EVALUATING THE IMPACT OF MEDIA MARKETING ON SALES VOLUME

Project Report Submitted to

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Submitted by

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DECLARATION

I, FATHIMA SANA.P do hereby declare that the project titled "Evaluating the Impact of Media Marketing on Sales Volume" has been undertaken by me for the fulfilment of course outcome of second semester of Master of Science in Econometrics and Financial Technology under the guidance of MR JASHIM ALI KP, Fractal analytics.

I also declare that this project contains no more than an academically acceptable level of similarity and has not been submitted for the award of any degree, diploma, associateship or fellowship, or any other title in this University or any other university.

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I believe that this report will be an asset not only for academic institution, but will also be useful for those who are interested to learn about the project.

Abstract

Media marketing significantly influences a company's sales by enhancing brand visibility, engaging target audiences, and driving consumer purchasing decisions across both traditional and digital platforms. This study explores these effects in detailly analysing how various marketing strategies across television, billboards, and tv ad contribute to fluctuations in sales performance and overall market reach. Using AI-generated data simulating 156 weeks of market activity, a multiple linear regression model was applied to evaluate how different advertising expenditures influence sales. The results reveal that media marketing positively affects sales volume, with digital advertising and billboard promotions having the most significant impact. TV advertising, while still effective, demonstrates a comparatively lower contribution. The findings support Chamberlin's theory of selling costs in monopolistic competition, highlighting that strategic investment in media marketing enhances product differentiation and drives consumer demand.

Key words: Media Marketing, Digital Advertising, Billboard Advertising, AI-Generated Data, Consumer Demand

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Introduction

In the competitive world, companies are trying diversified methods to improve their value and performance in the market. In this scenario, media marketing emerged as an important character in the performance of a company. This study examines how media marketing contributes to a company's sales volume. In a complex business environment, media marketing has become a major tool for companies to reach, access, engage, and influence their audience through advertisement platforms. However, result of these efforts lies in their proficiency to drive incremental performance, the measurable improvements in a company's outcomes like increased sales, that can be directly attributed to specific marketing strategies. There are many advertising platforms like billboards, television, radio, newspapers, social media advertisements and display advertisement affiliate market networks. From this, we are choosing traditional platforms like billboards and television and considering modern platforms like digital advertisement including Facebook and Instagram. Our study aims to find the influence of media marketing on the sales volume of a company.

The study also tries to connect with Chamberlin's selling cost concept. According to him, selling costs in a monopolistic market increase the demand for the product. Here, we are also trying to find how investment in media marketing contributes to the volume of sales.

This study is significant and pertinent since it attempts to assess the actual influence of media marketing on sales volume, illuminating the efficacy of different advertising tactics. Even while media marketing is frequently seen as a major factor in sales, actual situations show that commercials do not always result in a corresponding rise in sales. With this study, we aim to examine the actual state of media marketing and the situations in which marketing initiatives might not live up to expectations. By doing this, the study advances our knowledge of how media marketing affects consumer behaviour and corporate performance, enabling companies to make better marketing strategy decisions.

Review of Literature and Research Problem

This section looks into the literatures reviewed, research problem of the study and the objectives used in the study.

Review of Literature:

(Adulojuet al.,) Analysed the effect of advertising media on sales of insurance products in a developing country perspective. The study employed an empirical survey method, using questionnaire and interview. The study found that advertising positively influence sales volume and enhances the public image of insurance company.

(Temesgen, 2019) Conducted a study on the Impact of advertising on sales volume in case of Habesha Brewery and found that Habesha Brewery's use of informative advertisement through radio and Tv significantly impact sales volume.

(Sufian et al.,2020*)* examined the impact of social media marketing on sales performance of small online business. Study used content sharing, communication as independent variable. Using Pearson's correlation and multiple regression model. The findings revealed that social media marketing positively influence on sales.

Research Gap

Several studies provide the importance of media marketing in influencing consumer behaviour and driving sales there is a lack of focus analysis on how different media channel individually contribute to sales volume. This study address this gap by evaluating the comparative impact of various media platform on sales performance.

Background

Edward Hastings Chamberlin Edward Hastings Chamberlin, in his Theory of Monopolistic Competition (1933), defines monopolistic competition as a market scenario characterised by numerous independent buyers and sellers, yet exhibiting imperfect competition due to product differentiation, geographical market fragmentation, or analogous factors. Each firm differentiates its product, which gives it some control over price.

He introduces the concept of selling cost selling costs are expenses incurred to promote and market the product such as advertising, promotional campaigns, attractive packaging, and customer services. Chamberlin argued that in markets characterized by product differentiation, such costs are not just optional but often essential. They are used to persuade consumers that one product is better or different from others, thereby shifting the demand curve outward. This means that, at the same price level, more consumers are willing to buy the product because they perceive it as more desirable.

Objective

To analyse impact of media marketing on sales volume.

Data

The methodology is based on AI-generated data simulating weekly market activity over a period of 156 weeks. Average Price (AP) captures the typical selling price of the product across all observations. Billboard Spend (BS) represents the expenditure on billboard advertising, while Consumer Spend (CS) reflects the overall spending capacity or consumption expenditure of consumers. Digital Ad Spend (DS) accounts for the budget allocated to online advertising across digital platforms, and TV Ad Spend (TVS) refers to the investment in television advertisements. The dependent variable, Sales Volume (SV), measures the total quantity of products sold. The structured simulation of data enables a controlled environment for analyzing the influence of various promotional activities on sales outcomes.

