

A Relative Performance of Large and Small Sector in Manufacturing Sector of India

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Abstract:

In this paper the author evaluates relative performance differences between large sector and small sector in the manufacturing sector of India according to type of organizations. Comparative efficiency parameters are estimated for the period 1998-99 to 2012-13 using data generated by Annual Survey of Industries (ASI) which is related to the type of organizations in manufacturing sector of India. The results establish that, the small sector performed better than the large sector. The result of data analysis shows that the small sector is more efficient than the large sector.

1. Introduction

Manufacturing sector holds a key position in the Indian economy, accounting for nearly sixteen per cent of real GDP in year 2012 and employing about 12.0 per cent of India's labour force. Growth in the sector has been matching the strong pace in overall GDP growth over the past few years. For example, while real GDP expanded at a CAGR of 8.4 per cent over 2005-2012, growth in the manufacturing sector was marginally higher at around 8.5 per cent over the same period. Consequently, its share in the economy has marginally increased during this time – to 15.4 per cent from 15.3 per cent. Growth however has remained below that of services, an issue that has not escaped the attention of policy makers in the country.

This paper reveals the relative performance of large sector and small sector according to type of organizations in manufacturing sector of India. There are twelve type of Organizations given in ASI Data out of which we have selected ten. We have further grouped- Public Limited Company (PLTD), Private Limited Company (PVT), Govt. Dept. Enterprises (GOVNT), Public Corporation (PUB), into Large Sector (LS) and Individual Proprietorship (IND), Hindu Undivided Family (HUF), Partnership Firms (PARTN), Khadi & Village Industries (KVI), Handloom Industries (HL) and Cooperative Societies (COOPS) into Small Sector (SS).

2. Objectives

- A. To analyze the growth trends of main variables of Large Sector and Small Sector in all type of Organizations.
- B. To conduct a comparative analysis of performance of all business type of Organizations

1. Review of Literature

According to Charu C. Garg (1996)¹ made a comparison between the performance of large industries, modern SSIs

and traditional industries. This study is based on ASI data for the large sector and the small sector from 1980-81 to 1991-92. It is found that the small SSIs are growing not only numerically but also in terms of employment, investment and output. In terms of size, the larger units among the SSIs are become larger and smaller are becoming smaller. In another study made by Sivramkrishna (2007)² determined the market structure of India's Small Scale Industries (SSI) sector in order to understand the behaviour of Small-Scale Firm (SSF) that operates within it. The writer has characterized the key variables that determined market-structure included: nature of products, barriers to entry, number of firms in the industry and firm interdependence. She has analyzed that an inherent tendency for firms in India's SSI sector was responsible to operate at less than full-capacity rate of output. This paper suggest that there is a need for more emphasis on policies encouraging creation of brand value and brand management, quality consciousness and developing other non-price attributes by SSF's. Bishwanath Golder (1988)³ compared for 37 industries at the three-digit level the technical efficiency of small-scale and large-scale industries for the year 1976-77. He found that the SSIs (compared to the large-scale industries) generally have low labour productivity, high capital productivity, low capital intensity (measured as capital per employee) and low total factor productivity. However, there are some studies which prove the opposite and show that small-scale units are more efficient. For example, using the data presented in Annual Survey of Industries for 1960, 1963, 1964 and 1965, Ramsinh K. Asher (1987)⁴ showed that the small-scale sector is more efficient.

2. Research Methodology

This article is based on the secondary data collected from the Annual Survey of Industries from 1998-99 to 2012-13. To achieve the above stated objectives, data on fourteen variables namely, number of factories (FACT), fixed capital (FC), productive capital (PC), invested capital (IC), number of workers (WORKER), total persons engaged (PERSONS),

wages (WAGES), total emoluments (EMOLU), gross inputs (GINP), depreciation (DEP), net value added (NVA), rent paid (RENT) and interest paid (INTR) have been taken. Whereas, rest of the four variables namely, profit, salary, manager and working capital is computed from the ASI data on types of organization for large sector and small sector. Following methods has been used to analyze the results.

a) Analysis of Growth of Main Variables

The word “growth” implies the quantitative increase in a variable. It can be measured in a number of ways. Percentage change in a variable over a period of time represents growth. But it uses data on only two points. If we use the equation $Y = Y_0 + b T$ where T is the time and Y be the variable whose growth has to be computed and Y_0 serves as the estimated initial value of Y then, $(dY/dT)/Y_0$ shall act as the simple growth rate of the variable Y. However, if the variable is of discrete nature and compounding then we can assume the equation:

$$Y_n = Y_0 (1+r)^T$$

To compute the growth, where r is the growth rate. We will have to take log of both sides, conduct a regression on Log Y and T and subtract unity from the value of slope to compute the “r”. Now carrying our discussion further, if our variable under question is of continuous nature we should use the equation:

$$Y_n = Y_0 e^{rT}$$

For measuring the growth rate, where e is the exponential constant having approximate value 2.718. In the present study, all variables have been treated as continuous and therefore the growth rates used in this study are of continuous exponential nature. In the present study, the growth rates of 14 variables (as mentioned earlier) of the organized manufacturing sector for period 1998-99 to 2012-13 have been computed.

b) Ratio Analysis

Ratio analysis tend to be most meaningful when they are used to compare Organizations within the same industry, or when they are used to make conclusion about changes in a particular organisation’s structure over time.

