THE TREND & GROWTH PATTERN OF MANUFACTURING SECTOR IN KARNATAKA ECONOMY: AN EMPIRICAL ANALYSIS

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ABSTRACT

The focus of this paper is to analyse the sectoral growth rate of NSDP of Karnataka in general and manufacturing growth in particular for three decades viz, 1980-81 to 1989-90, 1990-91 to 1999-00, 2000-01 to 2009-10 and for the entire period from 1980-81 to 2009-10. The analysis found that the compound growth rate of NSDP of Karnataka was less in the eighties, which slowly increased in the nineties, and registered double digit growth in the last decade. In the sectoral analysis what is observed is that in the nineties and more so in the last decade the tertiary sector dominated the economy. In the entire study period the growth rate of NSDP of primary sector was almost stagnant. For the same period the
secondary sector registered moderate growth. In the secondary sector the manufacturing sub sector showed high growth in the last decade. The registered manufacturing sector achieved the growth rate of 10.53 percent in the eighties and 10.32 percent in the last decade. The study found steady growth in the unregistered manufacturing sector in the entire study period.

Acknowledgments
Advisable suggestions given by Dr. Mahesh, (Prof Department of Economics, University of Mysore, Mysore-India) is gratefully acknowledged.

INTRODUCTION

As stated by the dominant theory of modern economic development, industry is expected to play a major role in creating as well as mitigating disparities among different regions. Manufacturing is considered as the main “engine of growth”¹ and industrial development subject to “cumulative causation” to a larger degree than development of other sectors². The transformation of resources/labour from agriculture to manufacturing would immediately lead to productivity growth thus contributing to growth.³ Manufacturing sector has the power to concentrate on technological advancement and this technological advancement propagates to other sectors such as service sector. Manufacturing industries have opportunities for economies of scale, but this is less available in agriculture or services. Other sectors (viz, agriculture, service) input supply is stimulated by the final demand for manufacturing goods⁴. Manufacturing sector has a many forward linkages through supplying of capital goods⁵. As per Engel’s law when per capita income of the people increases the expenditure on manufacturing goods increases and that of agricultural goods decreases. In largely populated countries the surplus population can be absorbed by
the manufacturing sector, this would create increasing productivity of the labourers so higher income of the people spend more income for non agricultural commodities and this necessitates the growth of manufacturing industries.

2. (Myrdal, 1957)
3. (Adam Szirmai and Bart Verspagen 2010)
4. Baumol
5. (Carnwall, 1977)

CONCEPTUAL FRAMEWORK

There are certain indicators which depict the performance of the different state economies and involved in comparing the fiscal performance of different states, viz. state income, fiscal deficit and public debt. Among these the state income is considered as an important measure of economic development of the state.

The estimates of SDP are regarded as an effective instruments to measure the growth and structural changes in the economy of the state.\(^6\) The aggregates of this estimate can be further broken down to obtain the sectoral estimates, their contributions, their growth etc. Long period of state income estimation depicts the magnitude and direction of growth of a state, and sectoral composition throws light on the relative position of the different sectors in the economy. Along with the per capita income the state income are extensively used by the policy makers, planners and administrators for the formulation of policies.
Conceptually, state income estimations are prepared by either income originating approach, or income accruing approach. Under income originating approach, the measurement corresponds to income origination to the factors of production physically located within the geographical boundaries of a state and represents gross/net value of goods and services produced within the state during a given period of time usually a year, while the income accruing approach relates to the income accruing to the normal residents of the state.

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For this data on flows of factor income to/from the boundaries of the state as well as flows to/from abroad is necessary. For want of requisite data, presently estimates of SDP prepared by the State Statistical Bureaus follow the income originating approach although income acquiring to the residents of a state is a better measure of welfare. This study used the income originating approach of state income and this is termed as Net State Domestic Product (NSDP) at factor cost.

With this background this study makes a moderate attempt to analyse the contribution of manufacturing sector to NSDP of Karnataka economy, by studying the trend & growth pattern of manufacturing sector.

