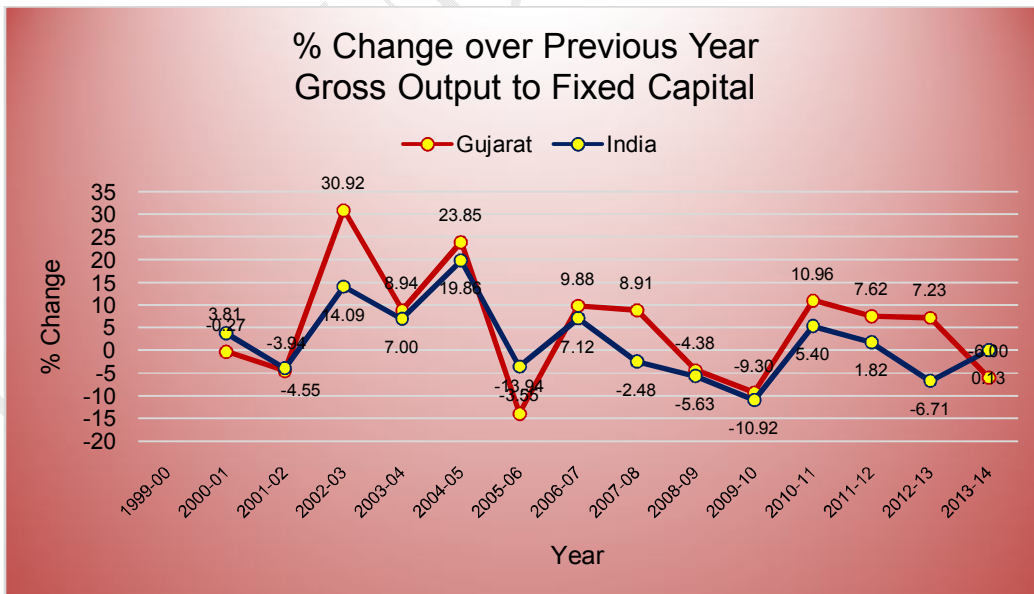
**TABLE 2 - GROSS OUTPUT TO FIXED CAPITAL**

Gross Output to Fixed Capital						
year	Gross Output to Fixed Capital		% Change over Previous Year		% Change over Year 1999-2000	
	Gujarat	India	Gujarat	India	Gujarat	India
1999-00	1.78	2.23				
2000-01	1.78	2.32	-0.27	3.81	-0.27	3.81
2001-02	1.69	2.23	-4.55	-3.94	-4.81	-0.28
2002-03	2.22	2.54	30.92	14.09	24.63	13.76
2003-04	2.42	2.72	8.94	7.00	35.77	21.73
2004-05	2.99	3.26	23.85	19.86	68.16	45.89
2005-06	2.58	3.14	-13.94	-3.55	44.73	40.72
2006-07	2.83	3.37	9.88	7.12	59.02	50.73
2007-08	3.08	3.28	8.91	-2.48	73.19	46.99

2008-09	2.95	3.10	-4.38	-5.63	65.60	38.71
2009-10	2.67	2.76	-9.30	-10.92	50.19	23.56
2010-11	2.97	2.91	10.96	5.40	66.65	30.23
2011-12	3.19	2.96	7.62	1.82	79.35	32.60
2012-13	3.42	2.76	7.23	-6.71	92.31	23.69
2013-14	3.22	2.77	-6.00	0.13	80.77	23.86



GRAPH 3 - GROSS OUTPUT TO FIXED CAPITAL



GRAPH 4 - % CHANGE OVER PREVIOUS YEAR - GROSS OUTPUT TO FIXED CAPITAL

## INTERPRETATION

Gross Output to Fixed Capital helps us to understand generation of gross output using Fixed Capital by factories. Higher the ratio value indicates the efficiency of the factory.

