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THE IMPACT OF ADVERTISING ON SALES VOLUME OF COMPANIES. A CASE STUDY OF THREE SELECTED COMPANIES IN FMCG SECTOR IN INDIA

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ABSTRACT

The study tries to examine the impact of advertising on sales volume of companies. Three companies in the FMCG sector which has spent an average of 5% to 12% on sales for advertisement are selected for the study. Regression analysis is conducted taking sales as dependent variable and advertising and sales promotion expenses as independent variable. The scatter plot of all the three companies explains how strong is the correlation between the two is. It represents almost a linear upward trend in all the three companies. The F value in ANOVA and p values are also explained the same.

KEYWORDS:

Advertising, Sales Promotion, Sales Volume, Regression Analysis

INTRODUCTION

Any business, whether a start-up or an established one, the primary concern is expansion of its sales volume because the existence, sustained growth and profitability heavily depends on its turnover figures. That is sales is the only key to survival in the market. A company resorts to many means of achieving this end: introducing new products, promoting them through attractive marketing campaigns and schemes; offering discounts and easier payment options. Yet are many other factors which affect the sales of the products of a company.

The factors affecting the sales of a company's products can be principally divided into two groups: Internal factors and External factors

The internal factors may consist of company's product itself, its marketing strategy, performance of marketing department, technology etc and external factors may customer expectations, competitor's market position, economic cycle, laws and regulations, etc. the present study tries to understand the correlation between sales and advertising and sales promotion expenses with reference to a FMCG.

OBJECTIVE OF THE STUDY

The objective of the study is to analyse the impact of advertising and sales promotion expenditure on sales volumeof companies by taking sales as dependent variable and amount spent on advertising and sales promotion as independent variables.

RESEARCH DESIGN

Descriptive case study method is used for analysing the effect of advertisement on sales volume. Three companies from the FMCG sector is selected randomly for the study such Nestle India Ltd, Marico Ltd and Asian Paints. The Advertising and Sales Promotion expenditure for a period of 10 years from 2007 to 2016 and their sales revenue for the period is used for the analysis of data. Only secondary data is used for the study. The source of data is audited financial statements from 2007 to 2016. Regression analysis is used for analysing the data.

HYPOTHESIS

Ho: The Advertising and Sales Promotion Expense has no impact on the Sales Volume of the companies

Ha: the advertising and Sales Promotion Expense has impact on the Sales Volume to the companies

DATA

1.Nestle India

Year	Advertising and Sales Promotion (RS. In million)	Sales
2007	1722.059	35043.53
2008	1943.555	43242.45
2009	2675.119	51293.77
2010	3026.175	62547.43
2011	3,226.20	74,908.20
2012	3,558.80	83,022.60
2013	3,954.80	90,619.00
2014	4,454.70	98,062.70
2015	5,252.10	81,232.70
2016	5,670.20	91,592.80