This paper is organized into five sections. Section II proceeds with the related literature review. Section III deals with Data and Methodology. Section IV analyses the growth of Karnataka NSDP, Sectoral growth rate of NSDP, Manufacturing growth rate of NSDP & Section V concludes.
Montek Singh Ahluwalia (2000) studied the growth pattern of GSDP for 14 major states for pre and post reform periods. The study found highest growth rate of GSDP attained by Gujarat and Maharashtra in 1990s. The GSDP growth rates of Tamil Nadu and Karnataka made them to the top six in 1990s. B.B.Battacharya and S.Sakthivel (2001) analysis found high growth rate of State Domestic Product of Karnataka during the 1980s with over six percent per annum, and during the period 1990s Karnataka, achieved over 7 percent. P.Mohan Pillai and N.Shanta (2005) examined the long term growth process of the regional economy of Kerala for the period 1970-71 to 1999-2000.

The study identified the lowest growth rate as well as the share of secondary sector in NSDP. Shashanka Bhide et al (2005) used trend growth rates of estimating NSDP of the major fifteen states for the time period 1971-1998 and the results of the study showed Karnataka and Kerala are the two states where the overall NSDP growth accelerated in the 1980s and first half of the 1990s and there were variations in the growth pattern of industry and services. Sukthi Dasgupta and Prof.Ajit Singh (2006) by testing the Kaldor’s first law related to the relationship between manufacturing growth and GDP growth for 48 developing countries from 1990-2000 by using econometric equation supported the hypothesis that greater the manufacturing growth greater the GDP growth. As for as Indian economy is concerned this study found positive and significant relationship between the manufacturing growth and GDP growth. K.K.Subrahmanian and Syam Prasad (2008) found an interesting feature of uneven growth of sectoral contribution of agriculture, industry and services to the Kerala NSDP growth for the period 1994-95 to 2004-05. The study found high contribution of unproductive service sector 70 percent to total NSDP growth whereas the primary sector contribution was only 8 percent and industry sector contributed 24.27 percent to NSDP growth. Ratan Kumar Ghosal (2009) analysed the growth rate of GDP and
SDP and sectoral contribution to GDP and SDP at the state level by using exponential equation during the period 1950-51 to 2008-09, identified high growth rate of NSDP of Karnataka industrial sector. Achal Kumar Gaur (2010) found declining growth of Karnataka’s SDP during the post reform period 10.1 percent compared to pre reform period growth rate of 12.6 percent. Papola et al (2011) analysed the growth and structure of manufacturing industries of different states in India in the pre and post reform period, and found GSDP of industrial sector of Karnataka was 19.85 percent.

DATA AND METHODOLOGY

Data for this analysis is culled from the Central Statistical Organization (CSO) India, for the period 1980-81 to 2009-2010. One of the major issues in conducting the study related to long term analysis is the selection of appropriate base year. Since in India there are different base periods, it is not appropriate to use the base year 1999-00, because commodity composition and relevance may be changing over time. So we have used 1993-94 as the base. For converting the different base periods into a constant single base we relied on the method of base splicing. In this regard the earlier studies have culled the data from EPW research foundation which has the data for the period till 2000-01 under a common base used splicing method. We have used both forward and backward splicing method of base conversion for all the years. The study used NSDP data for the state economy and this was compared with the NDP at national level. The measures preferred by many economists as the best measure of economic growth is NDP not the GDP. The prominent author of growth accounting, Edward Denison, used net product or income measures in his studies of the sources of economic growth. Denison, (1985), Charles Hulten (1992) have established that net measures are appropriate for welfare-related approaches.
while gross measures are appropriate for production analysis. Further Steven Landefeld and Barbara Fraumeni, Senior officials at the U.S. Department of Commerce Bureau of Economic analysis (BEA) also highlighted the issue of greater depreciation and role of NDP as a measure of sustainable growth.

Different methods have been used by different scholars for analysis of estimation of the growth of NSDP. The methods are ranging from average annual growth, and compound growth to exponential fit. This study used the average compound growth methodology.

GROWTH RATES OF NET STATE DOMESTIC PRODUCT

An analysis of long term growth rates (compound growth rate) of different states for the three decades viz, 1980-81 to 1989-90, 1990-91 to 1999-00, 2000-01 to 2009-10 and for the entire period 1980-81 to 2009-10 provides a profile of the performance of different states in the entire study period. (see Table.1 and figure.1). Table.1 depicts that except Madhya Pradesh, all the other states achieved high growth rates of NSDP during the entire study period from 1980-81 to 2009-10. The NSDP of Kerala was lowest of 3.02 percent in eighties. This growth rate gradually increased to 5.88 percent in nineties. In the last decade the economy of Kerala achieved the NSDP growth rate of 12.83 percent. This growth rate is higher than the national average of 11.83 percent during the same period. The state of West Bengal achieved the moderate growth rate of NSDP during all the periods.

