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The Impact of overhead cost allocation methods on product pricing in Rwandan beverage companies

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Abstract

This study examines the impact of overhead cost allocation methods on product pricing strategies within Rwandan beverage companies, focusing on Bralirwa Plc. As manufacturing processes become more automated, traditional volume-based costing often fails to provide accurate cost information. The research employs a mixed methods approach, gathering primary data from twelve key financial and production managers through structured questionnaires and analyzing secondary financial records from 2022 to 2024. Results indicate that machine hour rate and Activity Based Costing are perceived as the most effective allocation methods, significantly outperforming traditional techniques. The company utilizes a blended pricing strategy, heavily relying on competitive and value-based approaches. Statistical analysis reveals a strong positive correlation between refined overhead allocation practices and successful pricing outcomes. Financial data further supports these findings, showing improved net profit margins alongside stable gross profits despite fluctuating costs. These results suggest that accurate cost allocation is critical for strategic pricing decisions and sustained profitability in emerging markets. The study recommends adopting hybrid costing models to enhance pricing precision and competitive advantage in the beverage sector.

Keywords: Overhead Allocation, Product Pricing, Activity Based Costing, Beverage Industry, Rwanda

Introduction

The global manufacturing sector has witnessed a profound transformation in cost management practices over the past several decades. As production processes become increasingly complex and automated, the proportion of overhead costs relative to direct labor and materials has risen significantly. This

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structural shift has rendered traditional overhead allocation methods inadequate for providing accurate product cost information. Consequently, organizations are compelled to adopt more sophisticated cost allocation techniques to ensure precise pricing decisions and maintain competitive advantage. The beverage industry, characterized by high capital intensity, diverse product portfolios, and stringent quality control requirements, represents a critical domain where accurate overhead allocation directly influences financial sustainability.

Historically, traditional costing systems allocated overhead based on a single volume-driven driver, such as direct labor hours or machine hours. While this approach was sufficient in labor-intensive environments, it frequently leads to cost distortion in modern manufacturing settings. Early foundational work established that traditional systems often overcost high-volume products and undercost low-volume, complex products[2]. To address these distortions, Activity Based Costing (ABC) emerged as a robust alternative. ABC assigns overhead costs to products based on the actual activities that consume resources, thereby providing a more accurate reflection of true production costs[3]. The strategic implementation of ABC has been shown to enhance cost transparency and improve managerial decision-making regarding product pricing and profitability[4].

In the context of the Rwandan beverage industry, Bralirwa Plc stands as the predominant manufacturing entity. The company manages a diverse portfolio that includes alcoholic beverages, soft drinks, energy drinks, and bottled water. This diversification introduces significant complexity into the cost structure, making the choice of overhead allocation method a critical strategic decision. Recent studies on cost behavior and financial performance within Rwandan manufacturing firms highlight the growing need for refined cost management strategies to navigate fluctuating raw material costs and dynamic market conditions[5]. However, there remains a distinct gap in the empirical literature

[2]Peter Alnestig and Anders Segerstedt, "Product Costing in Ten Swedish Manufacturing Companies," International Journal of Production Economics 46–47 (1996): 441–457, https://doi.org/10.1016/0925-5273(95)00164-6; Robin Cooper and Robert S. Kaplan, "Measure Costs Right: Make the Right Decisions," Harvard Business Review 66, no. 5 (1988): 96–103, https://hbr.org/1988/09/measure-costs-right-make-the-right-decisions.

[3]Robin Cooper, Implementing Activity-Based Cost Management: Moving from Analysis to Action (Montvale, NJ: Institute of Management Accountants, 1992); Robin Cooper and Robert S. Kaplan, The Design of Cost Management Systems: Text and Cases, 2nd ed. (Upper Saddle River, NJ: Prentice Hall, 1998); Robert S. Kaplan and Robin Cooper, Cost & Effect: Using Integrated Cost Systems to Drive Profitability and Performance (Boston: Harvard Business School Press, 1998).

[4]Maurice Gosselin, "The Effect of Strategy and Organizational Structure on the Adoption and Implementation of Activity-Based Costing," Accounting, Organizations and Society 22, no. 2 (1997): 105–122, https://doi.org/10.1016/S0361-3682(96)00031-1; Jonathan C. Lere and Jayavel V. Saraph, "Activity-Based Costing for Purchasing Managers' Cost and Pricing Determinations," International Journal of Purchasing and Materials Management 31, no. 3 (1995): 25–31, https://doi.org/10.1111/j.1745-493X.1995.tb00212.x.

