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PERFORMANCE OF MAHARASHTRA'S MANUFACTURING SECTOR

BY

L. G. Burange

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L. G. Burange ***Centre of Advanced Study***	**---**

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Abstract

Maharashtra occupies a very significant position in the industrial economy of India. However, over the period of time Maharashtra's share in India's industrial sector has declined. The composition of industries in the state is undergoing major changes. The share of consumer goods industries in value-added declined from 52 per cent in 1960 to 16 percent in 1997-98. The performance of the manufacturing sector of Maharashtra during the pre-liberalisation period was poor with respect to employment, output and fixed capital. However, there is major revival in the manufacturing sector of Maharashtra during the post-liberalisation period and most of the industries registered recovery in case of employment, output and fixed capital. The overall performance of NAGRIND is better than that of AGRIND during the post-liberalisation period. However, there is a fall in total factor productivity growth in the manufacturing sector of Maharashtra during the post-liberalisation period. The location quotient also registered a fall for many industries during this period implying that the localization of industries in the state is declining. The manufacturing sector of the state faces many problems such as industrial disputes, high state taxes, high power tariff with shortage of electricity and rising systemic inefficiencies. Maharashtra's comparative advantage in the industrial sector has to be supplemented with competitive advantage to accelerate the pace of industrial development in the state.

Key Words : Employment, Liberalization, Agriculture-related industries (AGRIND), Non-agriculture-related industries (NAGRIND), Total factor productivity growth, Location quotient, Competitiveness

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PERFORMANCE OF MAHARASHTRA'S MANUFACTURING SECTOR

L.G. Burange*
Department of Economics
University of Mumbai
Mumbai – 400 098.

1. Introduction :

Maharashtra occupies a very significant position as far as the manufacturing sector in India is concerned. Introduction of new economic policy in 1991-92 was expected to have differential effects on the state economies in India and Maharashtra is not exception to this. The performance of the industrial sector of Maharashtra certainly influenced by this change in the economic policy. The introduction of economic liberalisation in India led to the competition among the states in attracting industrial and infrastructural investment in the states. With this change in industrial environment it is worth to assess the performance of the manufacturing sector of Maharashtra. In this paper efforts are made to analyse growth performance of the manufacturing sector of Maharashtra with respect to different time periods. The paper is organised as follows: The data, coverage and adjustments are discussed in section two. Section three discusses the industrial situation in the state. Section four analyses industrial composition while section five deals with manufacturing sector. Section six discusses the performance of manufacturing sector during pre- and post-liberalisation period. Section seven deals with the growth of total factor productivity. Section eight analyses localisation of the industries in the state, while section nine discusses general problems faced by the manufacturing industries in the state and last section presents the conclusions.

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2. Data: Adjustment and Coverage:

The Annual Survey of Industries – Summary Results for Factory Sector is the main source of data. Since the Annual Survey of Industries does not cover the unorganised small-scale industrial units, this exercise is confined to the organised sector only. The other sources of data such as Economic Survey of Maharashtra and Monthly Bulletin of Index Numbers of Wholesale Prices in India are also used. For employment we consider here number of employees, number of production workers and number of non-production workers. For estimating the value of output at constant prices the Wholesale Price Index of India from the Monthly Bulletin of Wholesale Prices of India have been used. The value of output of an industry is deflated by the wholesale price index for the output of that industry. Aggregating the values at constant prices at the individual industrial outputs gives the aggregate value of output of the organised manufacturing sector at constant prices for the state. Here we use the gross fixed capital stock as a measure of capital input. To construct the time series of gross fixed capital stock we assume that the value of finished equipment of balanced age composition would be exactly half the value of equipment when it was new. Hence, we have taken twice the Book value of the base years as a rough estimate of the replacement value of fixed capital. Banerji (1975), Goldar (1986), Kumar (2001) and some others have followed this method of getting estimate of fixed capital for the benchmark year in their works. It is certainly arbitrary. According to Goldar (1986), 'even if it is assumed that fixed assets comprising that stock have a balanced age distribution, the fact that life of machines exceeds what would be inferred from the depreciation practices of firms and that price of capital goods were rising over time imply that the ratio of replacement value to book value should significantly exceed two'. Despite this limitation, we followed this method because Hashim and Dadi like gross/net ratios (1973) are not available for state level data. Therefore. doubling the book value of capital has been considered as an approximate method for arriving at replacement value of the fixed capital for benchmark year for the state level data. Then using the following equation the measurement of gross fixed capital series at 1981-82 prices is derived.

$$K_t = K_{t-1} + I_t - dK_{t-1} \quad \ldots\ldots(1)$$

where,

K_t = Gross fixed capital at 1981-82 prices by the end of year t

I_t = Gross real investment in fixed capital during the year t

d = Annual rate of discard of capital

Following Goldar (1986), we have assumed two per cent annual rate of discard of capital. Then the gross real investment I_t is estimated by following equation

$$I_t = (B_t - B_{t-1} + D_t) / P_t \quad \text{.....(2)}$$

Where

B_t = Book value of fixed capital in the year t

D_t = Depreciation in the year t, and

P_t = Price index of building materials, manufacture of machinery, machine tools & parts and transport equipment and parts (1981-82 = 100)

To estimate Total Factor Productivity Growth we have used gross value added as measure of output. The wholesale price index for manufacturing products (base 1981-82 = 100) is used for arriving at real figures of gross value-added. The emoluments to employees, wages to workers are deflated using consumer price index for industrial workers.

3. Industrial Situation :

Maharashtra is the leading industrial state in our country. This can be seen from the fact that in 1969-70 the state which accounts for about 9.32 per cent of population contributed 17.91 per cent of registered factories, 17.43 per cent of productive capital, 19.10 per cent employment, 32.36 per cent value of output and 26.68 per cent of value-added. However, over a period of time Maharashtra continues to remain on the top of the industrial map of India, the fact is that the state's share in Indian Industry is declining which indicates that the state is losing its grip on the industrial front. In 1997-98 the state contribution in terms of registered factories declined to 15.15 per cent, in terms of productive capital it was 18.81, in terms of employment it declined to 14.77 per cent, in terms of value of output it came down to 21.00 per cent and in terms of value-added it

declined to 21.67 per cent (Table 1). This indicates that some other state in India must be doing better than Maharashtra.

The sectoral composition of state domestic product also shows somewhat unsatisfactory performance of the industrial sector. Maharashtra does not have enough potential for growth in the agricultural sector. However, this is not the case with the secondary sector. The percentage share of the secondary sector in the state domestic product had continuously increased up to 1986-87, but since then it has been declining (Table 2).