States such as Gujarat, Maharashtra, Tamil Nadu, the growth rates of NSDP was above 14 percent in the last decade. This growth rate is higher than the national average of 11.83 percent during the same period.
The analysis shows that in the eighties the economy of Karnataka registered 5.31 percent compound growth of NSDP. This growth rate is same as the national average of 5.36 percent. In the nineties the growth rate increased from 5.31 percent to 7.01 percent which is higher than the national average of 6.38 percent.

Table . 1 Compound Growth Rates of Net State Domestic Product (1993-94 prices)

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>ANDHRA PRADESH</td>
<td>5.07</td>
<td>5.43</td>
<td>12.89</td>
<td>6.92</td>
</tr>
<tr>
<td>GUJARAT</td>
<td>4.63</td>
<td>8.23</td>
<td>16.48</td>
<td>7.52</td>
</tr>
<tr>
<td>KARNATAKA</td>
<td>5.31</td>
<td>7.01</td>
<td>13.62</td>
<td>7.09</td>
</tr>
<tr>
<td>KERALA</td>
<td>3.02</td>
<td>5.88</td>
<td>12.83</td>
<td>6.6</td>
</tr>
<tr>
<td>MADHYA PRADESH</td>
<td>3.72</td>
<td>6.33</td>
<td>10.34</td>
<td>5.42</td>
</tr>
<tr>
<td>MAHARASHTRA</td>
<td>5.96</td>
<td>6.93</td>
<td>16.48</td>
<td>7.89</td>
</tr>
<tr>
<td>TAMILNADU</td>
<td>5.01</td>
<td>6.56</td>
<td>14.61</td>
<td>6.96</td>
</tr>
<tr>
<td>WEST BENGAL</td>
<td>4.91</td>
<td>6.96</td>
<td>9.43</td>
<td>6.46</td>
</tr>
<tr>
<td>INDIA (NDP)</td>
<td>5.36</td>
<td>6.38</td>
<td>11.83</td>
<td>6.52</td>
</tr>
</tbody>
</table>

Source: Central Statistical Organisation (CSO)

In the last decade the Karnataka economy achieved double digit growth rate of 13.62 percent and even in this period also the growth rate of Karnataka is higher than the national growth rate of 11.83 percent. This shows that the state is one of the promising
contributors to the national NDP. Nevertheless the growth rate of the whole period 1980-81 to 2009-10 is 7.09 percent only.

Compound Growth Rates of Net State Domestic Product (1993-94 prices)

![Graph showing compound growth rates of net state domestic product](image)

**Figure 1**

**SECTORAL GROWTH RATES IN NET STATE DOMESTIC PRODUCT**

Karnataka reputedly known as Knowledge hub of the country, predominantly agrarian during its reorganization in 1956 could reflect the structural change in the growth of the state income estimated in terms of NSDP. The growth of the state income is highly driven by the service sector growth in the recent past. Nevertheless the performance of the secondary sector with special reference to manufacturing sector also propelling the
economic growth of the state. The primary sector, which contributed about 60 percent of the GSDP in 1960-61 contributed only about 18.9 percent in 2006-07.

In the same period, the share of secondary sector increased from 15.2 percent to 26 percent. The share of the tertiary sector has more than doubled from 24.8 percent to 55.1 percent. During 2010-11, the primary sector contribution further decreased to 16.22 percent. While there was gradual increase in secondary sector and tertiary sector contributions to GSDP of 28.61 percent and 55.17 percent during the same period. Since 1990s the economy was led by service sector boom. The manufacturing sector which lagged behind for some time has grown well, though in relative terms, it has remained steady. Among sub-sectors of the economy during the 10th Plan, agriculture continues to be the largest sub-sector in terms of contribution, but at 1.4 percent, it had the lowest growth rate. Manufacturing has shown the 2nd highest growth of 9.4 percent and is showing change in sectoral contribution to SDP.

The sectoral analysis of Karnataka throws light on the propelling sector towards the Net State Domestic Product. The analysis reveals that in the entire study period tertiary sector registered the largest growth rate of Net State Domestic Product, proved to be promising sector in the Karnataka’s economic growth.

