

Manufacturing Sector in West Bengal: Advantages & Potential

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Abstract

Manufacturing sector is considered as a growth engine having multiplier effect on employment and output. Various studies show that there has been a deceleration of industrial performance in West Bengal. While it is understood that there has to be a concerted effort for reviving the industrial growth, given the budget constraint the new Government should set priorities for focusing on the most promising sectors. Our study has attempted to find out the potential sectors by considering the demand and supply factors using a simple methodology. These sectors should be the most attractive sectors for investment and policy intervention. We have come out with a four quadrant matrix for identifying Star, Attention, Dull and Slow sectors. While Government needs to have a three pronged strategy of creation of land bank, infrastructure development and simplification of procedures, sector specific recommendations have been provided on the basis of our analysis and stakeholders inputs.

1. Introduction

1.0.1 India has experienced lopsided growth across its major sectors especially after the reform process have been initiated in the early 1990s. Studies show that if the pre-reform period is compared with the post-reform period, economic growth has definitely picked up in India. Given the structure of the economy and the state of human capital availability reforms have led to the increase in share of the services sector at the expense of manufacturing and agricultural sectors. On the other hand number of people living below the poverty-line has also come down during the post-reforms period. Problem is most of the studies showed inequality in income distribution have actually increased in the post-reforms period. Moreover, given that still around 60% of the people are dependent on the agricultural sector, its growth and productivity are still affecting livelihood of a major share of our population. Searching for answers have led to a renewed emphasis on industrialization as it was felt that mobility of people from agrarian occupations to manufacturing may be smoother than to services sector which is highly human capital-intensive. The Government of India thus has accorded highest importance to rapid development of the Manufacturing sector in India. Contributing over 15 percent to the National Income, the Manufacturing sector is set to leapfrog to the next level of growth, with policy support from the Government. This might result in the sector contributing a larger share to the National Income in future.

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1.0.2 West Bengal, with its broad customer base, rich mineral resources and large talent pool, could emerge as one of the leading states to drive the next phase of industrialization in the country. The state is a gateway to East and North East, the region that produce 18.38% of India's GDP. Being strategically positioned for bilateral trade with Bangladesh, Nepal, Bhutan, Myanmar and ready access to South East Asian countries, over and above the domestic market, West Bengal enjoys a broader market for its products. A strong industrial base would also, in a way, help the state economy to make a natural transition in its development quest from being primarily agrarian to industry driven, moderating the influence of lopsided growth towards services on income inequality, which is absolutely necessary for growth to be inclusive. Manufacturing sector creates an opportunity for workforce involved in agriculture and semi-skilled unemployed population to shift to more remunerative production processes. Further, multiplier effect of the sector on Agriculture and Services automatically generates a virtuous economic cycle, which West Bengal needs badly to overcome its present problems.

1.0.3 The fact that manufacturing sector contributes significantly to the development has been demonstrated by many states of India including Maharashtra, Gujarat, Tamil Nadu, Andhra Pradesh, etc. According to data available from the Annual Survey of Industries (2008-09), West Bengal is ranked 9th in terms of Number of factories, 8th in invested capital and 7th in number of workers while in terms of Net Value Added the state is ranked 11th. In all these categories states like Maharashtra, Tamil Nadu and Andhra Pradesh are ahead of West Bengal. These states have accorded highest priority to the manufacturing sector, leveraging on their natural and human resources and ensuring basic infrastructure facilities to all its industrial estates.