4. Industrial Composition :

In the 1960s industrial activity in Maharashtra was concentrated in the production of consumer goods. Considering value-added of industries in Maharashtra in 1960, we see that the consumer goods industry contributed 52 per cent while the remaining 48 per cent was accounted for by capital and intermediate goods industries. This structure has changed completely over time. In terms of value-added in 1980-81, the consumer goods industry accounted for 35 per cent whereas capital and intermediate goods industries accounted for 65 per cent. In 1997-98 the consumer goods industry accounted for a mere 16 per cent and capital and intermediate goods industries together contributed 84 per cent (Table 3). Then there is some improvement in the share of consumer goods but this improvement seems more due to the change in the classification and industries covered by ASI following NIC 1998. However, this overall fall in the share of consumer goods industries in Maharashtra is because of the high taxes such as sales tax. Earlier this industry was manufacturing goods in Maharashtra and selling in state domestic market and markets in other states. As the taxes went on increasing industry started producing only for the state domestic market and for other states to manufacture intermediate goods and assemble them outside Maharashtra. This led to increase the production of intermediate goods and fall in consumer goods in Maharashtra.

To strengthen the above argument, all agriculture related industries 20-21 to 29 are clubbed together under AGRIND and all non-agriculture-related industries 30 to 39 are clubbed together under NAGRIND (Desai et al, 1991) and their relative shares are computed from 1980-81 to 1997-98. The share of agriculture-related industries in employment, value of output and value-added declined substantially over the period in Maharashtra (Table 4). This decline of AGRIND in the manufacturing sector of Maharashtra can be attributed to decline in the textile industry and to the state fiscal policy. These are some of the major structural changes that have occurred in the industrial sector of Maharashtra.

5. Manufacturing Sector :

In the case of the manufacturing industries Maharashtra occupies a predominant position in India. However, over the period of time Maharashtra's share in the manufacturing sector in India is declining. In case of employment in 1980-81 Maharashtra's share was 18.21 per cent, which came down to 15.05 per cent in 1991-92, and then with marginal improvement it reached to 15.40 per cent in 1997-98. Similar kind of trend is found with respect to value of output and net value-added (Table 5). This indicates that Maharashtra's manufacturing sector is growing at a lower rate than the rest of India.

5.1 Employment :

Annual compound growth rate of employment for the total period from 1980-81 to 1997-98 for all industries and industry groups are estimated for different categories of employment. The number of employees, which includes production and non-production workers, increased by 0.75 per cent per annum in manufacturing sector of Maharashtra. This increase occurred mainly in the non-agriculture-related industries (NAGRIND) in the state during the period (Table 6). Agriculture-related industries (AGRIND) experienced a fall in employment during this period. A large number of industries experienced a fall in the employment during this period viz; manufacture of cotton textile

(23), wool, silk and synthetic fibre textiles (24), wood and wood products (27) and transport equipment and parts (37). However, industries such as food and food products (20-21), beverages, tobacco and tobacco products (22), textile products (26), leather and leather products (29), chemical and chemical products (30), rubber, plastic, petroleum and coal products (31), metal products and parts (34) and other manufacturing industries (38) are the major industries which recorded increase in the number of employees during this period.

In the case of employment in the manufacturing sector of Maharashtra, non-production workers such as persons holding supervisory or managerial positions or engaged in administrative office, store keeping section and welfare section, sales and purchase departments, watch and ward and others engaged in production of fixed assets for the factory recorded a higher growth rate than the production workers during the period. The industries such as cotton textiles (23), wool, silk and synthetic fibre textile (24), wood and wood products (27), non-metallic mineral products (32) and transport equipment and parts (37) recorded a substantial fall in the employment of production workers during 1980-81 to 1997-98 in the manufacturing sector of Maharashtra (Table 6). However, industries such as beverages, tobacco and tobacco products (22), textile products (26), leather and leather products (29), rubber, plastic, petroleum and coal products (31) and other manufacturing industries (38) recorded a substantial rise in the employment of production workers during the period. In case of non-production workers only cotton textiles (23), wool, silk and synthetic fibre textile (24), wood and wood products (27) experienced fall in employment during the period in manufacturing sector of Maharashtra. The NAGRIND experienced increase in employment of production and non-production workers during the period. However this growth is more pronounced in case of employment of non-production workers during this period. This peculiar pattern of growth of employment in the manufacturing sector of Maharashtra means the service oriented employment is increasing, whereas in production the rising capital intensity especially in large-scale industries is adversely affecting employment of production workers. This trend of employment in the state will adversely affect the income distribution in the economy of Maharashtra.

All the employees in the manufacturing sector of Maharashtra realised increase of 2.76 per cent per annum in real wages during 1980-81 to 1997-98 (Table 7). This rise was relatively more in case of NAGRIND than that in AGRIND. The industries such as food and food products (20-21), transport equipment and parts (37) non-metallic mineral products (32), machinery, machine tools and parts (35-36) and paper and paper products (28) recorded substantial increase in real wages of the employees in the manufacturing sector of Maharashtra. In case of production workers, increase in real wages is higher than that of non-production workers in the state-manufacturing sector. This rising real wages might be one of the reasons of slow increase in the employment of production workers in the state-manufacturing sector. This rise in real wages of production workers is very pronounced in the NAGRIND during 1980-81 to 1997-98. The industries such as food and food products (20-21), transport equipment and parts (37), non-metallic mineral products (32) and machinery, machine tools and parts (35-36) recorded relatively high growth rate of real wages of production workers during the period of 1980-81 to 1997-98. However, the increase in real wages of non-production workers is relatively higher in the AGRIND than that in the NAGRIND. The industries such as food and food products (20-21), paper and paper products (28) and transport equipment and parts (37) recorded relatively higher growth in the real wages of non-production workers during the period in the manufacturing sector of Maharashtra.

5.2 Output and Capital :

The real output of the manufacturing sector of Maharashtra increased by 8.07 per cent per annum during 1980-81 to 1997-98. The growth rate of real output of NAGRIND is relatively higher than that of AGRIND during the period in the manufacturing sector of the state (Table 8). The industries such as other manufacturing industries (38), leather and leather products (29), textile products (26), chemical and chemical products (30), transport equipment and parts (37) and machinery, machine tools and parts (35-36) recorded relatively high growth rate of output during the period in the state manufacturing sector. However, industries such as cotton textiles (23) recorded very low

growth in the output while wood and wood products recorded a fall in the output during this period in the manufacturing sector.

