CHAPTER 5

A COMPARATIVE ANALYSIS
OF THE PERFORMANCE OF
DOMESTIC AND FOREIGN FIRMS
IN THE MANUFACTURING SECTOR
IN POST-REFORM INDIA
A COMPARATIVE ANALYSIS OF THE PERFORMANCE OF DOMESTIC AND FOREIGN FIRMS IN THE MANUFACTURING SECTOR IN POST-REFORM INDIA

5.0 INTRODUCTION:

Opening up the economy attracting FDI in the field of creating manufacturing facilities would augment the process of economic development. In this chapter an attempt has been made to make a comparative analysis in respect of performance by the domestic companies vis-à-vis foreign companies in the manufacturing sector: It also tries to focus on the manufacturing facilities created by them and the impact of FDI on the overall development of the economy during the post reform era. However for the purpose of our study we have kept aside FIIs participation in the portfolios and security investment outside the scope of our present study.

The FDI is mostly inflowing in the form of joint ventures and wholly on subsidiaries. The investment flowing into the country brings along with a package of assets and intermediate products. Often these products may be classified as tangible and intangible. Intangible
products may be in the shape of brand image, global acceptance, intellectual property assets, trade mark, global market share, global best practices, technology management, state of the art technology, best management practices. Thus the present study has led us to infer that FDI has got a direct influence not only in enhancing the volume of capital flow in the shape of investment, but it also carries with it some added advantages categorized as intangible as indicated above.

5.1 PHASES OF FDI:

In course of our analysis we can categorize FDI inflow into several phases as discussed hereunder:

   i) The first phase can be traced in the shape of open door policies in the 1950s.

   ii) Subsequently we notice the policy of regimental selectivity in the late 60s and 70s when the country was under the wave of social control of business entities, during the same period we witnessed nationalization of bank and insurance business, legislation of MRTP act to contain the size of private enterprises becoming too big and controlling major part of productive resources of the country. During this period instead of FDI it was referred as foreign collaborations. Such
collaboration was sought in the shape of foreign technical collaboration. FDI is clubbed under foreign-financial collaboration.

iii) The last phase came since July 1991 the introduction of economic reform programme. The industrial policy resolution of 1991 opened up the window of the country as a first step licensing and permit-raj was eliminated, selective control was maintained as per the national priorities, foreign investment in the shape of FDI and FII routes were opened. In order to execute the policy of FDI the govt. issued Press Note from time to time embodying the permissible extend of foreign capital jointly with a domestic manufacturing entity. It primarily aims to strengthen the productive capacities of our industrial ventures, promotes export from those joint ventures to foreign market, to earn foreign exchange from the export to augment foreign currency assets and foreign exchange reserve with the RBI; and thus register a higher growth percentage. It is undoubtedly this all-round effort of the business entities with supportive policies has fructified in the present rate of growth of GDP.
5.2 GLOBAL RESPONSE TO INDIA’S REFORMS:

As measured by the quantum of FDI inflow, global response has been, by and large, positive. The annual flow of FDI rose from a paltry USD 0.1 billion in 1991 to USD 4.28 billion in 2001. FDI in 2001 accounted for 1 percent of GDP and 4.3 percent of domestic investment, the corresponding figures for 1991 being 0.07 and 0.12 respectively. However, the aggregate stock of FDI received by India during the 1990s stands at a low USD 18 billion, less than half of China’s annual flow of FDI.

If we look at FDI during the whole five year period from 1996 to 2000, out of the total of 8,345 foreign collaborations, the cases involving FDI are accounted for 4,329(51.88%) more than double the number than the previous period 1991-95. The FDI actual during the period amounts to Rs.16270 crores, representing 22.71% of approval (SIA, News Letter, 2000): The manufacturing sector (comprising of basic engineering, electrical and non-electrical machinery, electronic, chemicals and fertilizers) accounted for 27% of the approvals and 53.32% of the actual inflows. Among these sectors, three sectors viz., Chemical, including drugs and pharmaceuticals (21.11%), electricals and electronics (20.71%) and non - electricals (9.42%) comprise
53.65% of actual inflows of FDI (CMIE, BoP Statistics, July 2000). Hence the study is motivated by the growing size and significance of FDI in manufacturing sector in general and the above mentioned three sectors in particular in India. Manufacturing sector is of vital importance for domestic production, consumption and exports. Here lies the rationale for an empirical study on the role of foreign and domestic firms in augmenting economic development.