<table>
<thead>
<tr>
<th>PERIOD</th>
<th>KARNATAKA</th>
<th>INDIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980-81 – 1989-90</td>
<td>2.45</td>
<td>2.86</td>
</tr>
<tr>
<td>1990-91 – 1999-00</td>
<td>2.98</td>
<td>3.48</td>
</tr>
</tbody>
</table>
The compound growth rate of primary sector during the eighties was only 2.45 percent, and this growth rate increased to 2.98 percent in the nineties. Irresponsiveness of the policy has been blamed for this dismal growth of agriculture during the nineties. The growth was stagnant during the entire study period (1980-81 to 2009-10). This growth rate of primary sector of Karnataka was lesser than the national average of 2.86 percent, 3.48 percent, 5.10 percent and 3.10 percent in eighties, nineties, in the last decade and in the whole period 1980-81 to 2009-10.

Sources: Same as Table.1

<table>
<thead>
<tr>
<th>Period</th>
<th>Growth Rate</th>
<th>National Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-01 – 2009-10</td>
<td>2.46</td>
<td>5.10</td>
</tr>
<tr>
<td>1980-81 – 2009-10</td>
<td>2.25</td>
<td>3.10</td>
</tr>
</tbody>
</table>

Primary Sector Growth of NSDP of Karnataka

![Figure 2](image-url)
SECONDARY SECTOR GROWTH OF NSDP OF KARNATAKA

In the eighties the secondary sector of the Karnataka economy achieved the growth rate of 7.87 percent. This growth decreased to 5.21 percent in the nineties.

Table.3

<table>
<thead>
<tr>
<th>PERIOD</th>
<th>KARNATAKA</th>
<th>INDIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980-81 – 1989-90</td>
<td>7.87</td>
<td>7.40</td>
</tr>
<tr>
<td>1990-91 – 1999-00</td>
<td>5.21</td>
<td>6.45</td>
</tr>
<tr>
<td>2000-01 – 2009-10</td>
<td>8.19</td>
<td>11.68</td>
</tr>
<tr>
<td>1980-81 – 2009-10</td>
<td>7.87</td>
<td>6.82</td>
</tr>
</tbody>
</table>

Source: Same as Table.1

There was a revival in the growth rate of secondary sector in the last decade. The growth rate was 8.19 percent. Secondary sector growth rate in the whole period is 7.87 percent. This growth rate of Karnataka’s secondary sector is lesser than the national averages in all the periods.
TERTIARY SECTOR GROWTH OF NSDP OF KARNATAKA

The tertiary sector of the Karnataka economy grown at the rate of 7.26 percent in the eighties. While in the nineties this growth rate increased to 9.22 percent. Further the growth rate increased to 10.52 percent in the last decade.

Table.4

<table>
<thead>
<tr>
<th>PERIOD</th>
<th>KARNATAKA</th>
<th>INDIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980-81 – 1989-90</td>
<td>7.26</td>
<td>6.72</td>
</tr>
<tr>
<td>1990-91 – 1999-00</td>
<td>9.22</td>
<td>7.87</td>
</tr>
<tr>
<td>2000-01 – 2009-10</td>
<td>10.52</td>
<td>13.91</td>
</tr>
<tr>
<td>1980-81 – 2009-10</td>
<td>8.68</td>
<td>8.25</td>
</tr>
</tbody>
</table>

Source: Same as Table.1
MANUFACTURING GROWTH IN NET STATE DOMESTIC PRODUCT OF KARNATAKA

According to Kaldor’s first law there is a relationship between the manufacturing growth and that of GDP growth. The law states that the greater the manufacturing growth greater would be the GDP growth. This implies that the growth of the manufacturing would normally be much faster than the GDP growth.

There was a huge transformation in the society of East Asian economies such as Korea, Malaysia and Thailand over the decades between 1968 and 2001. These economies achieved remarkable growth in the manufacturing value added. It is this transformation that lies at the core of East Asia’s growth miracle.

Contrary to this the South Asian manufacturing was lacklustre in the three decades. There was a meager growth in the manufacturing value added of India and Pakistan. Evidence
that the manufacturing sector in India is no longer considered as an engine of growth as in the case of past. It is obvious from the sectoral analysis in the Karnataka economy the service sector has the leading role. But the manufacturing sector should lead the economy not the service sector.

