Structure and performance of industries in Gujarat

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Present study analyses economic performance and industrial growth pattern of Gujarat state, India. Two digit industries (TDI), which are major contributors to the economy, offer wide scope for employments due to maturity in technical skills and capabilities of entrepreneurs, investment potentials and net value addition. Economic reforms policies improved growth pattern of TDI. Manufacturing units of electricity, rubber, plastic, petroleum products recorded a significant growth (55%). TDI has diversified into chemicals, engineering, pharmaceuticals, dyes and dye intermediates, food processing, agro based industries, dairy, edible oils vegetable oils, soda ash, cement, fertilizers, petrochemicals, paper products from its traditional textile base. Ports and related offshore infrastructure development of service sectors enhanced productivity rate by strengthening supply chain networks of transportation.

Keywords: Economic performance, Gujarat state, Industrial growth

Introduction

Industrialization plays a crucial and dynamic role in growth of national economy. India being a signatory to WTO, challenges of globalization, liberalization and privatization are posing both opportunities and threats. With the increased integration of domestic and global markets, dependence on exports has substantially increased. States found more freedom and flexibility to pursue their own socio-economic policies. Gujarat has witnessed impressive industrial development since its formation in 1960. As a result, its rank among the industrial states risen from 8th in 1960 to the top slot in recent years. Industrial sector of Gujarat at present comprises of over 1200 large industries and over 3,12,000 micro, small and medium industries. Gujarat (geographical area 6% and population 5% of India) contributes (out of India’s total share) as: investment 16; expenditure, 10; export, 21; national GDP, 6.4; and stock market capitalization, 30%. Industrial growth (8.5%) of Gujarat is well ahead of many Indian states and some Asian countries (Singapore, Malaysia and Korea). The state having 40 minor and intermediate ports is one of India’s wealthiest states supporting modern industrial complexes and village handicrafts.

This paper analyzes performances and growth pattern of industries in Gujarat with specific reference to industrial growth during 1980-81 to 2004-05, change in growth rate after liberalization policies, changes in industries structure and major constraints that has come in the way of development of industrial sector.

Research Methodology

This study is based on Annual Survey of Industries (ASI) for “Two digit industries” (TDI) and “Three digit industries” in Gujarat and India. ASI with Central Statistical Organization (CSO) has conducted survey for 25 years (1979-80 to 2004-05). TDI consists of 33 industries group from industry code 01 to 37. Most industrial units of Gujarat are covered under TDI classification, which have been selected for examining industrial development in Gujarat. Information regarding number of factories, number of workers, productive capital and net value addition (NVA) during 1980-81 to 2004-05, were collected from ASI.

Estimation of growth rate of Gujarat industries is done using semi-log trend equation as

\[
\log Y = \beta_1 + \beta_2 T + U
\]

where, \(Y\) = dependent variable (NVA, productive capital, no. of factories and no. of employment for TDI of Gujarat), \(T\) = time (1980-81 to 2004-05), \(\beta_1\) and \(\beta_2\) = regression coefficients, \(U\) = error. The trend compound growth rate is estimated as

\[
\text{Growth rate} = (\text{Antilog } \beta_2 - 1) \times 100
\]

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Constancy of long-term growth rate of industrial sector was tested using semi-log quadratic equation as

$$\log Y = \beta_1 + \beta_2 T + \beta_3 T^2 + U_i \quad \ldots(3)$$

where $\beta$’s are regression coefficients, value of $\beta_1$ explains nature of growth rate. Insignificant value of $\beta_1$ supports hypothesis of constancy in growth rate over the period under consideration. Positive and significant value of $\beta_1$ indicates acceleration in growth rate, while negative and significant value will reflect deceleration in growth rate during the period.

Impact of liberalization is not expected to be uniform over the period of study. In order to identify impact of liberalization and year of shift, if any, in the growth of Gujarat industrial sector, following piecewise regression function is fitted to industrial sector over the period 1980-81 to 2004-05 with 1993-94 as the year of break in growth process:

$$\log Y = \beta_1 + \beta_2 T + \beta_3 (T - T_*) D + U_i \quad \ldots(4)$$

where $\beta_1$, $\beta_2$, and $\beta_3$ are regression coefficients and $D$ is dummy variable, which takes value 0 for $T_i < T_*$ and equal to 1 otherwise. $T_*$ is year of shift in growth rate.