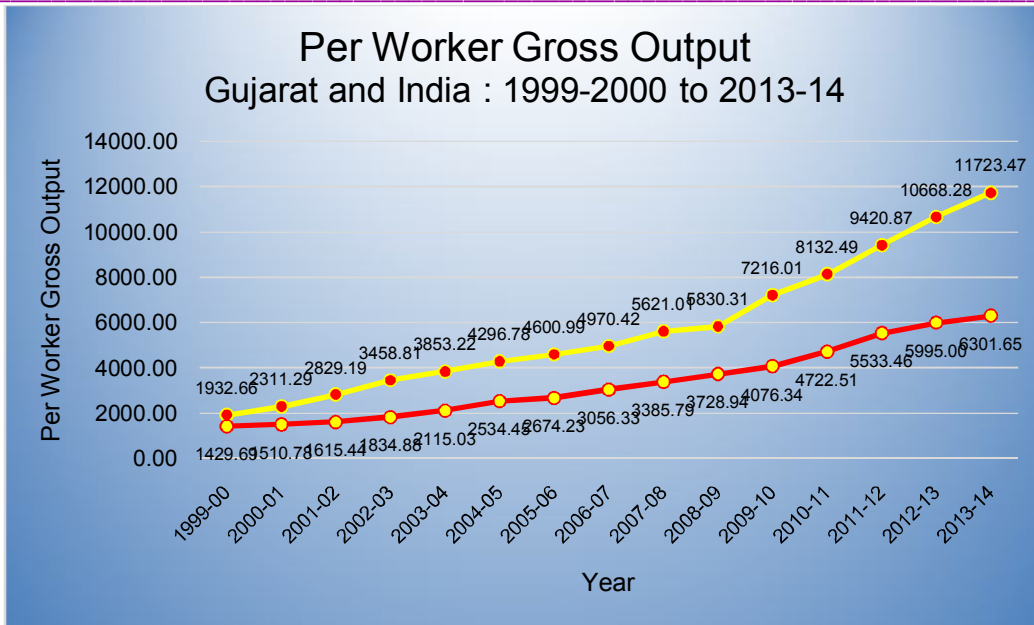
Based on the table no 2 it can be observed that there is no significant ups and down in Gross Output to Fixed Capital ratio values in last 15 years except year 2002-03, 2004-05, 2005-06 and 2010-11.

Comparing to India, Gross Output to Fixed Capital ratio of Gujarat factories is higher, thus it can be concluded that factories of Gujarat utilising their fixed capital more efficient way to generate output compare to factories of India. During year 2012-13, Gross Output to Fixed Capital ratio value is 3.42 which is highest of all time, and indicates that during this year factories of Gujarat utilising their fixed capital most efficient way to generate output. During year 2006-07, Gross Output to Fixed Capital ratio value is 3.37 which is highest of all time, and indicates that during this year factories of India utilising their fixed capital most efficient way to generate output.