1.1 Manufacturing Sector in West Bengal

1.1.1 In 1960, West Bengal was one of the 3 richest states in India. And it owed this wealth to the social and physical infrastructure that came with Calcutta's past as the long standing capital of the British Empire which helped it develop a strong manufacturing tradition. During the colonial period, West Bengal was one of the leading states in terms of industrial output and employment a trend which continued uninterrupted until the mid 1960s, when West Bengal started losing its prominence in the industrial scenario of India. The state witnessed two spells of left-dominated coalition government in 1967 and 1969 and experienced labour militancy on a grand scale and after five years of non-leftist government – which included the period of emergency during 1975 to 1977 – West Bengal, witnessed the return of the leftists in 1977, continuing, uninterrupted, till May, 2011. During the period from 1960's to the 1990s, the state witnessed a steady decline of the manufacturing sector evident from its insignificant contribution to the GSDP. Some resurgence though has been witnessed in this sector since the year 2000 (Figure 2). Economic reforms and competition among states to attract investments have led to renewed interest of business groups in investing in West Bengal. The revival in interest is evident from the trend in Index of Industrial Production (IIP) (Figure 2).

Compared to India average though the performance is below par IIP nevertheless shows an upward trend for the state in recent years.

1.1.2 Micro & Small Scale Industry has also played a vital role in the state with thrust for generation of self employment. West Bengal occupies a predominant position so far as the development of micro and small scale enterprises is concerned. There are close to 9 lakhs small scale enterprises (Registered & Unregistered) in the State, which accounts for 7% of- the total such units in the country. Nearly 25.23 lakh people are employed in the State in small sector enterprises, accounting for 9% of the total employment generation in this sector in the country. The micro and small scale enterprises accounts for nearly 90% of the industrial units and more than 50% of industrial production. The export from this sector is about 38% of the total export from the State².

1.2 Significance of Manufacturing Industry in West Bengal

1.2.1 Manufacturing sector contributed only 9.11% to the state GSDP in 2008-09 while it contributed 15.45% to GDP of India. The share of manufacturing in GSDP has experienced deceleration in recent years; hence it is important for the sector to revive for economic resurgence of the state through among other things, opening up of job opportunities for semi-skilled workers who cannot be easily absorbed in the services sector. Secondly, a healthy growth of manufacturing is critical for creating a large production and consumption base within the state's economy. Further, as productivity of manufacturing is higher than in agriculture, facilitating the shift of workers to the sector will propel growth as well. It is in this backdrop that the share of manufacturing in GSDP needs to be pushed and this in turn would generate employment (which has been a major problem plaguing West Bengal). To raise the manufacturing share in GSDP in a given time frame we require a focused policy and its effective implementation by the Government.

1.3 Key Advantages of West Bengal

1.3.1 Among the many key advantages that West Bengal provides as an attractive industrial destination, the most significant are:

Strategic geographical location: It's a natural gateway to domestic markets in the Eastern and North Eastern states. It also shares its borders with the countries of Nepal, Bhutan and Bangladesh. Further it has easy connectivity to the lucrative markets of South East Asia.

Human Skill: West Bengal has a vast talent pool and literate English speaking skilled workforce. The state also has adequate amount of cheap and skilled labour force.

Endowed with natural resources: West Bengal has abundant natural resources of minerals and suitable agro-climatic conditions for agriculture, horticulture and fisheries.

West Bengal also has a prosperous hinterland of some mineral rich states like Jharkhand, Bihar and Orissa. West Bengal occupies 3% of productive land of the country and generates 8% of India's food. Apart from this a strong agricultural base provides steady supply of raw materials for industries.

Multiproduct and sector specific Industrial Park and Special Economic Zones which facilitate industrial development have also been created in the state.

¹ Source: Directorate of Micro and small scale Enterprises, government of West Bengal

Good connectivity: West Bengal offers easy connectivity to the rest of India in terms of railways, roadways, ports and airports. Major stretches of the Golden Quadrilateral project also pass through the Northern districts of the state.

1.4 Major Industries in West Bengal

1.4.1 According to latest ASI reports the top manufacturing industries in the state of West Bengal are:

- Basic Metals
- Coke and Refined Petroleum Products
- Chemicals and chemical products
- Food Products
- Textiles
- Electrical Equipment
- Non Metallic mineral Products

1.4.2 Apart from these some other important industries are engineering, automobiles, pharmaceuticals, ceramics, paper, glass, leather and software electronics and information technology. The natural resources, policy incentives and infrastructure in the state support investments in major sectors such as iron and steel, biotechnology, coal, leather, jute products, tea, IT, and gems and jewellery. Climatic conditions suitable for cultivation of tea and jute have made West Bengal a major centre for these products and related industries. West Bengal also occupies a predominant position in the development of micro and small scale enterprises.