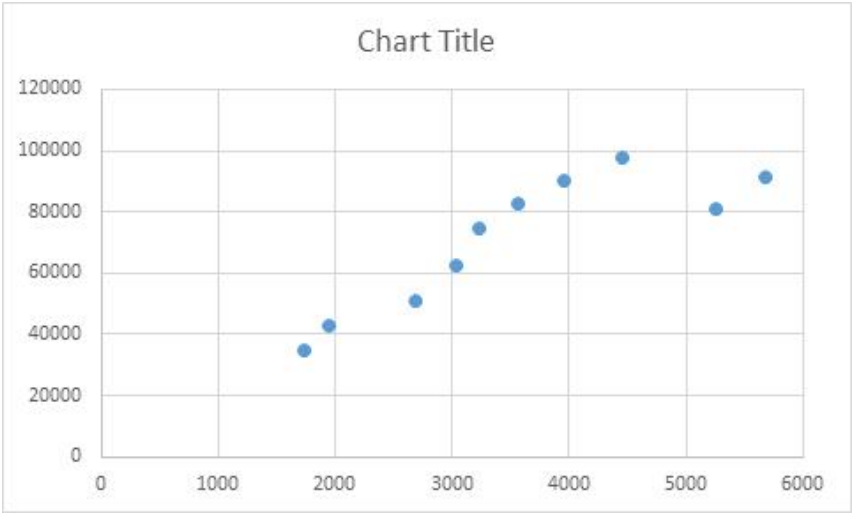


Fig.2 There is a positive linear relationship between advertising and sales revenue. That is, it displays close scatter of dot points about the regression line which represents a close relationship between two variables. It is also clear that a sales revenue is associated with higher advertising and sales promotion expenses. The two variables are positively correlated because the data points make a straight line going from near the origin out to high *y*-values.

The following results are obtained using Excel's regression tool.

Regression Statistics	
Multiple R	0.867689
R Square	0.752884
Adjusted R Square	0.721995
Standard Error	690.6367
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	11625646	11625646	24.3735	0.001139
Residual	8	3815832	476979		
Total	9	15441478			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-139.206	778.2082	-0.17888	0.862479	-1933.76	1655.346
X Variable 1	0.051823	0.010497	4.936952	0.001139	0.027617	0.07603

The output is divided into three sections – **A.** the Regression Statistics, which provides an overview of the model's ability to explain the variation of the dependent variable; **B.** the ANOVA (Analysis of Variance) gives detailed ..... *Y* into the explained and unexplained components; and **C.** the Estimated Model presents the statistical performances of the individual independent variables.

INTERPRETATIONS

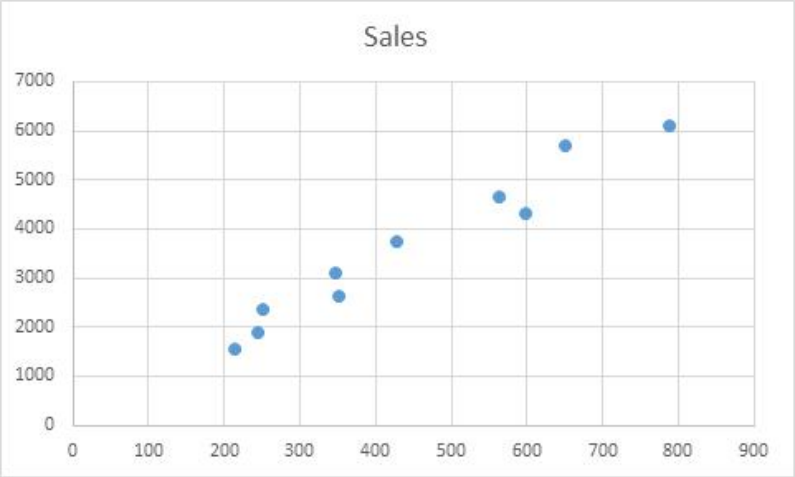
1. Multiple R, the correlation coefficient tells you how strong the linear relationship. It is the measure the strength of association between two variables. The r 0.867689is a greater absolute value which is an indication of stronger linear relationship between advertising and sales promotion expenditure and sales revenue.
2. From the value of R Square it is found that 75% variance in Y (sales revenue) is predictable from X (advertising and sales promotion expenses).
3. The Standard Error measures the accuracy of predictions. In a regression line, the smaller the standard error of estimate is, the more accurate the predictions are.
4. The model is Y = -13.206+0.051823x + ε. The model shows that when the advertising and sales promotion expenditure increases by 1 unit, sales revenue will increase by .0518.

n=10
k=1
Degrees of freedom n-k-1= 10-1-1=8
Level of significance 5%
Critic value 5.32
Computed F value 24.37