5.3 REVIEW OF EMPIRICAL STUDIES:

Some scholars have enquired into the differences in the ways in which globally organized TNCs (transactional corporations) and locally based firms behave. Most of the empirical works relating to the comparative performance of foreign and domestic firms have focused on the manufacturing sector. Larry Willmore (1976) shows that the foreign firms export a greater portion of their production to other markets, employ relatively more white collar workers at a higher salary, and have lower capital-output ratios. Byung Soo Chung and Chung H. Lee (1980), in their study, show that the difference in production techniques chosen by foreign and local firms in Korea is statistically insignificant. Larry N. Willmore (1986) shows that
compared to their local counterparts, foreign firms operate fewer plants, have higher ratio of value added to output, higher level of advertising and royalty payments, greater export, higher labour productivity, higher wages and greater capital intensity. Rhys Jenkins (1990) has shown that there is considerable evidence from both Latin American and East Asian countries to support the view that foreign subsidiaries account for a higher proportion of manufacture exports than local firms and employ relatively more capital intensive techniques with a few exception in case of countries like Taiwan and Hong Kong where local firms are more capital intensive in comparison to their foreign counterparts. Kumar N. (1990) found no statistical significant difference in export performance of foreign and domestic firms in Indian manufacturing.

For analysing the performance of Domestic and Foreign firms we owe to Rajib Kumar Sahoo because the technique of analysis we have adopted here has been taken from his research paper entitled “Foreign Direct Investment and Economic Development: A Firm Level Analysis of Manufacturing Sector in Post-Reform India” published in Asian Economic Review, Vol. 41, 1999 (Issue 1).
5.4 DATA SET AND METHODOLOGY:

The comparative study looks at both domestic and foreign firms across different industries. The predominance of foreign firms in Indian manufacturing sector is found across the following major industries: Chemical, Electrical machinery, Non-Electrical machinery and Electronics. The foreign firms are defined as firms with more than 50 percent equity held abroad. The firms which do not have data for at least three years are excluded from the study.

The comparative performance of domestic and foreign firms is analyzed on the basis of seven parameters namely export orientation, import dependency, capital intensity, profit intensity, vertical integration, product differentiation and effective tax rate. These parameters are defined as below:

(i) Export Orientation (intensity) = Total Exports ÷ Gross Sales

(ii) Import Dependency (intensity) = Total Imports ÷ Gross Sales

(iii) Capital Intensity = Gross Fixed Asset ÷ Total Wage Bill

(iv) Profit Intensity = Total Profit ÷ Total Sales

(v) Vertical Integration = Value added ÷ Total Sales

(Value added = Salaries + Operating Profit)

(vi) Product Differentiation = Advertisement Expenditures ÷ (or Advertisement Intensity) Total Sales
The data on the variables like gross sales (including excise duty), gross profit (net profit plus interest payment plus depreciations), tax (corporate tax), gross fixed assets, total wage bill, advertisement and value added (salary bills plus operating profits) have been collected from CMIE (2001) on its publication entitled 'Statistical profiles of 500 Corporate Giants' which separately present data for domestic and foreign firms on different industries along with their sub-groups. We obtain data on foreign exchange transactions of firms i.e.; total exports and total imports. The total exports include the exports of goods and services along with interest earnings, dividend earned, royalties earned, earning from transportation or tourism, technical fee etc. Total imports include imports of raw material stores and spares, capital goods and payments for services purchased like royalties, commissions, technical fees etc.

The study is based on the data collected from 'Statistical profiles of 500 Corporate Giants' published by CMIE in 2001.

The data on exports, imports, value added, profits, advertisement, gross fixed assets, total wage bills and corporate tax are first averaged for five years (1996-2000) to avoid year to year
fluctuation and also to take care the accounting period which is not found to be same across the firms. The average value of the variable (excepting the variables namely gross fixed assets and corporate tax) are divided by their gross sales to obtain their ratios to make the comparative analysis meaningful. Division by sales is necessary to smooth out the large differences in sale across the firms. For capital intensity we obtain the ratio of gross fixed assets to total wage bills as an indicator. The ratio of tax to profit is calculated as a measure of effective tax burden facing the firms separately in the above industries and their sub-groups so as to get a single figure for comparison.

After carefully matching data of both domestic and foreign firms we retain with 108 firms in Chemical, 36 firms in Electrical, 16 firms in non-Electrical and 20 firms in Electronics. Altogether we take 180 firms of which 102 are domestic firms and 78 are foreign firms.