Thus for pre shift period, estimated relation is $E(\log Y/ D=0) = \beta_1 + \beta_2 T$ and for post shift period, estimated relation is $E(\log Y/ D=1) = (\beta_1 - \beta_3 T_*) + (\beta_2 + \beta_3) T$. Thus $\beta_2$ gives slope of regression line in pre-shift period and $(\beta_2 + \beta_3)$ gives slope in post shift period of piecewise regression. A statistical significance of estimated slope coefficient $\beta_3$ will indicate breakthrough in industrial development of Gujarat after liberalization. For an assessment of change in the relative position of Gujarat industrial sector with rest of the Indian industries, concentration ratio (CR) for Gujarat industries is calculated as

$$\text{Concentration ratio (CR)} = \frac{\text{Gujarat industrial sector}}{\text{Indian industrial sector}}$$

For evaluating direction of change in CR, linear trend equation is fitted for the period 1980-81 to 2004-05. The sign of trend coefficient explains direction of change in relative position of State industries with total industries of the country. Positive and significant trend coefficient will reflect relative improvement in industrial sector of Gujarat. In order to examine impact of liberalization on relative position of industries of the state, again a piecewise trend equation is fitted to concentration ratio of industrial sector over the period of study.

Results and Discussion

Growth Performance of Net Value Addition (NVA) in Industrial Sector in Gujarat

NVA is increment to the value of goods and services contributed by factory. It is obtained by deducting the value of total input and depreciation from value of output. The growth of TDI in Gujarat is indicated by increase in NVA of this sector. In 1980-81, NVA in TDI of Gujarat was Rs 113871 lakhs, which went up to Rs 3601558 in 2004-05 (Table 1). Using semi-log function, an average 15.34% growth of NVA per annum has been observed in this sector during 1980-81 to 2004-05. Using quadratic function, coefficient of $T$ has been found positive and statistically significant while coefficient of $T^2$ is negative but insignificant, suggesting that NVA in this sector is increasing at a constant rate during this period. TDI in Gujarat are thus able to maintain impressive growth pattern during entire period of study. Using estimated equation for NVA of TDI indicates that coefficient of $T$ is positive and highly significant whereas coefficient of $(T - T_*) D$ is negative and statistically significant, suggesting that the growth in NVA of TDI of Gujarat is growing after implementation of liberalization policies but at a decreasing rate. Liberalization policies of the State thus have deteriorated growth of NVA at current prices in this State.

NVA share of Gujarat in total NVA of India during 1980-81 was only 9.5%, which increased to 13.85% in 2004-05. Estimation using linear trend equation showed positive and significant trend coefficient, suggesting that TDI of Gujarat have improved its relative position with respect to NVA in this sector in India. Estimates of piecewise equation showed that coefficient of $T$ was negative and insignificant while coefficient of $(T - T_*) D$ was positive and statistically significant, suggesting that after liberalization and economic reforms, CR of NVA has improved in the State. Thus, share of NVA of TDI of Gujarat is responding positively with respect to India after liberalization policies. During pre liberalization period, Gujarat industries were not showing much change than all India average but managed to increase its position in terms of NVA after implementation of liberalization policies into State economy.
Growth of Number of Factories in Gujarat

Total factories registered during 1980-81 were 11208, which increased to 13603 factories in 2004-05 (Table 2). Estimate of semi-log function for number of registration of factories showed positive and significant trend coefficient, suggesting that registration of factories in Gujarat TDI increased only by 1.39% per annum during study period. Estimation of quadratic equation shows that both coefficient of \( T^2 \) and coefficient of \( T \) are positive and statistically insignificant, suggesting that registration of TDI has not shown any particular pattern during this period. Piecewise regression equation indicates that coefficient of \( T \) is positive and significant whereas coefficient of \( (T-T^*) D \) is positive and statistically insignificant, indicating that there had been some improvement in number of registration of TDI of Gujarat prior to economic reform period but has remained unaffected after introduction of liberalization policies in the State.