2. Past Studies

2.1 The proportion of population dependent on agriculture is 65 per cent in the state, which is well above the national average of 56 per cent. The classic case for transfer of workforce from agriculture to manufacturing thus has a sound basis in both theory and historical experience and is among the main arguments in favour of thrust on industrial development (Kabra 2007). According to a recent study (Chattopadhyay 2004) West Bengal has lost its earlier status as one of the highly industrialized States of the country. Its share of all-India net value added, share of employment and number of factories has come down drastically. Profitability of manufacturing sector as a whole has also come down. Productivity of capital in manufacturing has also declined, while labour productivity has increased. However, the latter has increased mainly due to a few industry groups, which are highly capital intensive and have contributed to around 85 per cent of the profit generated in the manufacturing sector. Total Factor Productivity (TFP) of the manufacturing sector in the state as a whole has been declining, while the same has been increasing in case of India. TFP of six industry groups which played a dominant role during the early 1960s has gone down except Jute industry, which itself is a dying industry because of lack of demand. Chemical industry on the other hand has gained in terms of productivity during this period.

2.2 Another study (Lahiri and Yi, 2005) pointed out that while in 1960, two of the three richest states in India were Maharashtra and West Bengal, by 1995, the latter, has

gone down from a relative per capita income of about 105 percent of Maharashtra to a relative per capita income of around 69 percent. The study reveals that a large part of the blame for West Bengal's development woes can be attributed to: (a) low aggregate productivity (b) poorly functioning labor markets and (c) sectoral misallocations.

2.3 According to a study by Chakravarti and Bose (2009) the level of labour productivity remained the lowest in the organised manufacturing sector of West Bengal compared to the industrially-more-advanced states of Maharashtra, Gujarat and Tamil Nadu over the last three decades. The labour-productivity levels were quite similar for all the four states till the mid-1980s. In fact, the real divergence came only in the early 1990s placing Maharashtra and Gujarat much ahead of West Bengal. According to them, this is, because of the better utilisation of liberalisation policies by the states of Maharashtra and Gujarat. However workers in West Bengal's organised manufacturing are getting relatively better wage rates compared to others except in Maharashtra. The state has witnessed a deceleration of real fixed assets per worker over the period 1994-95 and 2000-01 (Marjit et al, 2009). None of the other industrialised states shows decline in the per capita fixed assets during this period. According to them this indicates that in terms of technological advancement WB (West Bengal) manufacturing performed poorly compared to the more industrially advanced states. The incredible volume of paperwork and bureaucratic formalities are other deterrents of growth.

3 Objectives of the study

3.0 While various studies showed the below per performance of manufacturing sector of West Bengal and the low productivity of most of the sectors, our focus is on the more potential sectors. As a starting point of industrial revival strategy we want to find out our potential sectors based on a simple methodology. The study is carried out at the NIC two digit-level to give us broad directions in which the state may move. A more disaggregated level of study however has to be done in order to formulate product-specific policies. Given the budget constraint of the state, the new Government must priorities on giving fiscal incentives to industries. To start with industries having advantage on the supply-side may be accorded highest priority. But such industries having production advantage may encounter constraints like lack of demand. Hence while searching for the potential sectors; ones having production advantage must be matched with those which have gained in market share over others. The common sectors in both these lists would give us the potential sectors in West Bengal.

3.1 Methodology

3.1.1 Supply side: Production Advantage

3.1.1.1 To identify the potential product from West Bengal, first the products which have advantage in production in the State should be identified. This has been identified by calculating comparative production advantage at NIC two-digit- level for a state. To assess the comparative advantage of products in a state, we have used Revealed Comparative Advantage (RCA) in Production.