[5]Marie Chantal Mukabatsinda and Charles Mbonigaba, "Cost Behavior Analysis and Financial Performance of Manufacturing Industries in Rwanda: A Case Study of Bralirwa

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regarding how specific overhead allocation methods directly influence product pricing strategies within East African beverage companies.

Pricing strategy is intrinsically linked to cost information. Organizations typically employ a blend of cost-based, competitive, value-based, and profit margin pricing strategies[6]. Value-based pricing, in particular, requires a deep understanding of the costs incurred to deliver specific value propositions to customers[7]. When overhead costs are allocated inaccurately, the foundation for value-based and profit margin strategies is compromised, potentially leading to suboptimal pricing and eroded market share[8]. Furthermore, organizational design and the championing of pricing capabilities by leadership are essential for translating accurate cost data into superior firm performance[9].

This study addresses the identified gap by investigating the impact of overhead cost allocation methods on product pricing within Rwandan beverage companies, using Bralirwa Plc as the focal case. The research is guided by three specific objectives. The first objective is to identify the overhead allocation methods adopted by the company. The second objective is to assess the pricing strategies applied across its beverage portfolio. The third objective is to analyzethe relationship between overhead allocation practices and product pricing outcomes. By achieving these objectives, this study provides novel empirical evidence on the integration of advanced allocation techniques with dynamic pricing strategies in an emerging market context, offering actionable insights for financial managers and strategic planners in the beverage industry.

Plc" (Marshalls University College, 2025), https://doi.org/10.13140/RG.2.2.17077.18401; Diane Mukayivara and Claude Rusibana, "The Effect of Cost Control on Financial Performance of Manufacturing Companies in Rwanda: A Case of BRALIRWA PLC (2018–2022)," Journal of Finance and Accounting (2023), https://doi.org/10.53819/81018102t2345.

[6]Thomas T. Nagle and Georg Müller, The Strategy and Tactics of Pricing: A Guide to Growing More Profitably, 6th ed. (New York: Routledge, 2018).

[7]Andreas Hinterhuber, "Towards Value-Based Pricing: An Integrative Framework for Decision Making," Industrial Marketing Management 33, no. 8 (2004): 765–778, https://doi.org/10.1016/j.indmarman.2003.10.006; Andreas Hinterhuber, "Value Quantification: The Key to Unlocking the Power of Pricing," Journal of Revenue and Pricing Management 7, no. 2 (2008): 138–149, https://link.springer.com/article/10.1057/palgrave.rpm.5160080.

[8]Andreas Hinterhuber and Stephan M. Liozu, "Is It Time to Rethink Your Pricing Strategy?" MIT Sloan Management Review 53, no. 4 (2012): 69–77, https://sloanreview.mit.edu/article/is-it-time-to-rethink-your-pricing-strategy/; Stephan M. Liozu, Andreas Hinterhuber, Richard J. Boland, and Sebastian Perelli, "The Conceptualization of Value-Based Pricing in Industrial Firms," Journal of Revenue and Pricing Management 11, no. 1 (2012): 12–24, https://doi.org/10.1057/rpm.2011.34.

[9]Stephan M. Liozu and Andreas Hinterhuber, "CEO Championing of Pricing, Pricing Capabilities and Firm Performance in Industrial Firms," Industrial Marketing Management 42, no. 4 (2013): 633–643, https://doi.org/10.1016/j.indmarman.2012.09.003; Stephan M. Liozu and Andreas Hinterhuber, "Pricing Orientation, Pricing Capabilities, and Firm Performance," Management Decision 51, no. 3 (2013): 594–614, https://doi.org/10.1108/00251741311309670; Stephan M. Liozu, Andreas Hinterhuber, and Toni Somers, "Organizational Design and Pricing Capabilities for Superior Firm Performance," Management Decision 52, no. 1 (2014): 54–78, https://doi.org/10.1108/MD-05-2013-0279.

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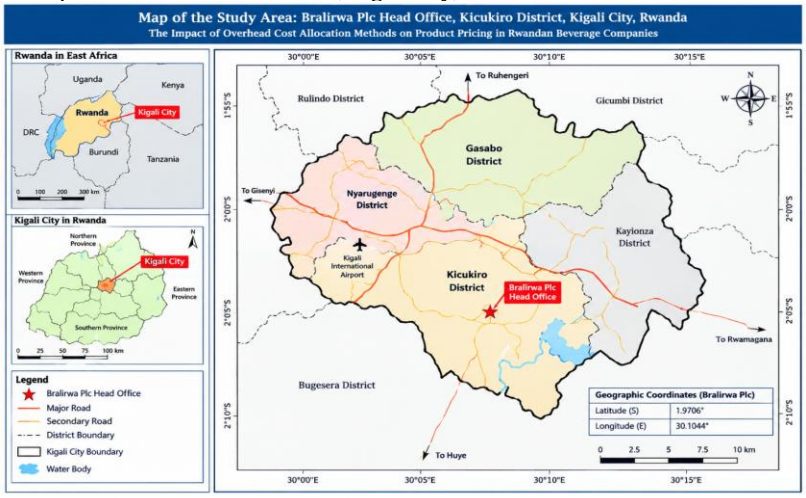
Materials and methods