Of the 108 firms in Chemical, 62 are domestic firms and 46 are foreign firms. Of the 36 firms in Electrical, 21 are domestic firms and 15 are foreign firms. Of the 16 Non-Electrical firms, 9 are domestic firms and 7 are foreign firms and out of 20 firms in Electronic, 10 are domestic firms and 10 are foreign firms.
The expected relationship are hypothesized for a particular variable between the two sets of data on foreign and domestic firms and analyzed to see if the data extend any support for the hypotheses or not. The analysis is done in two phases. Firstly, a comparative analysis is done using these ratios between domestic and foreign firms and the use of the non-parametric test namely \textbf{Wilcoxon Matched Pair Signed Rank Test} is undertaken to draw inference. We have highlighted this test in a subsequent section. The ratios of these seven variables are given in Table – 1 to Table – 4 separately for domestic and foreign firms and Table – 5 contains the summary results of the non-parametric test.

\textbf{5.5 Hypothesis Tested:}

\textbf{1.} Foreign firms are not better export performer in comparison to domestic firms.

\textit{Vis-à-vis}

Foreign firms are better export performer in comparison to domestic firms.

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2. Foreign firms are not less import dependent than domestic firms.

Vis-à-vis

Foreign firms are less import dependent than domestic firms.

3. The employment generation capacity of foreign firms is not less in comparison to domestic firms.

Vis-à-vis

The employment generation capacity of foreign firms is less in comparison to domestic firms.

4. The profit intensity of foreign firms is not significantly higher than that of the domestic firms.

Vis-à-vis

The profit intensity of foreign firms is significantly higher than that of the domestic firms.

5. In terms of vertical integration there is no significant difference between the two sets of firms.
Vis-à-vis

In terms of vertical integration there is significant difference between the two sets of firms.

6. In respect of product differentiation there is no significant difference between the two sets of firms.

Vis-à-vis

In respect of product differentiation there is significant difference between the two sets of firms.

7. Foreign firms are not tax evaders and contribute less to the national exchequer in comparison to the domestic firm.

Vis-à-vis

Foreign firms are tax evaders and contribute less to the national exchequer in comparison to the domestic firm.
Table 5.1: COMPARATIVE RATIOS OF DOMESTIC FIRMS: CHEMICAL INDUSTRY

<table>
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<td>0.29</td>
<td>0.03</td>
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<td>0.16</td>
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<td>0.17</td>
<td>0.06</td>
<td>0.19</td>
<td>3</td>
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<td>Toiletries</td>
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<tr>
<td>5. Plastic &amp; Rubber</td>
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<td>0.15</td>
<td>9.01</td>
<td>0.14</td>
<td>0.18</td>
<td>0.07</td>
<td>0.11</td>
<td>14</td>
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<tr>
<td>6. Drugs &amp; Pharma</td>
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<td>0.08</td>
<td>0.09</td>
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Table 5.2: COMPARATIVE RATIOS OF FOREIGN FIRMS: CHEMICAL INDUSTRY

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<td>4. Cosmetic &amp;</td>
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<td>0.23</td>
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<td>0.19</td>
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<td>Toiletries</td>
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<td>0.07</td>
<td>5</td>
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<tr>
<td>6. Drugs &amp; Pharma</td>
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<td>0.12</td>
<td>8.10</td>
<td>0.13</td>
<td>0.21</td>
<td>0.12</td>
<td>0.27</td>
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Table 5.3: COMPARATIVE RATIOS OF DOMESTIC FIRMS:
ELECTRICAL, NON-ELECTRICAL AND ELECTRONICS INDUSTRY

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<td>0.19</td>
<td>0.06</td>
<td>0.16</td>
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<tr>
<td>2. Other-Elect. Machinery</td>
<td>0.03</td>
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<td>10.11</td>
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<td>0.15</td>
<td>0.02</td>
<td>0.18</td>
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<tr>
<td>3. Non-Elect. Machinery</td>
<td>0.01</td>
<td>0.11</td>
<td>4.18</td>
<td>0.15</td>
<td>0.28</td>
<td>0.03</td>
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<tr>
<td>4. Electronics</td>
<td>0.13</td>
<td>0.23</td>
<td>9.01</td>
<td>0.17</td>
<td>0.20</td>
<td>0.07</td>
<td>0.19</td>
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Table 5.4 COMPARATIVE RATIOS OF FOREIGN FIRMS:
ELECTRICAL, NON-ELECTRICAL AND ELECTRONICS INDUSTRY

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<td>0.06</td>
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<td>2. Other-Elect. Machinery</td>
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<td>27.70</td>
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<td>0.24</td>
<td>0.04</td>
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<tr>
<td>3. Non-Elect. Machinery</td>
<td>0.11</td>
<td>0.11</td>
<td>5.10</td>
<td>0.16</td>
<td>0.28</td>
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<td>0.20</td>
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<td>0.03</td>
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5.6 PERFORMANCE OF FOREIGN AND DOMESTIC FIRMS 
IN TERMS OF DEVELOPMENT INDICATORS