The formula is as follows:

$$\text{RCA (production)} = \frac{\frac{P_{iK}}{P_K}}{\frac{P_{iI}}{P_I}}$$

P_{iK} Production of i-th commodity in State k

P_K Total production (of all commodities) in State k

P_{iI} = Production of i-th commodity in Country i

P_I = Total production (of all commodities) in Country i

3.1.1.2 This index is a variant of Balassa's (1965) Revealed Comparative Advantage (RCA). Here instead of the export figures production figures have been used. If the value of this index is more than one it implies that the state has a production advantage in that product. This indicates that the relative of commodity i in State k, is greater than its relative at the country-level. This advantage may have resulted from higher productivity, existence of low-cost resources, skill availability, government policies etc. The sectors in which the value of Production Advantage Index is greater than one shows that the relative importance of such sectors in the state is more than that at the country-level.

3.1.1.3 Annexure 1 lists the Production Advantage index (PAI) for West Bengal between the years 1998-99 and 2007-08 for all NIC two-digit industries present in West Bengal. Data for this has been taken from Annual Survey of Industries (various issues). It has been found that for Tobacco, Leather, Wood and wood products, Publishing and Printing and basic metals, we had production advantage (PAI>1) in all the 10 years for which calculations were done. In fact for Wood and wood products the advantage is very high and advantage is increasing over time. For textiles, we had advantage in 9 years out of 10 except in 2006-07. For Coke and refined products also we had advantage in 9 years out of ten except 2007-08. The state had advantage in fabricated metal products for 8 years except for 2005-06 and 2007-08. In Precision instruments the state had consistently performed well for the last three years considered. Data indicates that chemical is an emerging sector in the state given that it had PAI greater than one for the last six years considered in the study.

3.1.2 Demand Analysis: Shift Share of Sales

3.1.2.1 To identify the potential commodities from the demand side, we have used the country-level sales data across industries. Shift Share analysis (David L. Huff and Lawrence A. Sheer 1967) using the sales data have been chosen to find out the potential sectors from the demand side. Shift-share analysis requires measurements on a variable of interest for each sector at the beginning and end of a specified period of analysis. The growth rate (GR) of the item i can be measured as:

$$V_i = V_{i,t} - V_{i,t-1}$$

Where $V_{i,t}$ is the sales in year t, and

$V_{i,t-1}$ is the sales in year t-1 for an item i.

Now the growth rate of all items (k) is the ratio of total value of terminal time periods to the total value at the initial time period:

$$k = \frac{\sum_{i=1}^n V_{i,t}}{\sum_{i=1}^n V_{i,t-1}}, \text{ where } i = 1 \text{-----} n.$$

The expected value of the growth is the product of growth all items and the value at the initial time period:

$$E(V_{i,t}) = kV_{i,t-1}$$

The expected change of the value of a growth variable for a particular item in a given time period is the difference between the expected value and the actual value for the item at the end of the initial time period. If $E(V_i)$ is the expected change, then:

The difference between the actual change and the expected change is the net shift. So, if Net Shift is N_i :

$$N_i = V_i - E(V_i)$$

Now the sum of positive net shifts or the sum of negative net shifts S represents the total absolute net shift.

$$S = \frac{\sum_{i=1}^n |V_i - E(V_i)|}{2}$$

The relative gain or loss in the value of a growth variable for a particular product i, in a given time period is defined as the percentage net shift (P_i). So,

$$P_i = \frac{N_i}{S} (100\%)$$

This represents the percentage of the total gain or total loss of market share accounted for by each sector (i). The sector showing positive net shift are identified as potential sectors.

3.1.2.2 Annexure 2 shows the calculations related to Shift Share analysis of the country-level sales data of various sectors. We have calculated the shift share of total sales of the

products produced in West Bengal between 2007 and 2010. The sales data was taken from Economic Intelligence Service of CMIE. Since, it gives sales data at disaggregated level, each product was matched with the corresponding NIC Code. Then, the total sales figure was calculated by aggregating the disaggregated sales data under each product category as classified in NIC.

