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# An Empirical Study Of The Relationship Between Net Sales And Major Expenses Incurred: Antecedents Of Organisational Performance Of Bse 500 Companies

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## ABSTRACT

It is a long debate whether the expenses incurred on employees, sales promotion/advertising, and manufacturing/operations, leads to higher earnings (or merely a cost burden on the company). The paper attempts to explore the relationship between a firm's Net Sales and three major expenses the firm indulges into, viz., HR expenses (or Employee Cost), Selling and Distribution Expenses, and finally, the Operating & Manufacturing Expenses. The data is taken for BSE 500, the top listed companies of India. A block of (up to) last fifteen years, i.e., from year-end 2003 to year-end 2017 has been considered for analysis.

Since the BSE 500 companies make a heavy impact on India's overall industrial growth and economic scenario, a study of this nature is expected to bring forth some useful business insights.

Multiple Regression analysis is used to understand the relationship between the independent variables - Employee Cost (EC), Selling and Distribution Expenses (SDE), and the Operating & Manufacturing Expenses (OME), and the dependent variable- Net Sales (NSal). The data cleaning process removed any anomalies or empty spaces. Ms-Excel is used as the software tool. The interpretation is based mainly on the values of adjusted R square and *p*-value.

The data analysis reveals that almost 47% of the relationship can be explained by these input variables EC, SDE, and OME (taken together) and their impact on the output variable NSal.

The outcome of the study is useful to decision-makers in the organisations who are always debating on the kind of expenses to be done to increase revenues (more specifically, net sales).

**KEY WORDS**

Firm Performance, BSE 500, Employee Cost, Selling expenses, Operating expenses

## 1. INTRODUCTION

When we look at the time since financial meltdown of 2008, we find that today the global economy, as well as Indian economy, has experienced difficult times between 2008 and 2012. However, the comeback of our economy in the last five years, say from 2013 onwards,gives strong signs that we are on the path of becoming one of the five biggest economies of the world.

Our corporate is one of the main driving force for this economic resurgence, with supporting policies and programmes from the Government of India, such as, Make in India, Pradhan Mantri Jan Kaushal Yojana,and other development related frontiers provided multiple opportunities for people in India. In order to understand the main drivers of financial performance of Indian corporate, the present paper explores a quantitative relationship between various expenses an organisation does, andrevenue earned in terms of net sales. The findings of this paper will provide useful insights to managers and business leaders.

The existing literature suggests that the relative significance of intangible assets such as, human capital, customer relations, brand name, corporate reputation, intellectual property, and patents have increased in knowledge economy. (Vishnu and Gupta, 2013). This study makes an attempt to understand how organisations looks at the expenses and thus take certain measures, that relates to the tangible as well as the intangible assets, and gets reflected in their financial revenues.

Sundarsan (2007) studied the effectiveness of advertising on sales. The results showed that advertising influences sales, though the impact is different on different kind of firms. Advertising managers have long believed that advertising's impact on sales is in affirmative, the tendency to assume that advertising's effect on sales is long-term or short-term gains is yet under debates.

**STRUCTURE OF THE PAPER:**

Section 2 comprises of review of literature and a possible gap which needed to be addressed. Section 3 comprises of the research problem, research objectives and hypothesis. Section 4 discusses research methodology in detail, whereas, section 5 elaborates on results and related discussion. Section 6 is the chapter on implications of this research, limitations and scope for further research.

## 2. Review of Literature

The three heads in which major expenses happen have been identified as Employee Costs, Selling and Distribution Expenses, and Operating & Manufacturing expenses. (as per the financial statements of companies available with Ace Equity as well as open source material). Let us take a look at understandingthese three heads of expenses here.

***Employee Costs***

When we look at total expenses done on employees (it includes salaries and wages, bonuses, increments, welfare activities, PF contributions, incentives, training costs, etc.), the industry differs a lot. In any labour intensive industry such as manufacturing, it may be around 15 percent of the total earnings. One of the main reasons is that such organisations are bottom heavy and salaries/wages at the lower levels are not so high as compared to the middle or higher level. Further, the managerial level employees are usually in the range of 10-15 % of the total employees. This is even true for some service sector industries such as insurance where the revenues come from selling services and a reasonable part of total earnings of majority of employees come from commissions.

For most of the service sector organisations, salaries are a major expense and it may even go upto 60%, with majority having a range of 35-50% of total revenues. For public sector organisations, HR expensesmay even go beyond 60% thus making it a matter of organisational survival, at times.

This leads us to two different and important questions. One – are organisations considering employees as their major expenses or main assets? And, two – should organisations be worried about their HR expenses (or investments, as some see it) and take measures in ensuring that they have the right 'kind' of employees who contribute to the overall revenues/profits? Let us see how this topic has been dealt with in other researches.

Organisations have traditionally treated employees (its human resources) a cost and 'investment' done on developing the intellectual capital as 'expenses'. To add, "…most economic and financial models treat employees - the prime carriers of knowledge - as a cost and not as a resource." (Pulic, 2004). Somewhere even after almost 14 years of Pulic's statement, today, we see a little change in organisational mind-sets. Financial statements still treat HR as expenses and books enter them as costs.