### Table 1—Net value addition of TDI of Gujarat

<table>
<thead>
<tr>
<th>Function</th>
<th>Year</th>
<th>( \beta_1 )</th>
<th>( \beta_2 )</th>
<th>( \beta_3 ) ( T )</th>
<th>( \beta_4 ) ( T^2 )</th>
<th>( \beta_5 ) ( (T-T^*) D )</th>
<th>( R^2 )</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gujarat</td>
<td>Semi Log</td>
<td>1980-81</td>
<td>5.013</td>
<td>0.062</td>
<td>—</td>
<td>—</td>
<td>0.958</td>
<td>15.34</td>
</tr>
<tr>
<td></td>
<td></td>
<td>to</td>
<td>(0.041)</td>
<td>(0.003)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2004-05</td>
<td>(123.405)</td>
<td>(22.836)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quadratic</td>
<td>1980-81</td>
<td>4.940</td>
<td>0.079</td>
<td>—</td>
<td>-0.001</td>
<td></td>
<td>0.962</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td>to</td>
<td>(0.062)</td>
<td>(0.011)</td>
<td>(0.000)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2004-05</td>
<td>(79.148)</td>
<td>(7.122)</td>
<td>(-1.525)</td>
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<tr>
<td>Piecewise</td>
<td>1980-81</td>
<td>4.948</td>
<td>0.072</td>
<td>—</td>
<td>-0.021</td>
<td></td>
<td>0.965</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td>to</td>
<td>(0.050)</td>
<td>(0.005)</td>
<td>(0.010)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2004-05</td>
<td>(99.901)</td>
<td>(13.785)</td>
<td>(-2.064)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position</td>
<td>Linear</td>
<td>1980-81</td>
<td>0.083</td>
<td>0.002</td>
<td>—</td>
<td>—</td>
<td>0.418</td>
<td>—</td>
</tr>
<tr>
<td>Gujaratan</td>
<td></td>
<td>to</td>
<td>(0.006)</td>
<td>(0.00001)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in India</td>
<td>Piecewise</td>
<td>1980-81</td>
<td>0.099</td>
<td>-0.001</td>
<td>—</td>
<td>0.005</td>
<td>0.653</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td>to</td>
<td>(0.006)</td>
<td>(0.001)</td>
<td>(0.001)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2004-05</td>
<td>(15.793)</td>
<td>(-0.838)</td>
<td>(3.866)</td>
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</tr>
</tbody>
</table>

Values in parenthesis are standard error and t-statistics respectively

### Table 2—Number of factories of TDI of Gujarat

<table>
<thead>
<tr>
<th>Function</th>
<th>Year</th>
<th>( \beta_1 )</th>
<th>( \beta_2 )</th>
<th>( \beta_3 ) ( T )</th>
<th>( \beta_4 ) ( (T-T^*) D )</th>
<th>( R^2 )</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gujarat</td>
<td>Semi Log</td>
<td>1980-81</td>
<td>4.006</td>
<td>0.006</td>
<td>—</td>
<td>—</td>
<td>0.596</td>
</tr>
<tr>
<td></td>
<td></td>
<td>to</td>
<td>(0.015)</td>
<td>(0.001)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2004-05</td>
<td>(269.867)</td>
<td>(5.830)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quadratic</td>
<td>1980-81</td>
<td>4.025</td>
<td>0.002</td>
<td>—</td>
<td>0.000</td>
<td>—</td>
<td>0.614</td>
</tr>
<tr>
<td></td>
<td></td>
<td>to</td>
<td>(0.023)</td>
<td>(0.004)</td>
<td>(0.000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2004-05</td>
<td>(171.699)</td>
<td>(0.417)</td>
<td>(1.014)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piecewise</td>
<td>1980-81</td>
<td>4.017</td>
<td>0.004</td>
<td>—</td>
<td>0.004</td>
<td>0.004</td>
<td>0.610</td>
</tr>
<tr>
<td></td>
<td></td>
<td>to</td>
<td>(0.019)</td>
<td>(0.002)</td>
<td>(0.890)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2004-05</td>
<td>(206.801)</td>
<td>(2.077)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Position</td>
<td>Linear</td>
<td>1980-81</td>
<td>0.108</td>
<td>0.000</td>
<td>—</td>
<td>—</td>
<td>0.102</td>
</tr>
<tr>
<td>Gujaratan</td>
<td></td>
<td>to</td>
<td>(0.004)</td>
<td>(0.000)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in India</td>
<td>Piecewise</td>
<td>1980-81</td>
<td>0.120</td>
<td>-0.002</td>
<td>—</td>
<td>0.004</td>
<td>0.577</td>
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<td></td>
<td></td>
<td>to</td>
<td>(0.004)</td>
<td>(0.000)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2004-05</td>
<td>(31.742)</td>
<td>(-5.457)</td>
<td></td>
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</table>