In case of gross fixed capital the manufacturing sector registered growth rate of 10.08 per cent per annum during 1980-81 to 1997-98. This growth is relatively higher in the NAGRIND than in the AGRIND. The industries such as non-metallic mineral products (32), basic metal and alloys industries (33), rubber, plastic, petroleum and coal products (31), textile products and leather and leather products (29) recorded relatively higher growth in capital during this period in the state manufacturing sector. These are the capital-intensive industries, the higher growth rate of capital than that of output implies the rising capital intensity in these industries during the period. However, the industries such as cotton textile (23) and wood and wood products (27) registered relatively lower growth in capital in Maharashtra.

6. Economic Liberalisation :

With the introduction of New Economic Policy in 1991-92, the industrial economy of India experienced a boost. It is widely known that the inception of the economic reforms signaled the liberalisation of the Indian industry from the earlier license raj as also from many other restrictions. The successive reductions in taxes and import liberalisation with export promotion also boosted Indian industry. The devaluation of the rupee gave an impetus to foreign trade and industry. The capital market reforms and liberalisation rules with regard to foreign capital entry ensured better access of industry to finance. The liberalisation programme facilitated private investment through dismantling of government controls on capacity creation, production and pricing, improved access to imported capital equipment, raw materials and intermediates and easier possibilities of technical and financial collaboration with foreign entrepreneurs. Liberalisation combined with devaluation has resulted in an increase in manufacturing production directed towards export markets. All this has helped the manufacturing sector in India.

Here, efforts are made to examine the response of the manufacturing sector of Maharashtra to the liberalisation. The period of 1980-81 to 1997-98 is divided into pre-liberalisation i.e. 1980-81 to 1991-92 and post-liberalisation period i.e. 1991-92 to 1997-98. Using a 'Kinked Exponential Model' (Boyce, 1986; Goldar and Seth, 1989; Burange, 2000) the annual compound growth rate of employment, output and capital has been estimated for the two periods i.e. Pre-liberalisation (PR-LIB) and Post-liberalisation (PO-LIB) for the two-digit industries in the manufacturing sector of Maharashtra. The growth performance is bound to vary across the industry depending on the nature of the industry in the state.

During the pre-liberalisation era employment in terms of number of employees declined in the manufacturing sector of Maharashtra (Table 9). Large number of industries experienced substantial fall in employment during this period. This fall in employment is very pronounced in AGRIND. However, during post-liberalisation period trend of falling employment has been reversed in all the industries except leather and leather products (29) and non-metallic mineral products (32). The industries such as other manufacturing industries (38), textile products (26) and metal products and parts (34) registered high growth of employment during post-liberalisation period. The growth rate registered by NAGRIND is higher than that of AGRIND during the post-liberalisation period.

In case of production workers the fall in employment was more pronounced during pre-liberalisation period (Table 9). The fall in employment of production workers is very substantial in AGRIND during pre-liberalisation period. The most of the industries in the state-manufacturing sector experienced a fall in employment of production workers during pre-liberalisation period. However, this has changed during post-liberalisation period. All the industries except leather and leather products (29) and non-metallic mineral products (32) realised increase in employment of production workers during post-liberalisation period. The NAGRIND shows higher growth than that of AGRIND during this period.

In case of non-production workers, the employment declined during the pre-liberalisation period but this decrease was less than that of production workers. However, the decline is more pronounced in the AGRIND. The NAGRIND realised a small rise in the employment of non-production workers during pre-liberalisation period in the state-manufacturing sector (Table 9). The employment of non-production workers during post-liberalisation period has been increased in almost all the industries in the manufacturing sector of Maharashtra. However, NAGRIND registered higher growth rate than that of AGRIND during post-liberalisation period. The industries such as other manufacturing industries (38), textile products (26), metal products and parts (34) and rubber, plastic, petroleum and coal products (31) registered relatively higher growth in employment of non-production workers during post-liberalisation period. During post-liberalisation period employment has increased in the manufacturing sector of Maharashtra but this rise is relatively higher in case of non-production workers than the production workers.

Average wages to employees in the manufacturing sector of Maharashtra increased substantially during pre-liberalisation period. This rise is more pronounced in AGRIND (Table 10). The industries such as food and food products (20-21), leather and leather products (29), transport equipments and parts (37) and machinery, machine tools and parts (35-36) experienced relatively higher increase in real wages of employees during the pre-liberalisation period.

However, during the post-liberalisation period real wages to employees remained stagnant in the manufacturing sector of the state. In fact many industries such as wood and wood products (27), leather and leather products (29), chemical and chemical products (30) and basic metal and alloys industries (33) realised fall in the real wages to employees during post-liberalisation period. The industries such as paper and paper products (28), non-metallic mineral products (32) and transport equipments and parts (37) are only the industries, which realised a rise in real wages to employees during post-liberalisation in the state.

The wages to production workers recorded relatively high growth during the pre-liberalisation period (Table 10). All the industries in the state-manufacturing sector experienced a rise in real wages to production workers. However, this rise is relatively more in NAGRIND than that in the AGRIND. The industries such as food and food products (20-21), leather and leather products (29), transport equipment and parts (37), machinery, machine tools and parts (35-36), chemical and chemical products (30), non-metallic mineral products (32) and rubber, plastic, petroleum and coal products (31) recorded relatively large increase in real wages of production workers during the pre-liberalisation period. However, during the post-liberalisation period except non-metallic mineral products (32), transport equipment and parts (37) and other manufacturing industries (38), all the industries experienced a fall in real wages to production workers in Maharashtra. This fall in real wages is more severe in leather and leather products (29), chemical and chemical products (30), wool, silk and synthetic fibre products (24) and wood and wood products (27) in the manufacturing sector of Maharashtra. In the case of non-production workers a rise in real wages during pre-liberalisation period is relatively lower than that of production workers. However, this rise is more pronounced in the AGRIND during pre-liberalisation period in the state especially in the industries such as food and food products (20-21) and leather and leather products (29). During post-liberalisation period except few industries all the industries experienced increase in real wages to non-production workers.

The real wages to both types of workers registered a rise during pre-liberalisation period in the state and that might be one of the reasons of low employment growth during this period in the state-manufacturing sector. However, a fall in the real wages during post-liberalisation might have resulted into rise in employment of both production and non-production workers in state manufacturing sector.