Description of the Study Area

This study was conducted at the headquarters of Bralirwa Plc, located in the Kicukiro District of Kigali City, Rwanda. The precise geographical coordinates of the head office are approximately 1.9706° South latitude and 30.1044° East longitude (Figure 1). Bralirwa Plc, historically known as Brasseries et Limonaderies du Rwanda, is the leading beverage manufacturing company in the country. The company operates major production facilities in both Gisenyi and Kigali. Established in 1957, with commercial production commencing in 1959 with the launch of Primus beer, the company has undergone substantial technological and operational evolution. A pivotal moment occurred in 1971 following the acquisition of a majority stake by Heineken N.V., which significantly enhanced management efficiency and production capacity. Subsequently, a strategic partnership with The Coca-Cola Company in 1974 enabled the production and distribution of a wide range of soft drinks. Today, the company maintains a dominant market position, supported by a robust nationwide distribution network and a diversified product portfolio that contributes substantially to national industrial development and government revenue[10].

Figure 1: Map of the Study Area Showing the Location of Bralirwa Plc Headquarters in Kicukiro District, Kigali City, Rwanda.



Source: Adapted from the Google Maps and OpenStreetMap base layers, prepared by the author, 2025.

Research Design

[10]Bralirwa Plc, Annual Reports and Financial Statements (Kigali: Bralirwa Plc, 2022–2024), https://www.bralirwa.co.rw/investors/annual-reports.

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The research design serves as the systematic plan and structure of investigation used to obtain answers to the research questions. For this study, a mixed methods approach incorporating both descriptive and explanatory research designs was employed. The descriptive design enabled the study to provide an accurate and detailed snapshot of how overhead costs are currently allocated and how pricing strategies are determined at Bralirwa Plc. The explanatory design was utilized to examine the causal relationships and associations between the methods of overhead cost allocation and the resulting product pricing strategies. This dual approach ensures that the study not only documents existing practices but also analyzes the underlying mechanisms linking cost allocation choices to pricing outcomes[11].

Population and Sample Size

The target population for this study comprised employees of Bralirwa Plc who are directly involved in overhead cost allocation, product pricing, and strategic decision-making processes. This included management staff, senior accountants, finance officers, and production supervisors. The total target population for this specific investigative scope was 12 key personnel. The study utilized a census approach for this specific group, meaning the sample size was equal to the target population of 12 employees. While this sample size is numerically small, it is methodologically sound for this type of study. Purposive sampling was employed to ensure that every participant possessed the specific expert knowledge and operational experience required to provide credible, high-quality data regarding complex financial and pricing decisions. In qualitative and specialized quantitative research, data saturation and the depth of expert insight are often more valuable than large, heterogeneous sample sizes[12].

Data Collection Techniques and Tools

The study utilized both primary and secondary data sources to ensure a comprehensive analysis. Primary data was collected directly from the selected Bralirwa employees using a structured questionnaire. The questionnaire was designed in English and structured into three distinct sections. The first section captured demographic information. The second section assessed perceptions of various overhead allocation methods. The third section evaluated the application of different pricing strategies. Responses were measured using a five-point Likert scale, adapted from foundational attitude measurement techniques[13]. The scale ranged from 1 (Strongly Disagree) to 5 (Strongly Agree).

Secondary data was gathered through a thorough review of company documentation. This included internal financial statements, costing sheets,

[11]John W. Creswell and J. David Creswell, Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, 5th ed. (Thousand Oaks, CA: SAGE Publications, 2018); Mark N. K. Saunders, Philip Lewis, and Adrian Thornhill, Research Methods for Business Students, 8th ed. (Harlow: Pearson, 2019).
[12]Saunders, Lewis, and Thornhill, Research Methods for Business Students.
[13]Rensis Likert, "A Technique for the Measurement of Attitudes," Archives of Psychology, no. 140 (1932).

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pricing policy documents, and the official annual reports of Bralirwa Plc for the fiscal years 2022, 2023, and 2024[14]. This documentary analysis provided objective, historical financial metrics to complement and validate the subjective perceptions gathered from the primary data.