†Values in parenthesis are standard error and t-statistics respectively
CR of factories registration in Gujarat with India during 1980-81 was 11.61%, which decreased to 9.97% in 2004-05. Estimation of linear function to CR of factories is showing negative and statistically insignificant trend coefficient, suggesting overall uniformity in CR of registration of factories in this sector. This further supports that registration of no. of factories of Gujarat TDI has not shown any change in relation to India. Using piecewise regression equation, coefficient of T is found negative and statistically significant while coefficient of (T-T*) D is positive and significant, indicating that after liberalization policies, CR of number of registration of TDI has increased in the State in relation to India. This indicates that the State is able to attract much industrial units in their economy after the liberalization policies.

Growth Performance of Productive Capital of Industries in Gujarat

Productive capital is total of fixed capital and working capital. Total capital investment (TCI) in TDI of Gujarat during 1980-81 was Rs 397437 lakhs, which increased to Rs 10902027 during 2004-05 (Table 3). Estimation of semi log function is showing positive and statistically significant trend coefficient, suggesting on an average 17.22% growth of investment in this sector during this period. Thus, growth of NVA is less than growth rate of productive capital in Gujarat during period under study. Estimates of quadratic equation show that coefficient of T is positive and significant while coefficient of T^2 is negative and statistically insignificant, suggesting that even productive capital in this sector is growing during this period. Estimates of piecewise trend equation also indicates that coefficient of T is positive and highly significant whereas coefficient of (T-T*) D is negative and insignificant, indicating that there had been an increase in capital investment in TDI in Gujarat but rate of investment is constant after liberalization. CR of productive capital of Gujarat TDI in relation to India’s TDI during 1980-81 was 9.21%, which increased to 16.19% during 2004-05. Estimation of linear function to CR is showing positive and statistically significant trend coefficient, indicating that CR in this sector has increased over the period. Estimate of piecewise equation also indicates that coefficient of T is positive but insignificant while coefficient of (T-T*) D is positive and statistically significant, indicating that after liberalization relative position of productive capital in this sector in Gujarat in relation to all India has increased. This further supports that during post economic reforms, the State is able to attract much foreign direct investment or private investment in this sector.

Growth of Employment in Industries in Gujarat

TDI in Gujarat had generated employment during 1980-81 for 572350 workers, which rose to 606847 workers in 2004-05 (Table 3). Estimate of semi-log function is showing positive and insignificant trend coefficient, suggesting overall growth rate of 0.23% per annum in

<table>
<thead>
<tr>
<th>Function</th>
<th>Year</th>
<th>β_0</th>
<th>β_1</th>
<th>β_2</th>
<th>β_3</th>
<th>β_4</th>
<th>R^2</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi Log function</td>
<td>1980-81</td>
<td>5.500</td>
<td>0.069</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>0.961</td>
<td>17.22</td>
</tr>
<tr>
<td></td>
<td>2004-05</td>
<td>(0.043)</td>
<td>(0.003)</td>
<td>—</td>
<td>—</td>
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<td>—</td>
<td>—</td>
</tr>
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<td>Quadratic function</td>
<td>1980-81</td>
<td>5.423</td>
<td>0.086</td>
<td>-0.001</td>
<td>—</td>
<td>—</td>
<td>0.964</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>2004-05</td>
<td>(0.066)</td>
<td>(0.012)</td>
<td>(0.000)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<td>Piecewise function</td>
<td>1980-81</td>
<td>5.440</td>
<td>0.077</td>
<td>—</td>
<td>-0.019</td>
<td>—</td>
<td>0.966</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>2004-05</td>
<td>(0.054)</td>
<td>(0.006)</td>
<td>—</td>
<td>(0.11)</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Linear function</td>
<td>1980-81</td>
<td>0.062</td>
<td>0.004</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>0.719</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>2004-05</td>
<td>(0.009)</td>
<td>(0.001)</td>
<td>—</td>
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<td>—</td>
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<tr>
<td>Position of</td>
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<td></td>
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<tr>
<td>Gujarati</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Gujarati in India</td>
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<td></td>
</tr>
</tbody>
</table>