5.6.1 Exports orientation:

The TNCs subsidiaries enjoy comparative advantages over the domestic firms in terms of brand name, technology and marketing skill which put them in better position in exporting (de la Torre, 1974). Foreign firms are more domestic market oriented when the size of the domestic market is large (Buckely and Casson, 1991). On the other hand, the export orientation depends very much on the domestic culture of the host country. An inward looking policy backed by import substitution and high tariff structure induces the foreign firms to internalize the domestic market through a FDI structure called “Jumping the tariff wall”. A more outward looking policy regime can attract efficiency seeking FDI which can be helpful in enhancing export intensity. Nevertheless the large host market is always a major factor behind increasing TNCs involvement.

The export intensity of foreign and domestic firms in 10 sub-groups of three major industries is found to be very low ranging from 1% to 16% of sales. We find that the export intensity of foreign firms
is higher than the domestic firms in respect of six industry sub-groups viz., Other Chemical, Cosmetic and Toiletries, Electrical Machinery, Other Electrical Machinery, Non-Electrical Machinery and Electronics. This higher export intensity of foreign firms can be attributed to technological and marketing advantages they enjoy over the domestic firms. Interestingly, in Drugs and Pharmaceuticals industry, the relative export intensity of domestic firms is much higher than that of the foreign firms.

5.6.2 Import Dependency:

The foreign firms are believed to be more import dependent than domestic firms. TNCs tend to source their inputs from their home country which serve as ‘double-edged mechanism’ viz., to create a market for their intermediate inputs and profit shifting through over invoicing of imports. The ‘liberalized era’ could have paid them to go for more imports than the domestic firms with a much reduced custom duties observed during the period.

The relative import dependency of foreign firms is found to be invariably less in comparison to domestic firms in case of all the ten industry subROUPS.
5.6.3 Capital Intensity:

The most debatable issue before the developing countries in the role of technology transfer by TNCs. In general, techniques of production of TNCs affiliates are relatively capital intensive in nature. That is the reason why foreign firms more often compete out local manufacturers and create unemployment. The adaptability of TNCs to local condition depends on the nature of the FDI (market seeking and efficiency seeking) and the type of industry (capital intensive and labour intensive) they are going. Moreover, the abundant factor endowments of the host country can be an additional factor for explaining the adaptability of TNCs.

In favour of the common belief we find that foreign firms are more capital intensive than domestic firms. In Chemical Industry, the only exception is Cosmetics and Toiletries industry where the difference is marginal. In all other cases the differences are found to be relatively higher. In Electrical, Non-Electrical and Electronic industries the difference is found to be marginal.

5.6.4 Profit Intensity:

It is said that foreign firms earn more profit than domestic firms in general. The higher profitability of foreign firms is due to
internationalization advantages (Buckely and Casson, 1991) and other firm specific advantages they enjoy over local manufacturers. On the other hand, profitability is inversely related with degree of competition and market concentration. The difference in profitability between domestic and foreign firms is found to be marginal.

The relative higher degree of profitability is observed for domestic firms in the following industrial sub-groups in the Chemical industry: Basic Chemical, other Chemical, Cosmetic and Toiletries and Drugs and Pharmaceuticals. In Electrical and Non-Electrical industry, the foreign firms are marginally higher in profitability than the domestic firms. But in Electronics industry, the domestic firms are at higher in profit intensity than the foreign firms.

5.6.5 Vertical Integration

Vertical integration takes place when there is absence of an efficient market for intermediate transactions. In consequence, highly integrated firms provide less backward linkages and depend more on imported inputs impeding the growth of domestic ancillary industries. Vertical integration is taken as the ratio of value added to sales. Value added equals salary plus operating profits. The remaining part of sales revenue goes to incur the cost of purchasing the intermediate inputs.
from other firms. The residual sales revenue contains a part of imports and the remaining part is purchased from domestic ancillary firms.

It is observed that, within Chemical industry, the domestic firms are relatively in higher integration in Basic Chemical and Other Chemical industries. In case of paints and Dyes, Cosmetic and Toiletries and Drugs and Pharmaceuticals, foreign firms are marginally at higher vertical integration than their domestic counterparts. In Electrical, Non-Electrical and Electronics industries, foreign firms are more integrated in Electrical machinery and other Electrical Machinery groups.