3.1.2.3 It was found that the net shift is positive for Food, tobacco, apparel, leather, non-metallic minerals and automobiles while for precision instruments the net shift is zero. Highest net shift is found in the automobile sector.

4. Identifying Potential Products from Four Quadrant Analysis

4.1 We have plotted the products as a two by two matrix (Figure 4) in line with the BCG Matrix³.

I. The quadrant named 'Star' denotes the sectors where West Bengal has production advantage in at least 6 years out of last ten years and where the net shift of sales is also positive.

4.2 These are Star sectors with consistent production advantage along with positive net shift of sales. These are the sectors where West Bengal has advantage and also market demand is growing on an average more than other sectors. Sectors such as these can attract investment in the state. Tobacco and leather are very strong sectors in this category for the state while precision instruments also are a candidate for this category since its demand is growing at the average rate and its PAI>1.

II. The quadrant named 'Attention' denotes the sectors where West Bengal has production advantage in less than 6 years out of last ten years, but these sectors have positive net shift of sales. This implies that these sectors are witnessing strong gain in market share but West Bengal has an overall weakness in production in such sectors. These sectors need 'attention' as these products have high and growing demand, but, we do not have production advantage here. If we can gain advantage by removing the bottlenecks, it will instantly help the state to move up in the ladder of industrialization. Automobiles, food processing, non-metallic materials and apparels are the products in this category. In non-metallic materials we have some advantage, but in food processing, automobiles and apparels we did not have any advantage at all. Investments in these sectors can move these to the 'Star' category in the future.

4.3 Probing further into the specific needs of these sectors we explored the inputs provided by CII industry members in a recent survey⁴ in this regard. The following points emerged as the required policy changes for the automobile sector in West Bengal.

¹ "The Product Portfolio", Boston Consulting Growth (BCG)

¹ CII survey 2007 and Vision Report 2010

- Tax benefits
- Land bank including establishing auto parks
- Training centre for producing auto components
- Improve road infrastructure and last mile connectivity etc

4.4 In case of food processing industry although overall, West Bengal does not have production advantage, tea industry is an exception. Endowed with five agro-climatic regions, West Bengal has the potential to be the food bowl of India. For boosting production of Food processing industry some steps suggested by the CII survey participants are as follows:

- Providing pre-processing facilities, Ice plants etc.
- Encouraging investment in Cold storage and cold truck through PPP (Public Private Partnership) mode
- Encourage private entrepreneurship for processing of fruits, vegetables & horticultural items.
- Promote floriculture parks & flower complexes in the state
- Appropriate guidance and technical support to adhere to stringent quality norms and hygiene standards.

4.5 However, it has been observed that Agro based and food processing industry has already attracted third highest investment (between 1999-2009) among all sectors in West Bengal and in 2004 it attracted fourth highest investment. If the investment scenario improves along with availability of infrastructure, then, this industry has a strong potential to come under the 'Star' category in near future.

4.6 The readymade garments turnover in the state was at Rs 12,000 crore in 2007-08. Nearly 60 per cent of the raw material is procured from the local market, while 40 per cent is imported from the other states. The cost of raw materials is high because of the higher proportion of imports, thereby, increasing the cost of finished goods. The labour cost in other states is 25-30 per cent higher than that in West Bengal. However, the quantity and quality of work is not good because of the poor work culture in the state, as is perceived by West Bengal Garment Manufacturers and Dealers Association.

4.7 However, in recent years the garment manufacturing industry in West Bengal is experiencing a healthy growth and is poised for further expansion. National Institute of Fashion Technology located in Kolkata explores the scope for attending to changing needs of the global markets. WBIDC (West Bengal Industrial Development Corporation) is already planning to set up a garment park in the vicinity of Howrah city.