^1Values in parenthesis are standard error and t-statistics respectively.
the number of workers in this sector during 1980-81 to 2004-05. Estimates of quadratic equation show that coefficient of $T^2$ is positive while coefficient of $T$ is negative but both are statistically insignificant, indicating that growth of employment of workers has not reporting any change in TDI of Gujarat during study period. Estimates of piecewise trend equation shows that coefficient of $T$ is positive and insignificant whereas coefficient of $(T-T^*)D$ is negative but statistically insignificant, suggesting that employment potentials have shown no change in TDI of Gujarat after introduction of liberalization and economic reforms in the State. CR of workers during 1980-81 is found to be 9.46%, which decreased to 9.19% in 2004-05. Estimate of linear function to CR is showing negative but insignificant trend coefficient, indicating no change in CR of number of workers in this sector. Estimate of piecewise equation shows that coefficient of $T$ is negative and significant while coefficient of $(T-T^*)D$ is positive and significant, indicating that CR of no. of workers decreased during pre liberalization but increased during post liberalization.

Thus, position of TDI in Gujarat has improved sharply after liberalization policies. Growth of capital investment has been found more than growth of employment in this sector. As a result, employment intensity in TDI is declining sharply. This sector has been successful to generate employment opportunities after implementation of liberalization policies in Gujarat. The State is able to maintain pace of development with rest of the country, and hence its relative position in terms of industrial development is continuously increasing. There is thus a need to identify industrial sectors that contribute in development process of economy, which are responsible for generating more opportunities in employment and investment in the State.

Industry wise Analysis of TDI of Gujarat

This analysis will reflect how the structure of industries in Gujarat is changing in terms of no. of units, productive capital, NVA and no. of workers. During study period, data available with ASI was from 1998-99 and latest for 2001-02.

Composition of Factories in Gujarat

This classification covers almost 87.41% of TDI units in Gujarat (Table 5). Most of the units are under manufacturing of wool, silk and manmade fiber textiles, followed by manufacturing of textiles, leather and leather fur products and textile products. Around 12.59% units in 1998-99 were related to each in manufacturing of rubber, plastic and petroleum; non-metallic mineral products, transport equipments and parts etc. included in the other units category. The share of units related to tanning and dressing of leather and footwear’s, basic metal and alloy and tobacco products was very low in

Table 4—Number of workers of TDI of Gujarat

<table>
<thead>
<tr>
<th>Function</th>
<th>Year</th>
<th>$\beta_1$</th>
<th>$\beta_2$</th>
<th>$\beta_3$</th>
<th>$\beta_4$</th>
<th>$R^2$</th>
<th>Growth rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gujarati Semi Log</td>
<td>1980-81</td>
<td>5.749</td>
<td>0.001</td>
<td>—</td>
<td>—</td>
<td>0.012</td>
<td>0.2305</td>
</tr>
<tr>
<td></td>
<td>2004-05</td>
<td>(394.143)</td>
<td>(0.536)</td>
<td>—</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gujarati Quadratic</td>
<td>1980-81</td>
<td>5.749</td>
<td>0.001</td>
<td>-0.366</td>
<td>—</td>
<td>0.012</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>2004-05</td>
<td>(243.971)</td>
<td>(0.148)</td>
<td>(-0.023)</td>
<td>—</td>
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<td></td>
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<td>Gujarati Piecewise</td>
<td>1980-81</td>
<td>5.746</td>
<td>0.001</td>
<td>—</td>
<td>-0.001</td>
<td>0.015</td>
<td>—</td>
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<tr>
<td></td>
<td>2004-05</td>
<td>(296.122)</td>
<td>(0.454)</td>
<td>(-0.225)</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gujarati Linear</td>
<td>1980-81</td>
<td>0.91</td>
<td>-0.000</td>
<td>—</td>
<td>—</td>
<td>0.075</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>2004-05</td>
<td>(30.705)</td>
<td>(-1.363)</td>
<td>—</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gujarati Piecewise</td>
<td>1980-81</td>
<td>0.100</td>
<td>-0.002</td>
<td>—</td>
<td>0.003</td>
<td>0.573</td>
<td>—</td>
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<tr>
<td></td>
<td>2004-05</td>
<td>(37.198)</td>
<td>(-5.381)</td>
<td>(5.070)</td>
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</tbody>
</table>