5.6.6 Product Differentiation or Advertisement Intensity

Foreign firms are generally more intensive in introducing new products. As a result their advertisement and marketing expenditure as a proportion of sales can be higher relative to local firms. We find that there is no difference between domestic and foreign firms between Basic Chemical and other Chemical industries within the Chemical Industry. In respect of Paints & Dyes domestic firms are much more intensive in product differentiation than their foreign counterparts. In Cosmetic and Toiletries foreign firms are relatively more intensive in product differentiation.

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5.6.7 Effective Tax Rate

The nominal tax rate facing a firm may be different from the effective tax rate. The effective tax rate shows the burden on corporate income. Foreign firms may be different from domestic firms in effective tax rate. The effective tax rate is defined here as the ratio of tax provisions to gross profitability. As it is observed, the relative effective tax rate is much higher in case of foreign firms. Within the Chemical industry, except for paints and dyes, plastic and rubber group, the effective tax rate for foreign firms are invariably higher than that for domestic firms. In electrical, non-electrical and electronics industries, the difference of effective tax rate between foreign and domestic firms is marginal in respect of electrical machinery, non-electrical machinery and electronics industries. But in case of other electrical machinery, the effective tax rate is significantly higher in domestic firms than their foreign counterparts.

5.7 NON-PARAMETRIC TEST

For testing the statistical significance of the difference between foreign firms and domestic firms with respect to these seven variables across the ten industries, the non-parametric test namely Wilcoxon
**Matched-Pairs Signed Rank Test** for two related samples has been used. The procedure involved in using this test in as follows:

To begin with, the difference \((d)\) between each pair of values is obtained and these differences are assigned ranks from the smallest to the largest, ignoring signs. The actual signs of differences are then put to corresponding ranks and the test statistic \(T\) is calculated, which happens to be the smaller of the two sums, namely, the sum of negative ranks and the sum of positive ranks.

There may arise two types of situations while using this test. One situation may arise when the two values of some matched-pair(s) is/are equal as a result of which the difference (d) between the values is zero. In such a case, we do not consider the pair(s) in the calculations. The other situation may arise when we get the same difference (d) in two or more pairs. In such a case, ranks are assigned to such pairs by averaging their rank positions. For instance, if two pairs have rank score of 8 then each pair is assigned 8.5 ranks \([(8+9)/2 = 8.5]\) and the next largest pair is assigned the rank 10.

After omitting the number of tied pairs, if the number of matched pairs is equal to or less than 25, then the table of critical value \(T\) is used for testing the null hypothesis. In case the number exceeds
25, the sampling distribution of \( T \) is taken as approximately normal with mean \( \mu_T = n(n+1)/4 \) and standard deviation \( \sigma_T \)

\[
\sigma_T = \sqrt{n(n + 1)(2n + 1)/24}
\]

where \( n \) is taken as the number of given matched pairs, the number of tied pairs being omitted if any. In such a situation, the test statistic \( Z \) is worked out as follows:

\[
Z = (T - \mu_T)/\sigma_T
\]

The advantage of taking this test is that it does not assume normality of the population distribution. The test is rather a powerful one as it utilizes information on both direction and magnitude of the differences within the pairs. Since all the variables under the present study are in ratios, these can be compared between large and small in any industry group. Another advantage of this test is that it does not take absolute values of the differences. First it ranks the differences giving higher ranks to higher value and excludes the ties. Thus it is not affected by the extreme values as in case of arithmetic mean. This is one of the desirable properties, especially in non-parametric test, when the sample size is small.

By applying Wilcoxon Matched Pair Signed Rank Test we have arrived at the following conclusions at 95 per cent confidence level.
(i) Foreign firms are relatively better export performer in comparison to domestic firms.

(ii) Foreign firms are found to be less import dependent than domestic firms. Thus foreign firms save precious foreign currency for the country.

(iii) In favour of the common belief we find that foreign firms are more capital intensive. Thus the employment generation capacity of foreign firms is less in comparison to domestic firms.

(iv) In respect of profit intensity, our analysis reveals that the profit intensity of foreign firms is significantly higher than that of the domestic firms.

(v) So far as vertical integration is concerned the test reveals that there is no significant difference between the two sets of firms.

(vi) In respect of product differentiation also we find that there is no significant difference between the two sets of firms.

(vii) The effective tax rate as defined by the ratio of tax provisions to gross profitability is found to be higher in respect of foreign firms in comparison to domestic firms. This contradicts the view that foreign firms are tax evaders and contribute less to the national exchequer.
REFERENCES


3. CMIE (2001), Statistical Profiles of 500 Corporate Giants, Mumbai,
   CMIE (1996), India’s Balance of Payments, Mumbai.