III. The quadrant named 'Dull' denotes the sectors where West Bengal does not have production advantage in at least 6 years out of last ten years and where the net shift of sales is negative. These sectors should not be very attractive in terms of investment. Most of the products produced in West Bengal fall in this category including paper, rubber and plastic, transport and equipment, office equipment, radio, television and communication, electrical machinery and machinery and equipment

IV. The quadrant denoted 'Slow' contains the sectors where West Bengal has production advantage in at least 6 years out of last ten years but where the net shift of sales is negative. In this category we see that net shift of publishing and printing and wood and wood products is not very much negative, hence they may still have scope of expansion. However, for other sectors like petro products, metal, chemical, textile and basic metals, the demand growth is not high, although we have production advantage in them. Hence, investment in these sectors will be attractive only if one can find newer markets with higher demand growth.

4.8 One of the limitations of the above analysis is that at disaggregated level the sub-sectors of non-star sectors may actually fall within this category or a 'star' category sector may include 'non-star' sub-sectors. Moreover, demand and supply conditions are more appropriately handled at disaggregated levels of industry classification. Policy recommendations also may be more pin-pointed at disaggregated levels. Hence future research may concentrate on more disaggregated-level analysis. For the sake of clarity in this regard we consider one of the 'star' sectors for West Bengal, leather at a disaggregated level. ASI gives data till five-digit level for all-India and up to three-digit level across states. At three-digit level there are two sub-sectors 151 (Tannery, dressing of leather, manufacture of luggage etc.) and 152 (Manufacture of Foot wear) under leather.

4.9 PAI for sub-sector 151 for West Bengal turns out to be 6.91 (ASI, 2009-10 Volume I) which shows significant advantage for the state. On the other hand that for 152 is only 0.86. Thus disaggregated analysis shows that footwear does not enjoy comparative advantage in production in West Bengal. Sales growth for footwear companies shows significant growth all over India at 26% (based on PROWESS data) whereas that for other leather products is 17.5% in 2009-10. Overall growth rate of sales for all manufacturing products taken together is 15.2% for the same period. Hence sub-sector wise for the leather industry in West Bengal 151 (other leather products) turns out to be under the 'star' category. This is due to production advantage ($PAI > 1$) and sales growth being higher than that of overall sales growth rate of all the sectors. Footwear sector would be categorized as 'attention' as its sales growth is significantly higher than the overall sales growth but its $PAI < 1$. Thus investments in footwear sector may be solicited through proper policy changes to take advantage of significant demand growth in this sector.

5. Conclusion

5.1 According to the data of Directorate of Industries, Government of West Bengal, the state attracted highest investment in iron and steel in 2010, second in drugs, chemicals and petrochemicals third in engineering and fourth in agro-based & food processing. According to our analysis Food Processing is a major sector which needs continued investment. Along with that, there should be policy thrust to attract investment in automobile, non-metallic minerals and apparel also. Tobacco continues to be our Star performer with a strong demand which underscores further scope of expansion. Leather is also a star sector. However, considering its environmental concerns, West Bengal should focus on moving up in the value chain. As disaggregated analysis shows footwear is an

'attention' sector and other leather products fall under 'star' category. Precision Instruments sector is a very attractive sector. Publishing and printing and wood and wood products also have high potential.

5.2 Instead of lamenting on decelerating industrial condition, this study has attempted to find out the potential industrial sectors having potential to enhance growth for West Bengal. For the dream of industrialization to come true there has to be three major focus areas for the Government to remove obstacles and act as the facilitator. These are: Infrastructure creation, creation of land bank and simplification of procedures. Along with these generic incentives sectors marked as 'Attention', 'Star' and 'Slow' as classified in this study would need different policy interventions highlighted in earlier sections.