The computed *F*-stat is 24.3735; the critical *F*-value (at .05 significance level) from an *F*- table with $k = 1$ and $n-k-1 = 8$ degrees of freedom is 5.32. Because the computed *F*-statistic of 24.3735which far exceeds the critical *F*-value, we reject the null hypothesis and conclude that there exists a significant relationship between advertising and sales promotion and sales revenue. The significance F-value or the p value of the F- statistic also indicates that we can reject the null hypothesis

Marico

Year	Advertising and Sales Promotion (RS. In crores)	Sales
2007	212.35	1,556.92
2008	244.11	1,905.04
2009	250.42	2,388.42
2010	351.11	2,660.76
2011	345.98	3,128.31
2012	425.82	3,751.29
2013	597.94	4,320.38
2014	561.17	4,676.19
2015	649.8	5,732.98
2016	786.1	6,132.04



Regression Statistics	
Multiple R	0.979118
R Square	0.958673
Adjusted R Square	0.953507
Standard Error	42.30514
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	332129.4	332129.4	185.5757	8.11E-07
Residual	8	14317.8	1789.725		
Total	9	346447.2			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-0.19922	35.14194	-0.00567	0.995616	-81.2367	80.83824
X Variable 1	0.122111	0.008964	13.62262	8.11E-07	0.10144	0.142781

The output is divided into three sections – **A.** the Regression Statistics, which provides an overview of the model's ability to explain the variation of the dependent variable; **B.** the ANOVA (Analysis of Variance) gives detailed information regarding the separation of the variation of *Y* into the explained and unexplained components; and **C.** the Estimated Model presents the statistical performances of the individual independent variables.

Interpretations

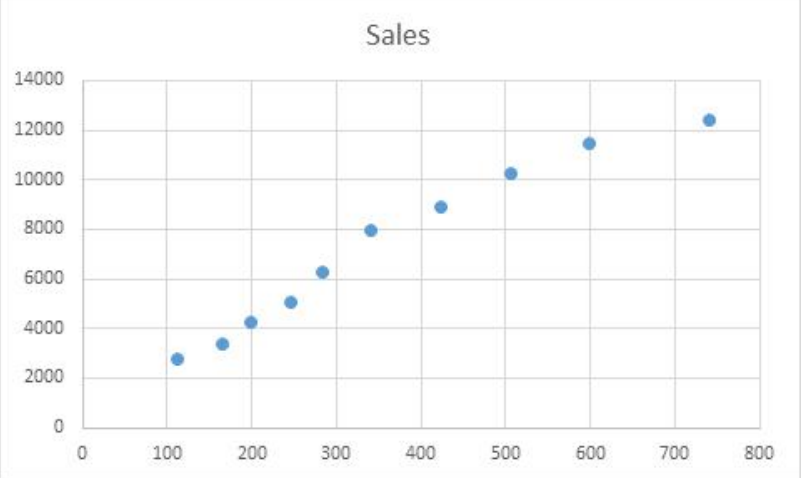
5. Multiple R, the correlation coefficient tells you how strong the linear relationship. It is the measure the strength of association between two variables. The r 0.979118 is a greater absolute value which is an indication of stronger linear relationship between advertising and sales promotion expenditure and sales revenue.
6. From the value of R Square it is found that 96% variance in Y (sales revenue) is predictable from X (advertising and sales promotion expenses).
7. The Standard Error measures the accuracy of predictions. In a regression line, the smaller the standard error of estimate is, the more accurate the predictions are.
8. The model is Y = -0.19922+0.122111x + ε. The model shows that when the budget allocation of tourism increases by 1 unit, foreign tourist arrival rate will increase by .0.122.

n=10
k=1
Degrees of freedom n-k-1= 10-1-1=8
Level of significance 5%
Critic value 5.32
Computed F value 185.5757

The computed *F*-stat is 185.5757; the critical *F*-value (at .05 significance level) from an *F*- table with $k = 1$ and $n-k-1 = 8$ degrees of freedom is 5.32. Because the computed *F*-statistic of 185.5757which far exceeds the critical *F*-value, we reject the null hypothesis and conclude that there exists a significant relationship between advertising and sales promotion and sales revenue. The significance F-value or the p value of the F- statistic also indicates that we can reject the null hypothesis