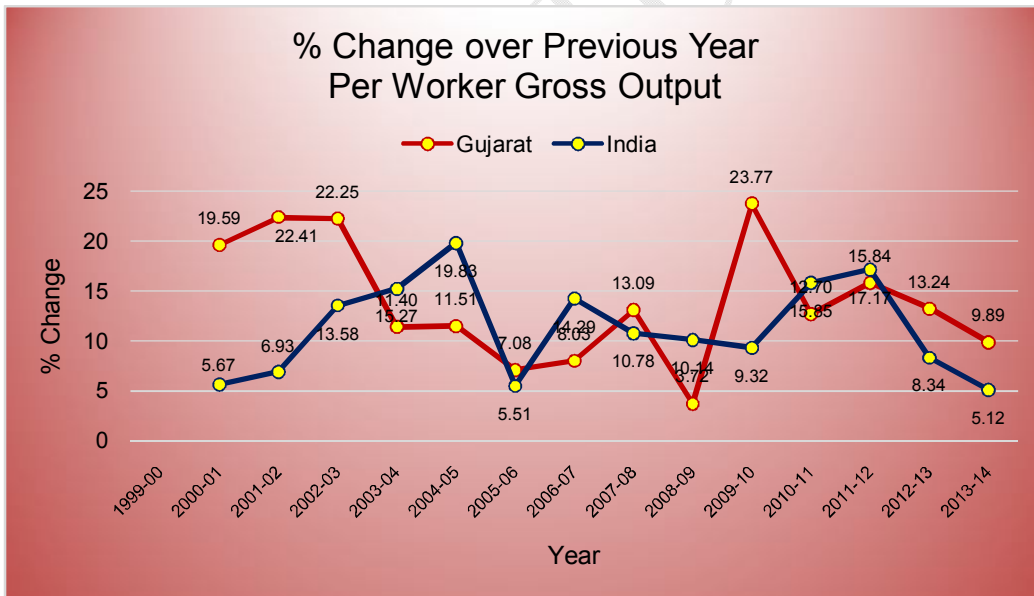
### 3. PER WORKER GROSS OUTPUT

**TABLE 3 - PER WORKER GROSS OUTPUT**

Per Worker Gross Output						
year	Per Worker Gross Output (Rs. In Thousand)		% Change over Previous Year		% Change over Year 1999-2000	
	Gujarat	India	Gujarat	India	Gujarat	India
1999-00	1932.66	1429.69				
2000-01	2311.29	1510.78	19.59	5.67	19.59	5.67
2001-02	2829.19	1615.44	22.41	6.93	46.39	12.99
2002-03	3458.81	1834.88	22.25	13.58	78.97	28.34
2003-04	3853.22	2115.03	11.40	15.27	99.37	47.94
2004-05	4296.78	2534.45	11.51	19.83	122.33	77.27
2005-06	4600.99	2674.23	7.08	5.51	138.07	87.05
2006-07	4970.42	3056.33	8.03	14.29	157.18	113.78
2007-08	5621.01	3385.79	13.09	10.78	190.84	136.82
2008-09	5830.31	3728.94	3.72	10.14	201.67	160.82
2009-10	7216.01	4076.34	23.77	9.32	273.37	185.12
2010-11	8132.49	4722.51	12.70	15.85	320.79	230.32
2011-12	9420.87	5533.46	15.84	17.17	387.46	287.04
2012-13	10668.28	5995.00	13.24	8.34	452.00	319.32
2013-14	11723.47	6301.65	9.89	5.12	506.60	340.77



GRAPH 5 - PER WORKER GROSS OUTPUT



GRAPH 6 - % CHANGE OVER PREVIOUS YEAR - PER WORKER GROSS OUTPUT

**INTERPRETATION**

Per worker Gross output helps us to understand how much output generated per workers. Higher the ratio value indicates the efficiency of the employee.

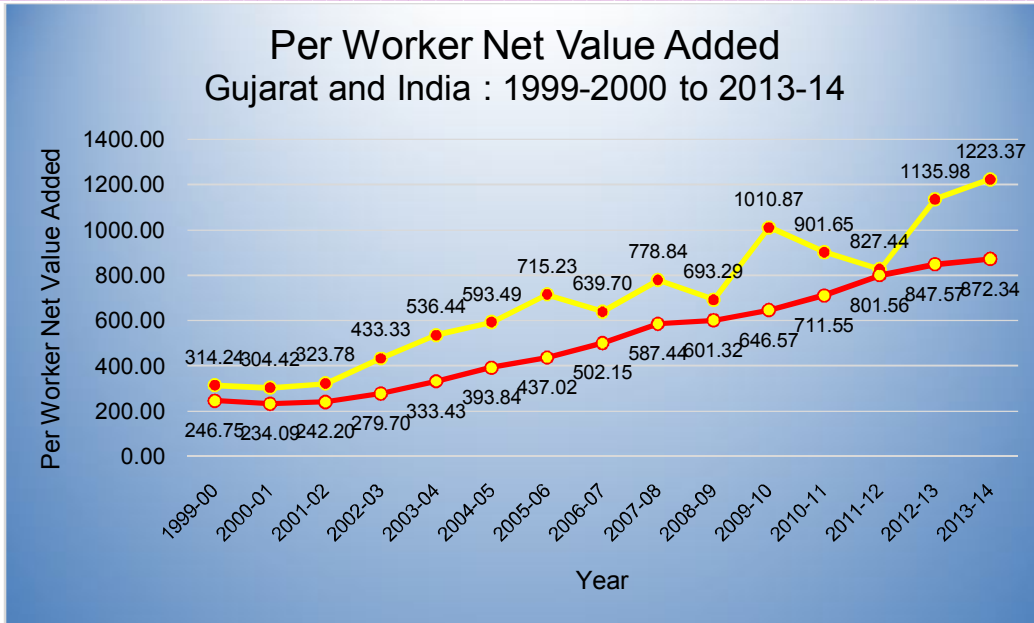
Based on the table no 3 it can be observed that there is significant ups and down in per worker Gross output ratio values in last 15 years.

Comparing to India, per worker gross output ratio of Gujarat factories is higher, thus it can be concluded that workers of factories of Gujarat generating more output compare to output generated by employees of factories of India. During year 2013-14, per worker gross output ratio value is 11723.47 which is highest of all time, and indicates that during this year workers of factories of Gujarat generated highest output of all time. During year 2013-14, per worker gross output ratio value is 6301.65 which is highest of all time, and indicates that during this year workers of factories of India generated highest output of all time.