Karnataka’s manufacturing sector registered the growth rate of 8.57 percent in the eighties, which is higher than the national average of 7.51 percent. But the growth rate decreased to 5.03 percent in the nineties, this is because Karnataka does not seem to have exploited the liberalized regime. However this sector grown at the rate of 9.11 percent in the last decade. Except in eighties in all the other periods the growth rate of Karnataka manufacturing sector was lesser than the national average.

Table 5

Average Growth Rates (compound) of NSDP by Manufacture (percent)

<table>
<thead>
<tr>
<th>period</th>
<th>Karnataka</th>
<th>India</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980-81 – 1989-90</td>
<td>8.57</td>
<td>7.51</td>
</tr>
<tr>
<td>1990-91 – 1999-00</td>
<td>5.03</td>
<td>6.74</td>
</tr>
<tr>
<td>1980-81 – 2009-10</td>
<td>6.79</td>
<td>6.84</td>
</tr>
</tbody>
</table>

Source: Same as Table 1
REGISTERED AND UNREGISTERED SECTORS OF THE KARNATAKA ECONOMY

The manufacturing sector of the Indian economy is classified into registered manufacturing sector and unregistered manufacturing sector. The registered manufacturing sector is one which is registered under the Indian Factories Act of 1948, and the unregistered sector is not registered under this act.

In the eighties the registered sector of the Karnataka economy achieved the growth rate of 10.53 percent. This is higher than the national average. But this growth rate decreased drastically to 4.9 percent in the nineties. The national average also lesser in this period. However there was a revival in the growth rate of registered sector in the economy in the
In the last decade. The growth rate of registered manufacturing sector of Karnataka was 10.32 percent. This growth rate is lesser than the national average of 11.89 percent.

### Table 6

Growth Rates of Registered and Unregistered Sectors (percent)

<table>
<thead>
<tr>
<th>Period</th>
<th>Registered</th>
<th>Unregistered</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Karnataka</td>
<td>All India</td>
</tr>
<tr>
<td>1990-91 – 1999-00</td>
<td>4.9</td>
<td>6.87</td>
</tr>
<tr>
<td>2000-01 – 2009-10</td>
<td>10.32</td>
<td>11.89</td>
</tr>
<tr>
<td>1980-81 – 2009-10</td>
<td>7.32</td>
<td>6.99</td>
</tr>
</tbody>
</table>

**Source:** Same as Table 1
In the entire period of the study Karnataka economy registered a moderate growth rate of 7.32 percent in the registered manufacturing sector. This growth rate is higher than the national average of 6.99 percent.

There was gradual improvement in the unregistered sector of the Karnataka economy. The unregistered sector of the Karnataka economy achieved the growth rate of 3.9 percent in the eighties. This growth rate is lesser than the national average of 6.13 percent. The growth rate of 3.9 percent increased to 5.13 percent in the nineties. In the last decade the unregistered sector achieved the growth rate of 7.24 percent. In this period the national...
average also touched the highest growth rate of 14.03 percent. This growth rate is higher than the Karnataka’s growth rate of 7.24 percent.

It is evident from the table.6 over the entire period of study, 1980-81 to 2009-10 NSDP of unregistered sector registered on an average 5.54 percent, which is lesser than the national average of 6.89 percent.

CONCLUSIONS

This paper investigated the trend growth pattern of manufacturing sector in Karnataka economy for the period 1980-81 to 2009-10. The growth trajectory of the primary sector of the Karnataka economy depicted a dismal picture during the entire study period, 1980-81 to 2009-10. The growth rate of this sector is stagnant during the study period.

Though the growth rate of secondary sector of the Karnataka economy was higher than the national average during the period 1980-81 to 1989-90, decreased in the period 1990-91 to 1999-00. But the growth rate improved during the period 2000-01 to 2009-10. What is observed is that in the nineties and more so in the last decade the tertiary sector dominated the economy. The manufacturing sector growth is led by the unregistered sector growth. This is more so in the case of the Indian scenario. Though the relative growth performance of the registered manufacturing was high, the unregistered manufacturing sector achieved the steady growth during the study period. For the growth of the manufacturing sector in the recent past the Central Govt and the state of Karnataka formulated many policies. The economy should harness these policies for the progress of the manufacturing sector.
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