Methodology

The study employs a multiple linear regression model using the Ordinary Least Squares (OLS) method to investigate the impact of various advertising and promotional expenditures on product sales volume. The regression equation used is:

$$SV = \beta_0 + \beta_1 \cdot AP + \beta_2 \cdot BS + \beta_3 \cdot CS + \beta_4 \cdot DS + \beta_5 \cdot TVS + \varepsilon$$

Here, Sales Volume (SV) serves as the dependent variable, while the independent variables include Average Price (AP), Billboard Spend (BS), Consumer Spend (CS), Digital Ad Spend (DS), and TV Ad Spend (TVS). Model performance was evaluated using statistical tools such as R-squared, adjusted R-squared, p-values, and t-statistics, offering insight into the strength and significance of the relationships between the variables. This model provides a systematic approach to quantify and interpret how marketing strategies impact sales volume.

Analysis and Result

Table1: Descriptive Statistic Analysis

	AP	BS	CS	DS
Mean	9.878643	1985.21	3951.697	3025.724
Medin	9.947097	2002.611	3923.278	3013.438
Std Dev	1.392629	508.7402	926.3757	761.3741
Skewes	0.040667	0.17821	0.130923	0.102308
Kurtosis	2.917762	2.997994	2.92303	2.590805
Jarque Bera	0.086959	0.825756	0.484171	1.360506
Probability	0.957452	0.661743	0.784989	0.506489
Observations	156	156	156	156

Source: Author's calculation

Table 1 indicates moderately consistent pricing. The distribution appears nearly symmetrical, and the shape closely resembles a normal pattern, suggesting stability in the price data.

Billboard ad spending reflecting moderate variability. The slight positive skewness (0.17) and kurtosis of 2.99 confirm that the data follows a near to normal distribution. In the case of consumer promotion spend, the mean and standard deviation indicates more variability. Still, the skewness (0.13) and kurtosis (2.92) reflect a balanced and normal distribution. The digital ad spends mean and standard deviation of suggesting a moderate spread. Its skewness of 0.10 and kurtosis of 2.59 point to a flatter (platykurtic) yet symmetric distribution, with minimal outliers. Sales volume has a significantly high mean of and a large standard deviation of showing high variability. Yet, its skewness is nearly zero (0.004) and kurtosis is 2.46, indicating a normal distribution with a less peaked shape. TV ad spend stands with notable variability. It is slightly positively skewed (0.22) and has a leptokurtic distribution (kurtosis 3.96), suggesting a sharper peak and the presence of outliers. Most variables, such as average price and Billboard spend show low JB values and high probabilities, indicating normal distribution. However, Tv ad spend as a high JB value and a low probability (0.02611), suggesting it significantly deviates from normality.

Overall, most variables demonstrate normal or near-normal distribution with moderate to high variability, except for TV advertising, which is more concentrated and statistically deviates from normality.

Table2: Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	601.8447	792.4374	0.759485	0.4488
Average Price	-138.5753***	53.64325	-2.583275	0.0107*
Billboard spend	1.067779***	0.145522	7.337603	0***
Consumer promo spend	2.123506***	0.080451	26.39496	0***
Digital ad spend	0.818933***	0.098035	8.353456	0***
Tv ad spend	0.339647***	0.073746	4.605654	0***
R square	0.848341			
Adjusted R squared	0.843285			
F-statistic	167.8119			
Prob(F-statistic)	0			
Durbin-Watsonstat	1.979732			

Source: Author's calculation *p<0.05

Table 2 demonstrates strong explanatory power, with an R-squared of approximately 84% indicating that a significant portion of the variation in sales volume is explained by the independent variables. The F-statistic (167.81) and its associated p- value (0.000) confirm the model's overall significance. Durbin Watson statistic of 1.97 also suggest there is no serious autocorrelation.

Among the independent variables average price shows a significant negative relationship with sales volume. Billboard spending increases sales by 1.06 units per unit spent, while consumer promotion have the strongest effect boosts sales by 2.12 units. Digital spending also plays substantial role contribute 0.82 unit rises in sales volume for per unit investment. In the case of TV ad spend increase one unit that contribute 0.33unit sales volume improvement.

In the case of media marketing digital advertisement and billboard advertisement most effective strategy for enhancing sales. While tv advertisement contributes positively its marginal effect is less.

Conclusion

The impact of media marketing on sales reveals a strong and positive relationship. This study aimed to evaluate how different media channels—TV advertisements, digital advertisements, and billboard promotions—contribute to sales performance. The findings indicate that while all media forms have a positive influence, digital and billboard advertisements are more effective in enhancing sales, reflecting a shift from traditional to modern marketing practices. TV advertising, though still relevant, shows a comparatively lower marginal impact. These observations align with Chamberlin's concept of selling costs in monopolistic competition, which suggests that strategic promotional efforts help differentiate products and increase consumer demand. The study confirms that investing in media marketing yields a positive return by boosting sales volume. However, it is important to note certain limitations, such as the absence of variables like influencer marketing, competitor pricing, and seasonality, which may also affect sales. Furthermore, the study highlights the need for industry-specific analysis, as different sectors may respond differently to marketing strategies. Future research should incorporate these factors to gain deeper and more comprehensive insights.

References

- Chamberlin, E. H. (1933). *The theory of monopolistic competition: A re-orientation of the theory of value*.
- Aduloju, S. A., & Odugbesan, O. A. (2009). *The effect of advertising media on sales of insurance products: A developing country perspective*. Journal of Social Sciences, 19(1), 13–20.
- Temesgen, A. (2019). *The impact of advertising on sales volume: The case of Habesha Brewery S.C.* [Master's thesis, Addis Ababa University]. Addis Ababa University Institutional Repository
- Sufian, A. S. M., & Murad, M. W. (2020). *The impact of social media marketing on sales performance of small online businesses*. Journal of Business and Management, 22(2), 45–53