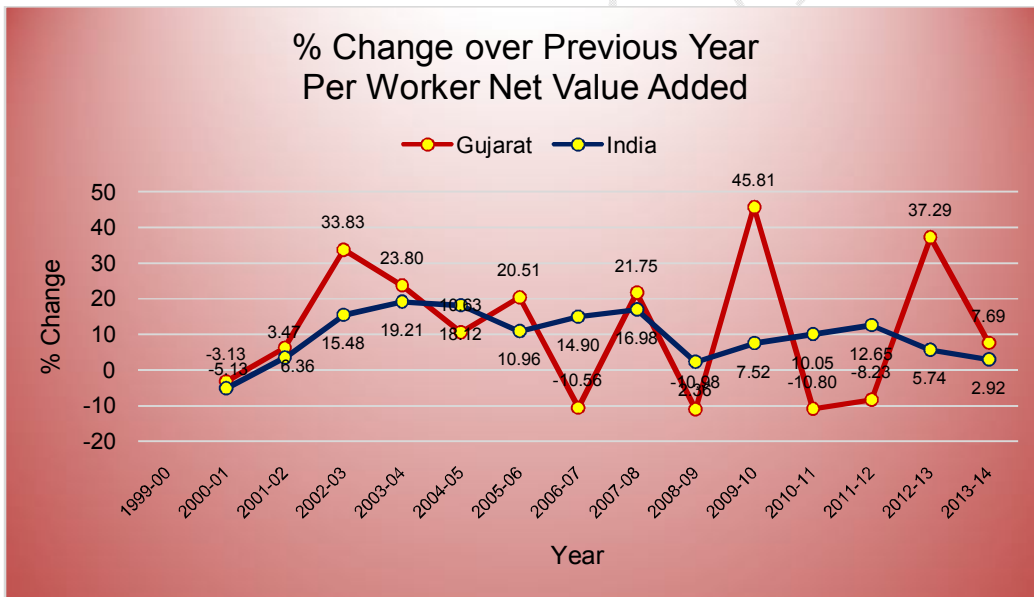
**4. PER WORKER NET VALUE ADDED****TABLE 4 - PER WORKER NET VALUE ADDED**

Per Worker Net Value Added						
year	Per Worker Net Value Added (Rs. In Thousand)		% Change over Previous Year		% Change over Year 1999-2000	
	Gujarat	India	Gujarat	India	Gujarat	India
1999-00	314.24	246.75				
2000-01	304.42	234.09	-3.13	-5.13	-3.13	-5.13
2001-02	323.78	242.20	6.36	3.47	3.03	-1.84
2002-03	433.33	279.70	33.83	15.48	37.89	13.36
2003-04	536.44	333.43	23.80	19.21	70.71	35.13
2004-05	593.49	393.84	10.63	18.12	88.86	59.61
2005-06	715.23	437.02	20.51	10.96	127.60	77.11
2006-07	639.70	502.15	-10.56	14.90	103.57	103.51
2007-08	778.84	587.44	21.75	16.98	147.85	138.07
2008-09	693.29	601.32	-10.98	2.36	120.62	143.70
2009-10	1010.87	646.57	45.81	7.52	221.68	162.04
2010-11	901.65	711.55	-10.80	10.05	186.93	188.37
2011-12	827.44	801.56	-8.23	12.65	163.31	224.85
2012-13	1135.98	847.57	37.29	5.74	261.50	243.50
2013-14	1223.37	872.34	7.69	2.92	289.31	253.53





GRAPH 7 - PER WORKER NET VALUE ADDED



GRAPH 8 - % CHANGE OVER PREVIOUS YEAR - PER WORKER NET VALUE ADDED

**INTERPRETATION**

Per worker net value added helps us to understand how much net value added by factories per workers.

Based on the table no 4 it can be observed that there is significant ups and down in per worker net value added ratio values in last 15 years.

Comparing to India, per worker net value added ratio of Gujarat factories is higher. During year 2013-14, per worker net value added ratio value is 1223.37 which is highest of all time, and indicates that during this year per worker value of net value added is highest of all time. During year 2013-14, per worker

net value added ratio value is 872.34 which is highest of all time, and indicates that during this year per worker value of net value added is highest of all time for India.

### CONCLUSION

Gujarat continues to occupy a distinctive position in the Indian economy. With 5 percent of the country's population and 6 percent of the country's geographical area, Gujarat contributes to about 16 percent of industrial production in India. The State has witnessed an annual average growth of 9 percent in the last three years (GDP is estimated at USD 38.4 billion) and an average industrial growth of 15 percent for the same period. However, these macroeconomic statistics look much more impressive on a closer look at the industrial landscape of the State. Accounting for 16 percent of the industrial production of India, Gujarat has demonstrated leadership in many areas of manufacturing and infrastructure sectors.

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