In the case of the real output the growth rate registered by the manufacturing sector is higher in the post-liberalisation period than that in the pre--liberalisation period (Table 11). The growth performance of all the industries during the post-liberalisation is at higher level than that in the pre-liberalisaton period except a few exceptions such as

cotton textiles (23), leather and leather products (29) rubber, plastic, petroleum and coal products (31) and non-metallic mineral products (32). The NAGRIND recorded higher level of growth of output during this period however, other manufacturing industries (38), transport equipment and parts (37), metal products and parts (34) and chemical and chemical products (30) are the main contributors to this growth of output.

During the post-liberalisation period growth of fixed capital is more pronounced in the manufacturing sector of Maharashtra (Table 11). All the industries experienced a substantial rise in fixed capital except textile products (26) during post-liberalisation period in the manufacturing sector of Maharashtra. However this rise in fixed capital is relatively lower in chemical and chemical products (30) and basic metal and alloys industries (33) during the post-liberalisation period.

There is certainly an improvement in the performance of the manufacturing sector of Maharashtra in the post-liberalisation period.

7. Total Factor Productivity :

Following Goldar (2002), we use two-input framework for the estimates of total factor productivity. For the two-input framework, the translog index of TFP growth is given by the following expression:

$$\Delta \ln TFP_{(t)} = \Delta \ln Y_{(t)} - \left[\frac{SL_{(t)} + SL_{(t-1)}}{2} \times \Delta \ln L_{(t)} \right] - \left[\frac{SK_{(t)} + SK_{(t-1)}}{2} \times \Delta \ln K_{(t)} \right] \ldots\ldots(3)$$

Here Y is output (Value-added), L Labour and K Capital.

$\Delta \ln L_{(t)} = \ln L_{(t)} - \ln L_{(t-1)}$. In the same way $\Delta \ln K_{(t)}$ is defined. SL is the income share of labour (in value added) and SK denotes the income share of capital. SL and SK add up to unity. $\Delta \ln$ TFP is the rate of technological change or the rate of growth of total factor productivity.

Using above equation, the growth rates of TFP have been estimated for each year. These have been used to obtain an index of TFP in the following manner. Let A denote

the index of TFP. For the base year $A_{(0)}$ is the index, which is taken as 100. Then for subsequent years index is computed as follow:

$$A_{(t)}/A_{(t-1)} = \exp[\Delta \ln TFP_{(t)}] \quad \ldots\ldots(4)$$

Having obtained the TFP index for different years, estimates of TFP growth rate have been made for two sub-periods, 1980-81 to 1991-92 and 1991-92 to 1997-98 and for the entire period 1980-81 to 1997-98 [for estimation of TFP all relevant data have been collected for the period 1979-80 to 1997-98]. The estimation of TFP growth rate for the entire period has been done by semi-log method. To obtain the growth rates for the sub-periods the 'Kinked Exponential Model' has been used.

During 1980-81 to 1997-98 period total factor productivity in the manufacturing sector of Maharashtra increased by 0.87 per cent per annum. This increase is more for AGRIND than that of NAGRIND (Table 12). However, industries such as non-metallic mineral products (32) and metal products and parts (34) experienced a fall in total factor productivity during this period.

During the pre-liberalisation period manufacturing sector of Maharashtra experienced a pronounced rise in the total factor productivity. This rise is more substantial in the AGRIND. The industries such as food and food products (20-21), textile products (26) leather and leather products (29), other manufacturing industries (38) and transport equipment and parts (37) experienced high rise in total factor productivity during the pre-liberalisation period. However, non-metallic mineral products (32) recorded very high decrease in the total factor productivity during this period. This trend of rising total factor productivity completely reversed during the post-liberalisation period in the manufacturing sector of Maharashtra. The large number of industries experienced a substantial fall in total factor productivity during the post-liberalisation period. This trend is more pronounced in the AGRIND in the manufacturing sector of Maharashtra. Why did TFP growth in the manufacturing sector in Maharashtra decelerate in the post-liberalization period? One possible explanation

may be in gestation legs. During post-liberalization period investment activity in the industrial sector increased and that is shown by the growth rate of Gross Fixed Capital. During post-liberalization period Gross Fixed Capital increased by 13.65 per cent per annum. This rise in capital in manufacturing might have had an immediate adverse effect on productivity due to gestation lags. Goldar and Kumari (2002) have made analysis on same line for Indian manufacturing sector. According to them slow down in agricultural growth in the 1990s seems to be important cause of deceleration in total factor productivity growth in the Indian industries in the 1990s. According to Uchikawa(2001) the investment boom in Indian industries in the first half of 1990s had adverse effect on productivity. This lumpy investment raised the output sharply, the demand did not expand as much as capacity. This situation led to under utilization of capacity and thus had deceleration in productivity growth. The same thing happened in the manufacturing sector of Maharashtra.

8. Industrial Localisation :

Industrial localisation can be studied by using the location quotient (Florence, l948). The location quotient can be defined as follows :

$$Location\ Quotient = \frac{(ES_i / ES_m)\times 100}{(EN_i / EN_m)\times 100} \quad \ldots\ldots\ldots (5)$$

where,

ES_i = Employment in the ith industry of the State

ES_m = Employment in the manufacturing sector of the state.

EN_i = Employment in the ith industry in National Manufacturing Sector

EN_m = Employment in the National Manufacturing Sector.

In short, location quotient can be defined as the ratio of the percentage share of a given industry in total employees employed in the manufacturing sector of a given state to the percentage share of that national industry in the total number of employees in the national manufacturing sector.

If an industry is evenly scattered over the whole nation, its location quotient will be close to unity for each state, whereas if the industry is located in any particular state, the location quotient will be more than unity for that state. If the location quotient of a given state in respect of a particular industry is more than unity, it means that the state has a larger share in the distribution of that particular industry than warranted by its share in the distribution of employment in the manufacturing sector. On the other hand, if the location quotient of a given state in respect of a particular industry is less than unity, it means that the state has a smaller share in the distribution of that industry than its due share in the country. The variation in the value of the location quotient of a given state in respect of a particular industry over a period of time reflects the changes in the relative importance of the state in respect of that industry. In short, location quotient explains the localisation of a particular industry in a given state.