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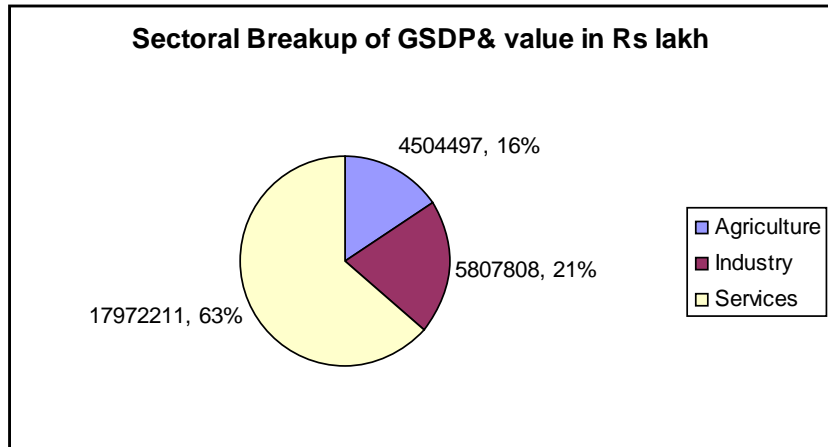
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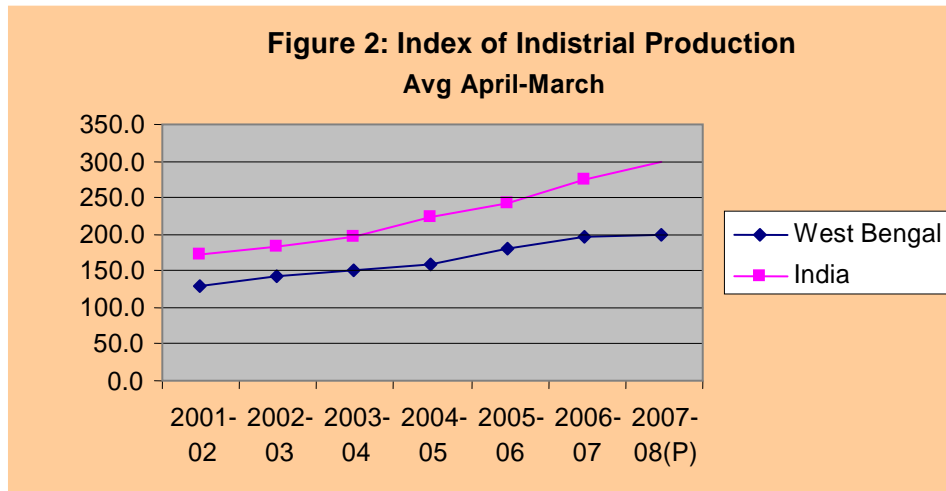
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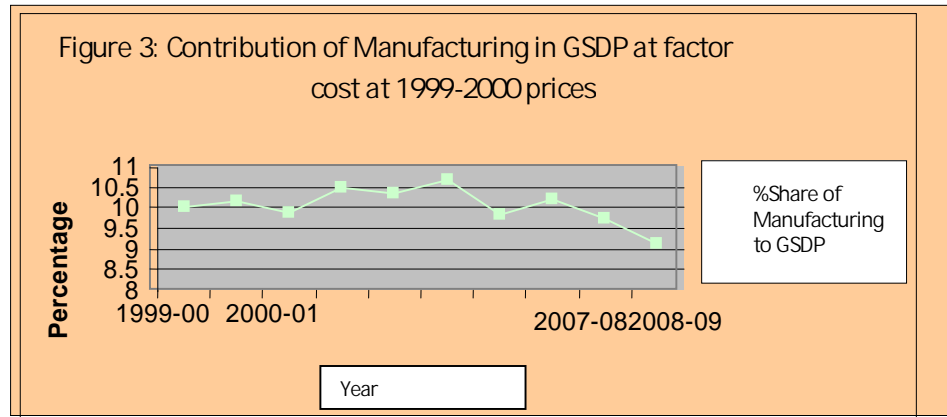
Figure 1: Components of GSDP OF West Bengal (2009-10)



Source: MOSPI



Source: MOSPI



Source: CSO

Figure 4: Potential Sector Matrix