In the present study, to conduct a comparative analysis among various type of Organizations, we have developed ten ratios namely, cost of capital (COC), return on fixed capital (ROFC), return on working capital (ROWC), return on invested capital (ROIC), Average Invested Capital (AIC), net value added per worker (NVAW), average wage rate (AWAGE), average salary (ASALRY), share of workers in net value added (SHWORK) and share of managers in net value added (SHMANG). These ratios have been calculated for whole groups (type) and slightly differ from their conventional meaning. The following notes given here clarify the meaning of the ratios in the context of this study.

i. Cost of Capital (COC) -

A firm raises funds from various sources and different sources of funds have different costs. The cost of the each source is specific cost of that source; the weighted average of all sources of funds gives the overall cost for acquiring capital. The cost of capital for a firm can be computed if the data on capital structure of the firm is available. Since in our case, we are using highly aggregated data for whole of groupings (type), it is not possible to find the specific costs of each source of funding. Therefore, we have used the proxy of COC using the following formula:

$$\text{Cost of Capital} = \frac{\text{Total Interest Paid}}{\text{Invested Capital}}$$

ii. Return on Fixed Capital (ROFC)

It is important to analyze the profitability of fixed capital in the manufacturing sector. The ratio return on fixed capital gives the average profitability of the whole of the group. It has been computed as follow:

$$\text{ROFC} = \frac{\text{Industry Profit}}{\text{Fixed Capital}}$$

iii. Return on Working Capital (ROWC)

Once the investment on fixed capital takes place then the business firms focus on improving the return on current assets. The ratio return on working capital is a good measure to analyze the operational efficiency of the firms. The working capital has been obtained by subtracting fixed capital from the productive capital. The ROWC has been computed as follow:

$$\text{ROWC} = \frac{\text{Industry Profit}}{\text{Working Capital}}$$

iv. Return on Invested Capital (ROIC)

This ratio has been computed to compare the return on capital with the cost of capital using following formula:

$$\text{ROIC} = \frac{\text{Industry Profit}}{\text{Invested Capital}}$$

v. Average Invested Capital Per Factory (AIC)

$$\text{AIC} = \frac{\text{Total Invested Capital}}{\text{Number of Factories}}$$

vi. Net Value Added Per Worker (NVAW)

Although the nature all type of Organizations is different in a cross sectional data, but for the purpose of analysis, it can be assumed that all firms and industries are making a homogenous product called value added. The ratio, net value added per worker shows the average value created by a worker.

$$\text{NVAW} = \frac{\text{Net Value Added}}{\text{No.of Workers Employed}}$$

vii. Average Wage Rate (AWAGE)

This ratio gives the average wage considering all workers as homogeneous. The basic purpose of computing this ratio is to compare the contribution of labour with their value addition. It has been compute as

$$AWAGE = \frac{\text{Total Wage Bill}}{\text{No. of Workers}}$$

viii. Average Salary of persons in managerial jobs (ASALRY)

$$ASALRY = \frac{\text{Total Emoluments to all employees} - \text{Total Wage Bill}}{\text{Total No. Of Person Engaged} - \text{No. of Workers}}$$

ix. Share of workers in net value added (SHWORK)

$$SHWORK = \frac{\text{Total Wage Bill}}{\text{Net Value Added}}$$

x. Share of managers in net value added (SHMANAG)

$$SHMANAG = \frac{\text{Total Emoluments to all Employees} - \text{Total Wage Bill}}{\text{Net Value Added}}$$

d) Testing the Differences between Large and Small Types of Organisations

To test the underlying hypothesis that whether there exists significant differences between performance of Large Sector and Small Sector, we have further grouped- Private Limited, Public Limited, Govt Dept. Enterprises and Public

Corporations into Large Sector (LS) and Individual Proprietorship, Joint Family, Partnership, Khadi and Village Industries, Handloom Industry and Cooperative Societies into Small Sector (SS).

Various performance indicators of LS and SS have been compared using tests of significance of **Means of Independent Samples t-Test**.

A t-test can be used to determine whether there is significant difference between the two independent samples. In each test, we have two sample means- one for Small Sector and other for Large Sector. We calculate the t-test as follows:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{S} \times \sqrt{\frac{n_1 n_2}{n_1 + n_2}}$$

\bar{X}_1 = mean of the first sample

\bar{X}_2 = mean of the second sample

n_1 = number of observations in the first sample

n_2 = number of observations in the second sample

S = combined standard deviation.