†Values in parenthesis are standard error and t-statistics respectively
the total units of Gujarat. Thus, during 1998-99, major industries were related to wool, silk and manmade fiber textiles, textiles and textiles products and leather and fur products. This composition has remained more or less same in 2001-02. Manufacturer of wool, silk and manmade fiber textiles are still dominating in the share of number of units in Gujarat, followed by other manufacturing units that include rubber, plastic and petroleum, non-metallic mineral products, and manufacturing of textiles and textile products. The share of textile products has reduced substantially from 11.34% to 10.12%. The share of other units in 1998-99 was 14.83%, which decreased to 12.59% during 2001-02. The share of jute and other vegetable fiber textiles except cotton has increased from 4.68% in 1998-99 to 6.28% in 2001-02. For most of the other units, there is not much change in their share in total industrial units. Therefore, except wool, silk and manmade fiber textiles, and other units, there is not much change in the composition of industrial structure in terms of no. of units in Gujarat. Liberalization policies thus have almost stabilized composition of industrial structure in the State.

<table>
<thead>
<tr>
<th>Industry code</th>
<th>Industry type</th>
<th>1998-1999</th>
<th>2001-02</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. of factories</td>
<td>No. of workers</td>
</tr>
<tr>
<td>01</td>
<td>Agriculture, hunting and related service activities</td>
<td>471</td>
<td>21671</td>
</tr>
<tr>
<td>15</td>
<td>Manufacturer of food products and beverages</td>
<td>1391</td>
<td>66343</td>
</tr>
<tr>
<td>16</td>
<td>Manufacturer of tobacco products</td>
<td>258</td>
<td>4976</td>
</tr>
<tr>
<td>17</td>
<td>Manufacturer of textiles</td>
<td>1960</td>
<td>143576</td>
</tr>
<tr>
<td>18</td>
<td>Manufacturer of wearing apparel; dressing and dying of fur</td>
<td>11</td>
<td>7631</td>
</tr>
<tr>
<td>19</td>
<td>Tanning and dressing of leather; manufacturer of luggage hand bags, saddlery, harness and footwear</td>
<td>50</td>
<td>1404</td>
</tr>
<tr>
<td>20</td>
<td>Manufacturer of wood &amp; products of wood and cork except furniture</td>
<td>221</td>
<td>2112</td>
</tr>
<tr>
<td>24</td>
<td>Manufacturer of wool, silk and manmade fiber textiles</td>
<td>2255</td>
<td>115108</td>
</tr>
<tr>
<td>25</td>
<td>Manufacturer of jute and other vegetable fiber textiles (except cotton)</td>
<td>724</td>
<td>18241</td>
</tr>
<tr>
<td>26</td>
<td>Manufacturer of textile products (including wearing apparel)</td>
<td>1754</td>
<td>44953</td>
</tr>
<tr>
<td>27</td>
<td>Manufacturer of wood and wood products: furniture and fixtures</td>
<td>1192</td>
<td>29738</td>
</tr>
<tr>
<td>28</td>
<td>Manufacturer of paper and paper products and printing, publishing and allied industries</td>
<td>1017</td>
<td>17501</td>
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<tr>
<td>29</td>
<td>Manufacturer of leather and leather and fur products</td>
<td>1911</td>
<td>42056</td>
</tr>
<tr>
<td>33</td>
<td>Basic metal and alloys industries</td>
<td>195</td>
<td>6094</td>
</tr>
<tr>
<td>Others</td>
<td>Other manufacturing industries includes electricity, rubber plastic and petroleum, non-metallic mineral products, mining and quarrying, repair of capital goods, transport equipments and parts, water works and supply etc</td>
<td>1946</td>
<td>86359</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15455</td>
<td>607763</td>
</tr>
</tbody>
</table>

†Values in parenthesis are percentage
Table 6 — Relative shares of productive capital and net value addition (NVA) in industries of Gujarat