The location quotient has been estimated for the two digit industries of Maharashtra for the years 1980-81, 1991-92 and 1997-98. The location quotient in general is declining over the period for AGRIND in the manufacturing sector of Maharashtra (Table 13). The industries such as cotton textiles (23), wool, silk and synthetic fibre (24), textile products (26), wood and wood products (27) recorded decline in the location quotient. However, industries such as metal products and parts (34), machinery, machine tools and parts (35-36). Other manufacturing industries (38) recorded increase in location quotient. In 1980-81 the textile products (26) were localised industry in Maharashtra but both in l991-92 and 1997-98 this industry is not localised in Maharashtra. It means the industry is being developed more in other states in the country.

The industries such as cotton textiles (23), wool, silk and synthetic fibre (24), chemical and chemical products (30), rubber, plastic, petroleum and coal products (31) and transport equipment and parts (37) are having location quotient more than one but it is declining which means state is loosing in these industries to some other state and if same trend continues the state will be very soon deficient in case of these industries.

9. General Problems :

The manufacturing sector of Maharashtra faces various problems, which adversely affect the growth of the sector.

9.1 Industrial Disputes :

The state experienced a major set back from the textile mill workers strike in Mumbai. This strike adversely affected both industrial workers and industries. Increasing trade unionisation in the state made industries to substitute capital for labour. The militancy among trade unions also disturbed the industrial peace in the major industrial centres of the state. Table 14 explains the number of workers involved and number of mandays lost due to strikes and lockouts in the state. During 1990s number of strikes and lockouts, and number of workers involved show declining trend but the number of mandays lost shows rising trend, which adversely affected industrial production in the state.

9.2 Infrastructure :

In the 1960s and 1970s Maharashtra had a better position in relation to infrastructure. However, in 1980 the state lost its advantage in this regard. Infrastructure-wise other states are doing much better than Maharashtra. Infrastructural development did not occur sufficiently in places other than Mumbai, Thane, Pune, Nashik, Aurangabad belt. The growth of infrastructure in the state is certainly not satisfactory compared to other states.

9.3 State's Industrial Location Policy :

In Maharashtra the industrial concentration has always been in the Mumbai-Thane-Pune belt. In order to have a balanced industrial development and for dispersal of industries to backward regions, the state provided some incentives for setting up

industries in backward regions. However, considering the availability of infrastructure in the backward regions of the state, industries preferred to go to the neighbouring states, which were providing some more incentives and better infrastructural facilities. However, due to incentives and subsidies political leadership in other centres of the state could attract some industries but many of such industries could not grow due to their weak economic foundations.

9.4 Competition among States :

During the 1980s many states realised their industrial backwardness, others understood their mistakes in earlier state industrial policies. These states started giving more and more fiscal incentives, better infrastructural facilities, less bureaucratic administration etc., while Maharashtra went on following exactly the opposite policy. On this front Maharashtra is the main loser in case of manufacture of chemicals and chemical products. States like Gujarat, Tamil Nadu, Karnataka, Andhra Pradesh etc. are competing with Maharashtra. These states are giving more and more fiscal incentives, have less bureaucratic administration, better infrastructural facilities and are also trying to provide better climate of industrial relations.

9.5 State's Competitiveness :

Competitiveness of a state can be broadly considered as the overall health of the economy in terms of various observable economic and social indicators, which adequately demonstrate the level of development attained by the states. In a market economy, the relative competitiveness of the states becomes the guiding factor for the private corporate sector while evolving their future investment strategies. Therefore, it is necessary to analyse the relative competitiveness of Maharashtra on various performance indicators.

National Productivity Council (1994) constructed State Competitiveness Index (SCI) for major states of India. Competitiveness of the state is a Composite index which

includes the following 11 variables, viz. (1) transport infrastructure (road, rail and waterways), (2) telephone availability, (3) installed electricity generation capacity, (4) distribution of commercial banks, (5) life expectancy, (6) literacy rate, (7) population before poverty line, (8) size of the market (consumption + savings), (9) labour climate (mandays lost), (10) political stability, and (11) taxes levied by the state government. Among these 11 variables 7^{th}, 9^{th}, 10^{th} and 11^{th} are negatively associated with the overall competitiveness of the state, while the remaining seven are positively associated. The competitiveness ranking of select 15 states of India are arrived at by National Productivity Council leads to the conclusion that Maharashtra lagged behind many other states (Table 15). Punjab, Kerala, Haryana, Gujarat, Karnataka and Tamil Nadu are competitively better states than Maharashtra. These states are in a better position to attract private corporate sector than Maharashtra. Performance of Maharashtra is relatively poor in case of (1) transport infrastructure (road, rail and waterways), (2) telephone availability, (4) distribution of commercial banks, (7) population below poverty line, (9) labour climate (mandays lost), and (11) taxes levied by the state government.

The deteriorating law and order and rising extortionate activities in Mumbai, bureaucratisation of state administration, political indecisiveness, backwardness of rural Maharashtra, high power tariff with shortage of electricity and rising systemic inefficiencies are some more factors directly or indirectly affecting industrial development in the state.

10. Conclusion :

Maharashtra is the major contributor to the industrial sector of India. However, over the period of time, the share of the state in the country's industrial sector has declined. The share of the secondary sector in the state domestic product is stagnating around 30 per cent while the share of tertiary sector is increasing. The composition of industries in the state is undergoing major changes. The share of consumer goods in value-added declined to 16 per cent in 1997-98 but then started increasing and it reached to 21 per cent in 1999-2000. The share of the AGRIND in the manufacturing sector of

Maharashtra has gone down from 48.70 per cent to 40.29 per cent during 1980-81 to 1997-98 in terms of employment. In the same manner share of AGRIND declined in value of output and Net Value-added during 1980-81 to 1997-98.

The performance of the manufacturing sector of Maharashtra during the pre-liberalisation period was poor with respect to employment and output. Large number of industries registered negative growth in employment during the pre-liberalisation period. The growth of output and fixed capital was also poor. However, this has been changed during the post-liberalisation period and most of the industries registered recovery in case of employment output and fixed capital. The growth of employment of non-production workers is more pronounced during the post-liberalisation. The overall performance of NAGRIND is better than that of AGRIND during the post-liberalisation period. However, in terms of total factor productivity growth the post-liberalisation period is relatively poor. During this period total factor productivity declined in the manufacturing sector of Maharashtra. Irrespective of better performance in terms of growth many industries experienced fall in location quotient implying that the localization of industries in Maharashtra declining.

However, the state of Maharashtra still has a comparative advantage in industrial activity. In order to accelerate pace of industrial development in the state, it has to be supplemented by competitive advantage, which can be nurtured and shaped by appropriate policy initiatives by the government.