Not so far back, we have seen how Personnel Management became Human Resources Management, and then strategic partners in business which dawned the modern era of BPHR (Business partners). The fact is - balance sheets in India still find salaries and training as expenses, and not as investments for growth.

Human Capital, HR Expenses/Investments, Intellectual capital (IC), Intangible benefits, Human Assets, Manpower expenses, etc. have been used by various studies to understand the concept of contribution of employees towards the financial performance of any organisation. Researchers have worked heavily towards conceptualising Intellectual capital and Human capital. Typologies have been provided by researchers (Seetharaman et al, 2004), (Pulic, 2004) to understand the interrelated concepts. Roos and Roos (1997) conceptualise Intellectual Capital as sum of the hidden assets of the company not fully captured on the balance sheet.

Studies concerning the impact of human/intellectual capital on firm performance have been conducted around the globe on various sectors, such as, pharmaceuticals (Kamath, 2008).

Quite a few researchers, in recent past, have tried to establish a linkage between the *quality of human resources* and the *financial performance* of an organisation. While majority of these studies have been conclusive, at times there were contradictions and/or insufficient evidence to establishing a direct relationship between the two. Some studies have reported a weak or negative relationship between Intellectual capital and firm performance (Firer and Williams, 2003), while some have reported explainable relationship (Vishnu and Kumar, 2014).

***Selling and Distribution expenses***

To some organisations, advertising and sales promotions, along with managing distribution channels form a big chunk of their annual budgets. The traditional wisdom also says that what gets advertised gets sold. Modelling based on sales figures today forecast the amount of expenses to be done on this head so as to get desired revenues. This has been an active area of research by marketers and sales professionals who would try every *P of marketing* to yield results.

Some researches and results show that the relationship between advertising expenditure and overall sales varies with the size of the company. The larger companies showed a bidirectional relationship between advertising and sales, whereas in smaller companies a long-run increase in sales led to a decrease in advertising expenditure. (Sharma, 2015)

Kamber (2002) found a measurable relationship between advertising expenditure and sales, even after controlling other factors, such as, company size and past sales growth, etc.

Abraham and Lodish believe that advertising effectiveness has to be captured by the additional sales of a product over and above those that would have happened in absence of any advertising or promotion.

***Operating and Manufacturing expenses***

Managing operations of any company is at the core, whether it belongs to service sector or manufacturing, and requires a reasonably big budget. Production expenses thus forms another important input variable of this study.

## 3. THE RESEARCH PROBLEM

The research problem can be stated as - How to study the impact of various expenses, viz., EC, SDE, and OME as input and Net Sales of the company as output?

Here, EC (Employee costs) is a sum of total salaries and wages paid to employees, training costs, benefits such as PF and Gratuity, employee self-learning initiatives, and all welfare activities an organisation engages into for its people. SDE (Selling and distribution expenses) reflects all expenses on sales promotion, advertising and managing distribution/logistics of movement of finished product (or services) to the customer/consumer. OME (Operations and Manufacturing expenses) is the sum total of capital required to run the operations of an organisation. It includes all expenses (other than EC and SDE) which are done to ensure that an organisation has maintained production of goods/services to earn revenues.

An objective measure of indication of financial performance of an organisation is its overall revenues, and Net Sales(NSal) is the dependant variable of the study.

**RESEARCH OBJECTIVE-**

This study tries to find the relationship between EC, SDE and OME as input and Net Sales as output in the context of 500 major Indian companies, of various sectors, which forms BSE 500.

**HYPOTHESIS**

The study has used three null hypothesis for the purpose of examining a relationship among independent variables and the dependent variable – Net Sales.

Formulation of null hypothesis and alternate hypothesis-

$H_{0a}$ : *There is no significant impact of HR expenses on Net sales of BSE 500 companies*

$H_{1a}$ : *There is significant impact of HR expenses on Net sales of BSE 500 companies*

$H_{0b}$ :*There is no significant impact of Selling and Distribution expenses on Net sales of BSE 500 companies*

$H_{1b}$ : *There is significant impact of Selling and Distribution expenses on Net sales of BSE 500 companies*

$H_{0c}$ : *There is no significant impact of Operations and Manufacturing expenses on Net sales of BSE 500 companies*

$H_{1c}$ : *There is significant impact of Operations and Manufacturing expenses on Net sales of BSE 500 companies*

**REGRESSION MODEL:**

Based on the three hypotheses outlined above, the dependent variable is Net Sales (NSal) and the three independent variables are Employee Costs (EC), Operating and Manufacturing Expenses (OME), and Sales and Distribution Expenses (SDE).

The regression model is –

$$Y = a_0 + a_1EC + a_2SDE + a_3OME \ldots\ldots\ldots\ldots\ldots (1)$$

## 4. RESEARCH METHODOLOGY

The secondary data is collected from database ACE EQUITY and multiple regression method of quantitative research methodology is adopted to explore the nature of relationship between the independent variables (EC, SDE, and OME) and dependent variable Net Sales.