The value of S is calculated by the following formula:

$$S = \sqrt{\frac{\sum(X_1 - \bar{X}_1)^2 + \sum(X_2 - \bar{X}_2)^2}{n_1 + n_2 - 2}}$$

$n_1 + n_2 - 2$ = the degree of freedom

3. Discussion of the results**TABLE: 1 Growth Rates of Main Variables of Large Sector and Small Sector (1998-99 to 2012-13)**

Sr. No	VARIABLES	LARGE SECTOR	SMALL SECTOR
1	FACT	3.3460	2.1209
2	FC	12.4251	12.5487
3	PC	13.1136	11.7932
4	IC	13.6666	11.4489
5	WORKERS	4.7634	3.4093
6	EMPLOYEES	4.5454	3.3302
7	MANAGER	3.8882	2.9781
8	WAGES	9.6168	10.6308
9	EMOLU	11.1410	11.5399
10	SALARY	12.0536	13.0753
11	TINPUT	18.2273	12.5896
12	GOUTPUT	14.1773	12.5434
13	DEP	18.9469	10.0314
14	NVA	13.8774	12.6052
15	RENT	11.6223	10.5077
16	INTR	8.2152	9.2073
17	WC	15.2171	10.5431
18	PROFIT	16.6788	14.9235

Source: Computed by Researcher Based on ASI Data

The above table reflects that all main variables except wages, total emoluments, salary, and interest paid shows the more growth rate in large sector than the Small Sector. But

it is also reveals from the table Small Sector is growing as Large Sector grow. But it is found that there is no significant difference in the growth of large sector and small sector.

Table: 2 Average of Computed Ratios of Large Sector and Small Sector in Manufacturing Sector of India

Sr.No.	VARIABLE	LARGE	SMALL
1	COC	4.928532	7.225018
2	ROFC	27.67315	41.83319
3	ROWC	143.637	222.8906
4	ROIC	19.38865	19.03743
5	NVAW	5.867425	1.589025
6	AWAGE	0.713903	0.375083
7	ASALARY	3.033166	0.989877
8	SHWRKR	13.35135	24.7777
9	SHMANGER	16.6421	14.74498
10	AIC	51883.204	5842.7929

Source: Computed by Researcher Based on ASI Data

The above table reflects that the cost of capital is very high in Small Sector (SS) but the return on fixed capital and working capital is greater than the Large Sector (LS). It can be concluded that the Small Sector is more efficient than the large Sector. Return on invested capital is near about the Large Sector. Average wage and average salary is high in LS then the SS. It is clear from the above table that there is large disparities in wages and salary in LS. The share of workers in net value Added (24.78) is higher the Large

Sector (13.35). It means that SS generate more employment than the LS. The share of managerial jobs is very large than the share of workers in the both sectors. Average invested capital is also very high in large sector than the small sector. Aiginger and Tichy (1991)⁵ propose that small firms could be more efficient than large firms because they are managed by owners whose goal is profit maximization, while large firms are managed by managers who are interested in maximizing their own utility.

Table: 3 Mean and t-value of Large Sector and Small Sector in Manufacturing Sector of India

Ratio	Mean of Large Sector	Mean of Small Sector	t-value
COC	0.0493	0.0723	4.890*
ROFC	0.2767	0.4183	4.684*
ROWC	1.436	2.229	12.851*
ROIC	0.194	0.190	0.176 (Not Significant)
NVAW	5.867	1.589	6.462
AWAGE	0.714	0.375	5.167*
ASALARY	3.033	5.1567	0.989*
SHWORK	0.134	0.248	8.780*
SHMANAG	0.166	0.147	0.526*

* Significant at 5% level (two-tailed)

The above table present the mean and significance value of Large Sector and Small Sector. We found that there is significant difference in the mean of the Large Sector and the Small Sector in all the ratios except one (ROIC).

Here we computed some ratios to analysis the efficiency of all type of organisation. We also divide all these Organizations into two sector the small sector and large sector. If we see the overall ratios analysis we found that small sector use more efficiently their fixed capital, because their cost of capital is very low than the large sector. Small sector play important role in the absorption of labour force but it faces the problem of skilled labour. In the absence of skill labour productivity is low. Due to low labour productivity small firms gives the lower wages to the workers than the large sector. The large pay better remuneration to their worker and employees than the small sector Dhar and Lydall (1961)⁶ consider that there is a

common tendency in all countries, for the average wage (or salary) to be lower in small factories than in large factories.

Therefore, the skilled labour moves towards the large sector. In briefly, we can say that small sector can better perform, if government provide facility of loan and training programme to the worker.

4. Conclusion

It has been concluded that the small sector is performing better than the large sector though the all types of resources is available to the large sector. Small sector is the backbone of the any economy that's why government should provide better facilities to the small sector. The small sector is provide 24 per cent employment, whereas, large sector provide only 14 per cent employment to the labour force. If

all type facilities are provide to the small sector, it became more productive than the large sector.

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