Table 1: Maharashtra's Share in Indian Industry

(Per cent)

Item	1969-70	1975-76	1979-80	1985-86	1990-91	1994-95	1997-98
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
No, of Registered Factories	17.91	17.25	15.57	14.82	14.15	14.44	15.15
Productive Capital	17.43	16.64	16.48	19.06	17.13	16.62	18.81
No. of Employees	19.10	18.26	17.45	16.06	15.18	14.49	14.77
Value of Output	32.36	24.05	23.70	22.54	22.70	21.13	21.00
Net Value-added	26.68	24.60	24.87	25.88	23.30	22.01	21.67

Table 2: Sectoral Composition of State Domestic Product

(Per cent)

Year	Sector		
	Primary	**Secondary**	**Tertiary**
(1)	(2)	(3)	(4)
1960-61	41.6	26.7	31.7
1965-66	32.8	31.5	35.7
1970-71	28.6	34.2	37.2
1975-76	31.7	32.0	36.3
1980-81	28.1	35.1	36.8
1981-82	27.6	33..7	38.7
1982.-83	27.2	33.4	39.4
1983.84	28.1	32.6	39.3
1984-85	25.8	33.5	40.7
1985-86	23.9	35.3	40.8
1986-87	21.4	37.1	41.5
1987-88	25.4	33.5	41.1
1988-89	24.7	33.5	41.8
1989-90	24.2	33.7	42.1
1990-91	22.9	33.8	43.3
1991-92	20.1	33.5	46.4
1992-93	22.0	32.5	45.5
1993-94	21.9	32.7	45.4
1994-95	21.2	34.5	44.3
1995-96	21.1	34.4	44.5
1996-97	21.3	33.5	45.2
1997-98	17.5	34.0	48.5
1998-99	18.2	28.7	53.1
1999-00	17.2	30.2	52.6
2000-01	14.5	30.0	55.5
Source: Economic Survey of Maharashtra, Government of Maharashtra, Various Issues.			

Table 3: Composition of Industries According to Value-added

(Per cent)

Year	Consumer Goods	Capital and Intermediate Goods
(1)	(2)	(3)
1960	52	48
1980-81	35	65
1989-90	21	79
1991-92	20	80
1992-93	16	84
1993-94	18	82
1994-95	18	82
1995-96	17	83
1996-97	18	82
1997-98	16	84
1998-99	20	80
1999-00	21	79
Source: Economic Survey of Maharashtra, Government of Maharashtra, Various Issues.		

Table 4 : Shares of Agriculture Related Industries and Non-agriculture-related Industries in the Manufacturing Sector of Maharashtra

(Per cent)

Year	Employment		Value of Output		Net Value-added	
	AGRIND	NAGRIND	AGRIND	NAGRIND	AGRIND	NAGRIND
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1980-81	48.70	51.30	29.96	70.04	26.88	73.12
1981-82	48.33	51.67	31.37	68.63	29.73	70.27
1982.-83	46.57	53.43	29.67	70.33	27.05	72.95
1983.84	45.57	54.43	30.09	69.91	26.53	73.47
1984-85	44.89	55.11	29.48	70.52	27.09	72.91
1985-86	45.91	54.09	29.16	70.84	24.32	75.68
1986-87	45.41	54.59	29.43	70.57	27.72	72.28
1987-88	44.99	55.01	28.29	71.71	24.48	75.52
1988-89	44.00	56.00	27.73	72.27	24.87	75.13
1989-90	43.09	56.91	26.21	73.79	24.40	75.60
1990-91	43.43	56.57	24.53	75.47	24.12	75.88
1991-92	42.70	57.30	28.32	71.68	27.25	72.75
1992-93	43.01	56.99	26.19	73.81	20.34	79.66
1993-94	41.88	58.12	26.36	73.64	21.91	78.09
1994-95	41.61	58.39	26.70	73.30	25.08	74.92
1995-96	39.93	60.07	23.71	76.29	18.01	81.99
1996-97	41.07	58.93	25.78	74.22	24.01	75.99
1997-98	40.29	59.71	25.05	74.95	17.88	82.12

Table 5: Maharashtra's Share in the Manufacturing Sector of India

(Per cent)

Year	Employment	Value of Output	Net Value Added
(1)	(2)	(3)	(4)
1980-81	18.21	23.72	26.32
1981-82	17.57	23.20	25.31
1982.-83	16.80	22.15	22.96
1983.84	16.83	22.79	24.17
1984-85	16.73	22.41	23.70
1985-86	16.68	22.51	26.31
1986-87	16.68	22.27	24.90
1987-88	16.11	21.27	22.19
1988-89	16.18	20.94	23.82
1989-90	15.78	21.62	23.19
1990-91	15.79	22.75	23.39
1991-92	15.05	19.70	19.86
1992-93	15.23	21.22	23.87
1993-94	15.64	22.06	25.32
1994-95	15.12	21.36	22.67
1995-96	15.98	22.81	24.59
1996-97	15.42	20.92	21.78
1997-98	15.40	21.25	21.98

Table 6 : Annual Compound Growth Rate of Employment in the Organised Manufacturing Sector of Maharashtra during 1980-81 to 1997-98

(Per cent)

Industry Code Number	No. of Employees	Production Workers	Non-Production Workers
(1)	(2)	(3)	(4)
20-21	1.03	1.18	0.79*
22	2.23	2.42	0.12*
23	(-)2.15	(-)2.23	(-)1.69
24	(-)1.70	(-)1.86	(-)1.06
25	-	-	-
26	3.32	2.79	5.09
27	(-)2.51	(-)2.86	(-)1.30
28	(-)0.29*	(-)0.79*	1.08*
29	4.98	4.31	7.26
30	1.47	1.34	1.67
31	2.84	2.46	3.83
32	(-)0.05*	(-)0.61	1.96
33	(-)0.34*	(-)0.67*	0.55*
34	1.67	1.20	3.02
35-36	0.93	0.45*	1.85
37	(-)0.97	(-)1.47	0.33*
38	5.14	4.82	6.05
39#	4.38	3.82	7.09
Mfq. (2-3)	0.75	0.48*	1.46
AGRIND	(-)0.30*	(-)0.45*	0.20*
NAGRIND	1.59	1.31	2.21

* Statistically insignificant at 5% level of significance.

Data are available from 1989-90.