Asian Paints

Year	Advertising and Sales Promotion (RS. In million)	Sales
2007	110.98	2,821.29
2008	164.85	3,419.06
2009	197.05	4,270.05
2010	244.25	5,125.08
2011	282.35	6,336.08
2012	338.59	7,964.16
2013	422.87	8,909.97
2014	504.03	10,300.22
2015	596.72	11,485.67
2016	740.05	12,458.65



Regression Statistics	
Multiple R	0.981331
R Square	0.963011
Adjusted R Square	0.958387
Standard Error	41.45647
Observations	10

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	357955.4	357955.4	208.2784	5.1963E-07
Residual	8	13749.11	1718.639		
Total	9	371704.5			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	-64.3122	32.20244	-1.99712	0.080876	-138.5711217	9.946787
X Variable 1	0.058077	0.004024	14.43185	5.2E-07	0.048797129	0.067357

The output is divided into three sections – **A.** the Regression Statistics, which provides an overview of the model's ability to explain the variation of the dependent variable; **B.** the ANOVA (Analysis of Variance) gives detailed information regarding the separation of the variation of *Y* into the explained and unexplained components; and **C.** the Estimated Model presents the statistical performances of the individual independent variables.

Interpretations

9. Multiple R, the correlation coefficient tells you how strong the linear relationship. It is the measure the strength of association between two variables. The r 0.981331 is a greater absolute value which is an indication of stronger linear relationship between advertising and sales promotion expenditure and sales revenue.
10. From the value of R Square it is found that 96% variance in Y (sales revenue) is predictable from X (advertising and sales promotion expenses).
11. The Standard Error measures the accuracy of predictions. In a regression line, the smaller the standard error of estimate is, the more accurate the predictions are.
12. The model is Y = -64.3122+0.058077x + ε. The model shows that when the advertising and sales promotion expenditure increases by 1 unit, sales revenue will increase by .0581.

n=10
k=1
Degrees of freedom n-k-1= 10-1-1=8
Level of significance 5%
Critic value 5.32
Computed F value 208.2784

The computed *F*-stat is 208.2784; the critical *F*-value (at .05 significance level) from an *F*- table with $k = 1$ and $n-k-1 = 8$ degrees of freedom is 5.32. Because the computed *F*-statistic of 208.2784 which far exceeds the critical *F*-value, we reject the null hypothesis and conclude that there exists a significant relationship between advertising and sales promotion and sales revenue. The significance F-value or the p value of the F- statistic also indicates that we can reject the null hypothesis.

CONCLUSION

Consolidated Statement of Regression Statistics

	Nestle India	Marico	Asian Paints
Multiple R	0.867689043	0.97911823	0.981331052
R Square	0.752884276	0.9586725	0.963010633
Adjusted R Square	0.72199481	0.95350657	0.958386963
Standard Error	690.6366678	42.3051361	41.45647389
Observations	10	10	10

From the analysis it is inferred that out of the three selected companies Asian Paint which spent 4.9278% of sales as advertisement and sales promotion expense has highest correlation coefficient having 0.98 while the other two companies Marico (having advertisement expense of 12.20556 % on sales) and Nestle India (advertisement expense of 4.986712292% on sales) has 0.97 and 0.86 respectively. Hence it is interpreted that the strength of correlation does not caused by the size of expenditure when expressed as a percentage of sales. Companies need a good mix of advertising and sales promotion investment to encourage both short- and long-term revenue and growth. It helps to keep the business profitable and to keep a good reputation in the community and among current and potential customers. By balancing value-increasing activities with a direct investment in advertising and sales promotions, businesses can prosper. No matter how successful a product or service is for a company and regardless of the edge the company has in the industry, advertising is a must and should be a continuous activity.

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