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Econometrical analysis of effects of advertisements on sales revenues. Case study: Umanis International University (UIU) -Rwanda

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Abstract

Background: *Although advertising by using Newspaper, Television builds brand recognition and builds long-term profitability, researchers want to recognize which types of advertising will generate more profitability and brand recognition over others to make data driven decisions and priority about types of advertising to be used with respect to limited funds to invest in advertising.*

Objective: *The main objective of the research was to measure effects of advertisements on Sales revenues of the company.*

Methods*: Secondary data was taken from companies taken regularly during 8years about sales revenue generated by Newspaper, Television and then STATA was deployed for data analysis.*

Results: *Findings suggest that the Model used fit the data with R squared capture 91.9% variability in the Sales revenue variable, The other 8.1% cannot be explained by the model used and a change of a unit in TV advertising increases Sales revenue by 2.29 units while a unit changes in the Newspaper increases Sales revenue by 1.301 with Statistically significant, since its p-value is much less than 0.05 level of significance.*

Conclusions*: Given the findings with respect to the effect of TV ads on Sales revenue, it is highly likely TV ads build brand recognition and sales revenues than Newspaper.*

Keywords: *Advertisements, Sales revenues, Television Vision, New Paper (NP)*

Introduction

All over the world, company get it profit and brand recognition through advertisements. Often business use a advertising messages, while watching TV, reading magazines, listening to the radio, surfing the internet, or even simply while walking down the street, as advertisement has a stimulating influence on purchasing behavior of the customer.

Analysts such as Kingsley and Paul (2009) have argued that even though the use of advertisement as a promotional tool is common among manufacturing firms in Nigeria like food and beverages firms committing huge sums of money into advertising companies do not automatically translate to better performance indices for the organizations. It has been argued that advertising, even when very extensive, does not lead automatically to purchase because it is the culmination of a whole sequence of events (Abiodun, 2011).

Many related of these studies used primary data which does not adequately capture relationships. Additional, this study equally tried to establish economic model to avoid the results being spurious which the previous studies had failed to establish. This study therefore hopes to fill these gaps.

Main objective.

The main objective of this study is to assess the effects of advertisements on Sales revenues of the Umanis International University.

Specific objectives

This study has two specific objectives.

Determine the effects of TV ads on Sales revenue.

Measure the effects of Newspaper ads on Sales revenue.

Research hypothesis

Two research hypotheses are of interest.

TV ads have no effects on Sales revenue

Newspaper ads have no effects on Sales revenue.

Data analysis and discussion

In this section, the model, the assumptions on the error term are discussed. Results and their interpretations are also presented.

The model.

The model used in this project is of the form

Y = b0 + b1X1 + b2X2 + ε

Where Y is the dependent variable, X1 and X2 are independent variables and the ε is the error term. The parameters of the model are b0, b1 and b2. The parameters are estimated using the least square method. In this project, the above model can be written as Gross Rev = b0 + b1(TV ads) + b2(Newspaper ads) + ε

Assumptions

In using the model above, it is assumed that the error terms are:

Independent identically distributed;

Normally distributed with mean zero and constant variance.

Results

Results from STATA are displayed below.

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. regress WGR TVADs NPADs
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Source	SS	df	MS
Model	23.435408	2	11.717704
Residual	2.06459204	5	.412918409
Total	25.5	7	3.64285714

Number of obs	= 8
F(2, 5)	= 28.38
Prob > F	= 0.0019
R-squared	= 0.9190
Adj R-squared	= 0.8866
Root MSE	= .64259

WGR	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
TVADs	2.290184	.3040645	7.53	0.001	1.508561	3.071806
NPADs	1.300989	.3207016	4.06	0.010	.4765995	2.125379
_cons	83.23009	1.573869	52.88	0.000	79.18433	87.27585

Model fit.

In the table above, one read R2=0.919 or 91.9%. This is the coefficient of determination. An R2 of 91.9 % reveals that the model used has managed to capture 91.9% variability in the Sales revenue variable. The other 8.1% cannot be explained by the model used. The model is good enough to be used for prediction purposes.

To confirm that the model is good to be used, one observes the p-value. In this results, $p=0.0018<0.05$ level of significance. This tells that the model guarantees predictions of higher quality.

Reconstruction of the estimated regression model.

From the table reading, one has the regression equation Gross Rev = 83.23 + 2.29(TV ads) + 1.301(Newspaper ads)

Interpretation of the regression equation

In the above results, b1 = 2.29. This means that a unit change in TV ads increases the Sales revenue by 2.29 units, keeping all other variables constant. This is also statistically significant, since its p-value is much less than 0.05 level of significance. In this case the null hypothesis of no effect is rejected at 0.05 level of significance, in favor of the alternative. TV ads affect significantly Sales revenue. In the above results, we had b2 = 1.301. This implies that a unit change in NP will increase Sales revenue by 1.301 units, while we keep all other variables constant. This is also statistically significant, given that its p-value is of $0.00976 < 0.05$. In this case, the null hypothesis is also rejected at 0.05 level of significance in favor of the alternative hypothesis. This confirms that NPs have statistically significant effects on the Sales revenue.

Conclusion

In this project, the main objective was to assess the effect of advertisement on the Sales revenue. To this end, multiple regression model has been used. Precisely the effect of both TV advertisement and Newspaper advertisement on Sales revenue has been determined and key findings are stated in the next section. It has been found that a change of a unit in TV advertisement increases Sales revenue by 2.29 unit while a unit change in the Newspaper increases also Sales revenue by 1.301. Clearly, TV advertisement has the highest effect on the Sales revenue. Findings also suggest that the Model used fit the data. It can be used for future predictions.

Recommendation

Given the findings with respect to the effect of TV ads on Sales revenue, it is highly likely the company increases TV ads cost in order to Increase its Sales revenue.

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