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Productive capital Rs lakhs</td>
<td>NVA Rs lakhs</td>
<td>Productive capital Rs lakhs</td>
<td>NVA Rs lakhs</td>
</tr>
<tr>
<td>01</td>
<td>Agriculture, hunting and related service activities</td>
<td>14445</td>
<td>(0.16)</td>
<td>27340</td>
<td>(0.26)</td>
</tr>
<tr>
<td>15</td>
<td>Manufacturer of food products and beverages</td>
<td>247909</td>
<td>(2.91)</td>
<td>246611</td>
<td>(2.38)</td>
</tr>
<tr>
<td>16</td>
<td>Manufacturer of tobacco products</td>
<td>25498</td>
<td>(0.29)</td>
<td>40028</td>
<td>(0.38)</td>
</tr>
<tr>
<td>17</td>
<td>Manufacturer of textiles</td>
<td>696297</td>
<td>(8.18)</td>
<td>864122</td>
<td>(8.34)</td>
</tr>
<tr>
<td>18</td>
<td>Manufacturer of wearing apparel; dressing and dying of fur</td>
<td>23221</td>
<td>(0.27)</td>
<td>22624</td>
<td>(0.21)</td>
</tr>
<tr>
<td>19</td>
<td>Tanning and dressing of leather; manufacturer of luggage handbags, saddlery, harness and footwear</td>
<td>3955</td>
<td>(0.04)</td>
<td>1190</td>
<td>(0.01)</td>
</tr>
<tr>
<td>20</td>
<td>Manufacturer of wood and products of wood and cork except furniture;</td>
<td>6145</td>
<td>(0.07)</td>
<td>13283</td>
<td>(0.12)</td>
</tr>
<tr>
<td>24</td>
<td>Manufacturer of wool, silk and manmade fiber textiles</td>
<td>3674891</td>
<td>(43.20)</td>
<td>3686273</td>
<td>(35.61)</td>
</tr>
<tr>
<td>25</td>
<td>Manufacturer of jute and other vegetable fiber textiles (except cotton)</td>
<td>237885</td>
<td>(2.79)</td>
<td>282684</td>
<td>(2.73)</td>
</tr>
<tr>
<td>26</td>
<td>Manufacturer of textile products (including wearing apparel)</td>
<td>358966</td>
<td>(4.57)</td>
<td>468050</td>
<td>(4.52)</td>
</tr>
<tr>
<td>27</td>
<td>Manufacturer of wood and wood products: furniture and fixtures</td>
<td>1875300</td>
<td>(22.04)</td>
<td>750490</td>
<td>(7.25)</td>
</tr>
<tr>
<td>28</td>
<td>Manufacturer of paper and paper products and printing, publishing and allied industries</td>
<td>53502</td>
<td>(0.62)</td>
<td>81957</td>
<td>(0.79)</td>
</tr>
<tr>
<td>29</td>
<td>Manufacturer of leather and leather and fur products</td>
<td>285379</td>
<td>(3.35)</td>
<td>291852</td>
<td>(2.81)</td>
</tr>
<tr>
<td>33</td>
<td>Basic metal and alloys industries</td>
<td>13606</td>
<td>(0.15)</td>
<td>11243</td>
<td>(0.10)</td>
</tr>
<tr>
<td>Others</td>
<td>Other manufacturing industries includes electricity, rubber plastic and petroleum, non-metallic mineral products, mining and quarrying, repair of capital goods, transport equipments and parts, water works and supply etc.</td>
<td>957994</td>
<td>(11.26)</td>
<td>3562512</td>
<td>(34.41)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>8504993</td>
<td>(100)</td>
<td>10350259</td>
<td>(100)</td>
</tr>
</tbody>
</table>

1Values in parenthesis are percentage

Structure of Productive Capital in Industries of Gujarat

Gujarat TDI (Table 6) covered almost 88.74% of productive capital investment in TDI during 1998-99 while it covered 65.59% in 2001-02. During 1998-99, major productive capital investment was into wool, silk and manmade fiber textiles, followed by manufacturing of wood and wood products. The rest of the units were able to attract < 5% share in total productive capital. This composition of productive capital has changed drastically within a span of 4 years. Tremendous change can be observed in manufacturing of wool, silk and manmade fiber textiles industries, which decreased from 43.20% in 1998-99 to 35.61% in 2001-02. Wood and wood products industry’s share of productive capital decreased sharply from 22.04% in 1998-99 to just 7.25% in 2001-02. Moreover, share of productive capital in textile industries has increased to 8.34% in 2001-02. Further, share of productive capital in other units has increased tremendously from 11.26% in 1998-99 to
34.41% in 2001-02. For rest of the units, there is not much change in their share in total productive capital of TDI of the State. Thus, there has been a substantial change in composition of productive capital in Gujarat TDI; highest change being in wool, silk and manmade fiber textiles and wood and wood products industries. There is thus uneven distribution of capital investment in different sectors of industries in the State. Capital investment is not widely diversified in the state. Most of the units are very low sized units and hence failed to modernize in terms of technological up gradation.