Table 7 : Annual Compound Growth Rate of Real Wages in the Organised Manufacturing Sector of Maharashtra during 1980-81 to 1997-98 (@ Constant Prices, 1981-82 = 100)

(Per cent)

Industry Code Number	No. of Employees	Production Workers	Non-Production Workers
(1)	(2)	(3)	(4)
20-21	4.96	5.54	4.37
22	1.11	1.18	2.37
23	1.76	1.82	1.33
24	1.35	1.53	0.68
25	-	-	-
26	2.30	2.38	1.36
27	1.34	1.43	0.68*
28	3.01	2.54	3.26
29	2.85	2.89	1.95
30	2.04	2.69	1.36
31	1.98	2.56	0.71*
32	3.63	3.88	2.03
33	1.68	1.49	1.53
34	1.65	1.81	0.79*
35-36	3.15	3.69	2.17
37	4.43	4.83	3.28
38	1.58	1.74	0.93
39#	2.05	2.17	1.03*
Mfq. (2-3)	2.76	2.97	2.12
AGRIND	2.35	2.15	2.55
NAGRIND	2.56	3.05	1.65

* Statistically insignificant at 5% level of significance.
# Data are available from 1989-90.

Table 8 : Annual Compound Growth Rate of Output and Fixed Capital in the Organised Manufacturing Sector of Maharashtra during 1980-81 to 1997-98 (@ Constant Prices, 1981-82 = 100)

(Per cent)

Industry Code Number	Value of Output	Gross Fixed Capital
(1)	(2)	(3)
20-21	7.53	7.17
22	4.76	11.57
23	1.93	5.35
24	4.70	10.17
25	-	-
26	11.61	11.49
27	(-)0.78*	6.68
28	5.50	9.75
29	10.01	11.26
30	9.45	9.90
31	7.84	13.81
32	7.48	17.17
33	6.98	14.16
34	6.01	10.89
35-36	8.15	8.57
37	8.88	7.23
38	19.11	9.82
39#	14.74	12.45
Mfq. (2-3)	8.07	10.08
AGRIND	5.94	7.98
NAGRIND	8.84	10.87

* Statistically insignificant at 5% level of significance.
# Data are available from 1989-90.

Table 9 : Annual Compound Growth Rate of Employment in the Organised Manufacturing Sector of Maharashtra during Pre-liberalisation and Post-liberalisation

(Per cent)

Industry Code Number	No. of Employees		Production Workers		Non-production Workers	
	PR-LIB	PO-LIB	PR-LIB	PO-LIB	PR-LIB	PO-LIB
(1)	(2)	(3)	(4)	(5)	(6)	(7)
20-21	(-)0.74*	5.37	(-)0.32*	4.85	(-)1.44*	6.29
22	1.59	3.78	1.91	3.66	(-)1.93	5.15
23	(-)3.36	0.78*	(-)3.31	0.36*	(-)3.63	3.08
24	(-)2.57	0.40*	(-)2.68	0.10*	(-)2.08	1.41*
25	-	-	-	-	-	-
26	1.07*	8.89	0.65*	8.09	2.55	11.39
27	(-)4.93	3.49	(-)5.53	3.78	(-)2.72	2.15*
28	(-)2.73	5.76	(-)3.09	4.89	(-)1.68	7.96
29	7.47	(-)0.70*	7.06	(-)1.94	8.99	3.25*
30	0.25*	4.46	0.21*	4.10	0.31*	4.98
31	1.03	7.27	0.64*	6.93	2.06	8.17
32	0.75	(-)1.94	0.34*	(-)2.82	2.39	0.93*
33	(-)2.00	3.72	(-)2.24	3.18	(-)1.29	5.08
34	(-)1.06	8.48	(-)1.38	7.61	(-)0.04*	10.67
35-36	(-)0.38	4.12	(-)1.10	4.23	1.01	3.87
37	(-)2.90	3.78	(-)3.54	3.63	(-)1.23	4.13
38	1.94	13.15	1.69	12.66	2.67	14.56
39#	-	-	-	-	-	-
Mfq. (2-3)	(-)0.73	4.36	(-)0.91	3.88	(-)0.23*	5.61
AGRIND	(-)1.78	3.29	(-)1.73	2.68	(-)1.93	5.45
NAGRIND	0.15*	5.09	(-)0.14*	4.84	0.81	5.61

NB:

PR-LIB = 1980-81 to 1991-92

PO-LIB = 1991-92 to 1997-98

* Statistically insignificant at 5% level of significance.

\# Data are available from 1989-90

Table 10 : Annual Compound Growth Rate of Real Wages in the Organised Manufacturing Sector of Maharashtra during Pre-liberalisation and Post-liberalisation

(@ Constant Prices, 1981-82 = 100)

(Per cent)

Industry Code Number	No. of Employees		Production Workers		Non-production Workers	
	PR-LIB	PO-LIB	PR-LIB	PO-LIB	PR-LIB	PO-LIB
(1)	(2)	(3)	(4)	(5)	(6)	(7)
20-21	7.77	(-)1.43*	8.11	(-)0.31*	7.70	(-)3.13*
22	1.24*	0.79*	1.71	(-)0.07*	2.31*	2.50*
23	3.17	(-)1.50*	3.40	(-)1.85*	2.35	(-)1.07*
24	2.54	(-)1.41*	3.32	(-)2.59	0.52*	1.07*
25	-	-	-	-	-	-
26	3.19	0.22*	3.93	(-)1.21*	1.09	2.02
27	3.06	(-)2.65	3.05	(-)2.31	1.94	(-)2.27*
28	3.24	2.48	3.23	0.92*	2.82	4.31
29	7.54	(-)7.48	8.28	(-)8.87	5.88	(-)6.81
30	3.49	(-)1.32	5.00	(-)2.59	2.02	(-)0.18*
31	2.88	(-)0.14*	4.11	(-)1.03*	0.66*	0.84*
32	3.65	3.59	4.47	2.47	1.30*	3.80
33	2.49	(-)0.23	3.00	(-)2.03	1.35	1.97
34	2.33	0.05*	3.16	(-)1.33*	0.44*	1.62*
35-36	4.58	(-)0.15*	5.72	(-)0.98*	2.68	0.96
37	5.25	2.52	6.06	1.95	3.27	3.31
38	1.44	1.92*	2.33	0.35*	(-)0.44*	4.26
39#	-	-	-	-	-	-
Mfq. (2-3)	3.89	0.13*	4.47	(-)0.51*	2.76	0.63*
AGRIND	3.63	(-)0.63*	3.58	(-)1.16*	3.81	(-)0.39*
NAGRIND	3.60	0.11*	4.65	(-)0.64*	1.95	0.97*

NB:

PR-LIB = 1980-81 to 1991-92

PO-LIB = 1991-92 to 1997-98

* Statistically insignificant at 5% level of significance.