All the figures are in *million rupees* and upto fifteen years' value for all expenses and Net Sales are considered for regression. Ms-Excel is used as a software to run the regression.

## 5. RESULTS AND FINDINGS

The output summary of regression of BSE 500 companies is being provided here in table 1 and table 2. Values of independent and dependant variables are of up to fifteen years.

**Table 1. Regression summary (BSE 500)**

| **SUMMARY OUTPUT** | |
|---|---|
| | |
| ***Regression Statistics*** | |
| Multiple R | 0.684865894 |
| R Square | 0.469041293 |
| Adjusted R Square | **0.468667642** |
| Standard Error | 21977.88411 |
| Observations | 4267 |

Adjusted $R^2$ here implies that almost 47% explanation is being provided by the three heads of expenses on the net sales. This brings us to a conclusion that the model thus obtained is strong and further interpretations can be carried out.

This is a clear indication of a high dependence of Net Sales on the three expenses, viz., Employee Cost, Sales and Distribution Expenses, and the third is Operating and Manufacturing expenses.

**Table 2. T-Stat and *p* Value (BSE 500) from Anova Table-**

**ANOVA Values**

| | *Coefficients* | *Standard Error* | *t Stat* | ***P-value*** | *Lower 95%* |
|---|---|---|---|---|---|
| Intercept | 1160.590931 | 360.6477381 | 3.218074 | 0.0013 | 453.5336045 |
| **Selling and Distribution Expenses** | 9.413361918 | 0.476442933 | 19.75759 | 3.29E-83 | 8.479285724 |
| **Operating & Manufacturing Expenses** | 4.450209518 | 0.161421785 | 27.56883 | 4.2E-154 | 4.13373878 |
| **Employee Cost** | 1.550273359 | 0.161879658 | 9.576703 | 1.65E-21 | 1.232904951 |

From the table above, we can conclude that the *p* value is less than 0.01 for all the three independent variables, hence there is a significant impact of the three heads of expenses(taken together) on the net sales of BSE 500 companies. The same is being represented in the Table 3 below -

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**Table 3**. Status of null hypotheses -

| | Null Hypothesis statements | *p* - value | Significance | Interpretation | Remarks |
|---|---|---|---|---|---|
| 1. | *There is no significant impact of HR expenses on Net sales of BSE 500 companies* | 1.65E - 21 | Very high | Null hypothesis not accepted | Alternative hypothesis accepted |
| 2. | *There is no significant impact of Selling and Distribution expenses on Net sales of BSE 50 0 companies* | 3.29E - 83 | Very high | Null hypothesis not accepted | Alternative hypothesis accepted |
| 3. | *There is no significant impact of Operations and Manufacturing expenses on Net sales of BSE 500 companies* | 4.2E-154 | Very high | Null hypothesis not accepted | Alternative hypothesis accepted |

The set of outputs presented here clearly indicates that the importance of **investing in employees**, investment in **advertising and sales promotion** with managing distribution channels, and **operating and manufacturing costs**, have a direct and significant impact on the financial outcomes/net sales. This interpretation is very vital to the core of business decisions.

**The final regression model thus obtained is –**

*Y (NSal) = 1160.59 + 1.55EC + 9.41SDE + 4.450ME ... ... ... ... ...* (2)

**DISCUSSION**

The analysis and interpretation is done here to discuss overall relationship between the independent variables*EC, SDE, and OME,* and the dependant variable *NSal*.

When we look at the financial data and the output of this study, we find strong reasons to believe that expenses done by a company would have an impact on the net sales.

**Finding 1.** Expenses done on Employees have a direct impact on the Net Sales of a company. This is validated by a few studies as well as concepts of motivation which broadly say that human beings are motivated by various ways and one of them is a reasonable salary and attractive perks.

**Finding 2**. A well analysed budget for sales promotion and channels management endeavours have resulted into higher sales and the study also establishes the same for BSE 500 companies of India. A heavy investment would be beneficial but a balance needs to be maintained between overall revenues and expenses for every firm before deciding upon a budget on sales promotion and advertising. Organisations generally have benefitted from a higher visibility.

**Finding 3**. The core of any organisation is its production process. For a service sector organisation it would involve creation of variety of services. Investment on R&D, adoption of modern contemporary technology, and continuous improvements in the production processes would invariably provide better quality and quantity output. This study also establishes that companies that are conscious about their production systems and processes have better net sales (or loosely saying - revenue).

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## 6. LIMITATIONS AND FUTURE SCOPE OF THE STUDY

This study was performed on top 500 Indian companies (BSE 500). However, we have so many foreign multinational companies in India which are not listed under NIFTY and BSE. They impact our overall economy significantly. This study could have different output if the sample would have included these foreign MNCs as well.

BSE 500 mainly includes primarily large cap and mid cap companies. Data for up to fifteen years was available. This means there were companies with all fifteen years' data and some with maybe five years' data. This would have lopsidedthe data and may have impacted the overall findings. In future, a similar analysis will be of interest if performed on financial ratios of Indian companies.

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