Structure of Net Value Addition of Industries in Gujarat

Classification of industries covered 85.63% of total NVA of TDI in Gujarat during 1998-99 (Table 6). Most of NVA is generated under wool, silk and manmade fiber textiles industries, followed by manufacturing of textiles and manufacturing of leather and leather and fur products. Share of NVA in the units related to paper and paper products, basic metal and alloy industries, wood and wood product, agricultural activities, luggage bags and footwear industry and tobacco products is very low. This composition of output is changed a lot in 2001-02. Around 59.81% share in NVA in 1998-99 was related to manufacture of wool, silk and manmade fiber textiles, which decreased sharply to 6.59% during 2001-02. Share of NVA related to food products and beverages industry increased from 3.96% in 1998-99 to just 4.75% in 2001-02. Share of NVA also increased for textile industry and manufacturing of textile products and tobacco industry. Share of NVA has substantially decreased for wood and wood products, leather and fur products, paper and paper products, basic metal and alloys industries. For most of the other units, there has been a tremendous change from 14.37% in 1998-99 to 69.29% during 2001-02 in the share of NVA in total NVA in industries of Gujarat. Industries have recorded substantial change in terms of NVA in the TDI of Gujarat. Therefore, share of NVA of wool, silk and manmade fiber textiles industries in total NVA of Gujarat has decreased significantly but the no. of factories in this sector has increased minutely and productive capital in this industry has also decreased in the State. Substantial increase in terms of the share of NVA in total NVA of Gujarat is seen in other units, which mainly include rubber, plastic and petroleum, non-metallic and mineral products, transport equipment and parts and electricity. The no. of factories and productive capital in this sector has also increased in the State.

Structure of Employment In Industries of Gujarat

Classification of TDI (Table 5) covers almost 85.8% employment of total employment in this sector. Share of workers in manufacturing of textile industries (23.63%) is highest, followed by wool, silk and manmade fiber (18.94%), food products and beverages (10.92%) and textile products (7.39%). Share of workers in relation to wood products was just 0.35% in 1998-99. Major shares of workers thus were in the units related to textile, wool, silk and manmade fiber textiles and textile products in Gujarat during 1998-99. This composition has also changed during 2001-02. Manufacturing of textiles industry is still dominating in the share of workers in Gujarat followed by wool, silk and manmade fiber textiles and food products industries. Share of workers in textiles industry has reduced substantially from 23.63% to 21.79%. Share of workers in wool, silk and manmade fiber textiles industry has increased substantially to 21.34% in 2001-02. For most of the other units, there is a minute change in the structure of employment from 14.20 % in 1998-99 to 15.29% in 2001-02. Thus, there is not much change in structure of employment in industries in TDI of Gujarat.

Policy Initiatives of State Government

Gujarat is leading state in manufacturing sector. Government has announced its Industrial Promotion Policy and Action Plan 2003, which provides lots of investment incentives for private sector to invest in the State. For competitive growth, small and medium enterprises developed in the State are instrumental in forming industrial clusters. The Government has decided to offer concessions as electricity duty exemption for first 5 years to cluster associations if they set up either common power plants or common effluent treatment plants or waste recycling plants. Government plans to introduce a scheme to provide an interest subsidy @ 3% on purchase of all capital equipments necessary to be installed for technology up gradation for 5 years subject to a maximum of Rs 3 lakhs per year, to small and medium sector units. The Government decided to offer cash subsidy for assessment of water consumption in the existing industries.

Conclusions

Growth rate of TDI in Gujarat showed growth performance of NVA, productive capital and
employment. TDI offer wide scope for employments due to its maturity in terms of technical skills and capabilities of entrepreneurs, investment potentials and NVA. Policies of economic reforms improved growth pattern of TDI and relative position in industrial development. Composition of manufacturing units registered major change in wool, silk, manmade fiber textiles, jute and other vegetable fiber textiles. Manufacturing units of electricity, rubber, plastic, petroleum products recorded a growth of 54.92%. TDI has diversified into chemicals, engineering, pharmaceuticals, dyes and dye intermediates, food processing, agro based industries, dairy, edible oils vegetable oils, soda ash, cement, fertilizers, petrochemicals, paper products from its traditional textile base. Policy initiatives for investment incentives, capacity building, port or other offshore infrastructural support, foreign direct investment (FDI), technology up-gradation, R & D, quality improvement, market access promoted overall industrial development in the state.

References