\# Data are available from 1989-90

Table 11: Annual Compound Growth Rate of Output and Gross Fixed Capital in the Organised Manufacturing Sector of Maharashtra during Pre-liberalisation and Post-liberalisation (@ Constant Prices, 1981-82 = 100)

(Per cent)

Industry Code Number	Value of Output		Gross Fixed Capital	
	PR-LIB	PO-LIB	PR-LIB	PO-LIB
(1)	(2)	(3)	(4)	(5)
20-21	7.22	8.28	5.96	10.11
22	3.40	8.04	9.02	17.88
23	2.05	1.67*	3.36	10.22
24	3.76	6.96	5.89	21.05
25	-	-	-	-
26	12.34	9.90	8.70	(-)0.18*
27	(-)2.83*	4.27*	5.05	18.40
28	2.81	12.18	7.80	10.68
29	11.65	6.19*	13.79	14.52
30	7.94	13.12	8.96	5.48
31	9.25	4.54*	11.36	12.15
32	9.80	2.15*	22.09	19.84
33	6.26	8.73	14.40	6.25
34	2.25	15.50	7.15	13.60
35-36	6.77	11.49	7.38	20.30
37	6.20	15.55	5.30	11.45
38	15.66	27.74	3.97	25.08
39#	-	-	-	-
Mfq. (2-3)	6.99	10.67	8.62	13.65
AGRIND	5.23	7.67	5.67	13.70
NAGRIND	7.67	11.66	9.73	13.60

NB:

PR-LIB = 1980-81 to 1991-92

PO-LIB = 1991-92 to 1997-98

* Statistically insignificant at 5% level of significance.

\# Data are available from 1989-90.

Table 12 : Annual Compound Growth Rate of Total Factor Productivity in the organised Manufacturing Sector in Maharashtra during 1980-81 to 1997-98

(Per cent)

Industry Code Number	1980-81 to 1997-98	1980-81 to 1991-92	1991-92 to 1997-98
(1)	(2)	(3)	(4)
20-21	4.76	6.63	0.45*
22	(-)1.30	0.10*	(-)4.52
23	0.80*	0.03*	2.65*
24	(-)1.78*	1.44*	(-)9.02
25	-	-	-
26	3.75	9.39	(-)8.51
27	1.50*	(-)1.31*	8.49*
28	0.62*	1.27*	(-)0.93*
29	3.51*	10.39	(-)11.17
30	1.55	1.04*	2.79*
31	(-)1.10*	4.53*	(-)13.30
32	(-)4.43	(-)4.16	(-)5.10*
33	(-)1.30*	(-)5.36*	9.08*
34	(-)1.22	(-)0.24*	(-)3.51*
35-36	1.48	2.58	(-)1.08*
37	3.31	3.21	3.54
38	2.76	4.43	(-)1.10*
39#	-	-	-
Mfq. (2-3)	0.87	1.79	(-)1.29*
AGRIND	1.12	3.08	(-)3.39
NAGRIND	0.50*	1.03*	(-)0.74*

* Statistically insignificant at 5% level of significance.

\# Data are available from 1989-90

Table 13 :Location Quotient

Industry Code Number	1980-81	1991-92	1997-98
(1)	(2)	(3)	(4)
20-21	0.63	0.81	0.73
22	0.87	0.80	0.90
23	1.25	1.25	1.19
24	1.68	1.15	1.03
25	0.00	0.00	0.00
26	1.31	0.90	0.51
27	0.48	0.35	0.36
28	1.01	0.98	1.08
29	0.17	0.21	0.27
30	1.48	1.40	1.31
31	1.35	1.24	1.27
32	0.60	0.56	0.52
33	0.69	0.66	0.67
34	1.62	1.30	1.71
35-36	1.31	1.25	1.43
37	1.17	1.13	1.16
38	1.61	1.74	1.91
39#	-	1.63	1.11
AGRIND	0.88	0.88	0.82
NAGRIND	1.14	1.11	1.17

Table 14 : Industrial Disputes in the State

Year	Number of strikes and lockouts	No of Workers involved	No of Mandays lost
(1)	(2)	(3)	(4)
1961	274	83400	575600
1966	781	514400	3541900
1971	690	450700	2052500
1976	337	151900	421000
1981	636	200700	9505400
1986	300	83100	5297800
1990	193	60100	4008900
1991	217	59400	4649300
1993	194	83600	3956300
1994	156	89200	3686400
1995	131	39800	3339000
1996	112	36600	4736000
1997	101	171500	3402800
1998	82	35600	5391500
1999	63	22900	4909500
2000	85	51000	4604200
Source : Economic Survey of Maharashtra, GOM.(Various Issues)			

Table 15: Competitiveness Ranking of Indian States

Sr. No	Indian States	State Competitiveness Index
(1)	(2)	(3)
1	Punjab	82.80
2	Kerala	67.71
3	Haryana	63.25
4	Gujarat	60.63
5	Karnataka	56.19
6	Tamil Nadu	49.10
7	Maharashtra	48.77
8	Andhra Pradesh	46.69
9	Orissa	46.61
10	Assam	46.41
11	Rajasthan	39.80
12	Madhya Pradesh	36.80
13	West Bengal	34.18
14	Uttar Pradesh	25.27
15	Bihar	22.36
Source : National Productivity Council, Research Division (1994).		

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Appendix 1

Table A1. National Industrial Classification for Two-digit Industries

Industry Code	Description of Industry
(1)	(2)
20-21	Mfg. of food and food products.
22	Mfg. of beverages, tobacco and tobacco products.
23	Mfg. of cotton textiles.
24	Mfg. of wool, silk and synthetic fibre products.
25	Mfg. of jute, hemp and mesta textiles.
26	Mfg. of textile products.
27	Mfg. of wood and wood products, furniture and fixtures.
28	Mfg. of paper and paper products.
29	Mfg. of leather and leather products.
30	Mfg. of chemical and chemical products.
31	Mfg. of rubber, plastic, petroleum and coal products.
32	Mfg. of non-metallic mineral products.
33	Basic metal and alloys industries.
34	Mfg. of metal products and parts except machinery.
35-36	Mfg. of machinery, machine and parts.
37	Mfg. of transport equipment and parts.
38	Other manufacturing industries.
39	Repair of capital goods.
Mfg. (2-3)	Manufacturing.