Data Processing and Analysis

Data processing served as the critical link between data collection and final analysis. The process involved rigorous editing, coding, and tabulation. Editing was performed to inspect each completed questionnaire for completeness, accuracy, uniformity, and legibility. Any incomplete or inconsistent responses were reviewed and corrected where possible, or excluded if they compromised data integrity.

Coding involved assigning numerical values to the categorical responses to facilitate statistical analysis. For instance, the Likert scale responses were coded numerically from 1 to 5. Tabulation organized the processed data into structured frequency distributions and summary tables, enabling clear comparison between different allocation methods and pricing strategies.

Data analysis was conducted using both quantitative and qualitative techniques. Quantitative analysis was performed using IBM SPSS Statistics version 22.0. Descriptive statistics, including means and standard deviations, were calculated to summarize the respondents' perceptions of overhead allocation and pricing strategies. The internal consistency and reliability of the Likert scale instruments were assessed using Cronbach's alpha coefficient, a standard metric for evaluating the internal structure of tests[15]. Inferential statistics, specifically Spearman rank-order correlation, were employed to test the strength and direction of the relationship between overhead cost allocation methods and product pricing strategies, as the data involved ordinal Likert scale measurements. Qualitative analysis involved content analysis of the secondary financial documents to identify key trends in cost behavior and profitability over the three-year period.

Ethical Considerations

Ethical considerations were strictly adhered to throughout the research process to protect the rights and well-being of all participants. Formal approval was obtained from the management of Bralirwa Plc and relevant institutional authorities prior to data collection. Informed consent was secured from all participants, with a clear explanation of the study purpose, procedures, and the intended use of the data. Confidentiality and anonymity were guaranteed by removing any personally identifiable information from the questionnaires and aggregating the data for reporting. Participation was entirely voluntary, and respondents were informed of their right to withdraw from the study at any stage without facing any professional consequences.

[14]Bralirwa Plc, Annual Reports and Financial Statements.
[15]Lee J. Cronbach, "Coefficient Alpha and the Internal Structure of Tests," Psychometrika 16, no. 3 (1951): 297–334, https://doi.org/10.1007/BF02310555.

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Results and discussion

Demographic Profile of Respondents

The demographic characteristics of the respondents provide essential context for interpreting the findings. The sample consisted of 12 participants, ensuring a focused group of knowledgeable insiders. The gender distribution showed that 58.3 percent of the respondents were male, while 41.7 percent were female. This distribution reflects the broader demographic trends within the technical and financial management sectors of the Rwandan manufacturing industry. Regarding age, the respondents were well distributed across mature age brackets. Specifically, 41.6 percent were between 26 and 33 years old, 25.0 percent were between 34 and 41 years old, and 16.7 percent were aged 41 years and above. This indicates that the majority of respondents possess the professional maturity required to provide reliable and insightful perspectives on complex financial matters.

In terms of marital status, 50.0 percent of the respondents were married, 25.0 percent were single, 16.7 percent were widowed, and 8.3 percent were divorced. The high level of educational attainment among the participants further validates the reliability of the data. Notably, 50.0 percent held a Master's degree, 33.4 percent held a Bachelor's degree, and the remaining 16.6 percent held diplomas or secondary certificates. Finally, regarding working experience, 41.7 percent of the respondents had worked at Bralirwa Plc for 4 to 6 years, 33.3 percent for 1 to 3 years, and 16.7 percent for over 6 years. This extensive institutional knowledge ensures that the responses accurately reflect the company's established operational procedures and strategic evolution.

Table 1: Demographic Profile of Respondents

Variable	Category	Frequency	Percent (%)
Gender	Male	7	58.3
	Female	5	41.7
Age Group	18-25 years	2	16.7
	26-33 years	5	41.6
	34-41 years	3	25.0
	41 years and above	2	16.7
Education	Bachelor's Degree	4	33.4
	Master's Degree	6	50.0
	Diploma/Secondary	2	16.6
Experience	1-3 years	4	33.3
	4-6 years	5	41.7
	6+ years	2	16.7
Total		**12**	**100.0**

Source: Primary data, 2025

Overhead Cost Allocation Methods

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The first objective of the study was to identify and evaluate the overhead cost allocation methods utilized by Bralirwa Plc. The findings reveal a multifaceted approach to cost allocation, with varying levels of perceived effectiveness among the four primary methods assessed. Traditional costing recorded an overall mean score of 3.764 with a standard deviation of 0.691. Respondents indicated strong agreement that traditional costing helps allocate overhead costs consistently across products. However, the lower mean scores for accuracy in overhead estimation suggest that while the method is familiar, its precision is increasingly questioned in a complex production environment.

Activity Based Costing (ABC) received a higher overall mean of 4.003. Respondents strongly agreed that ABC improves cost transparency by linking costs to specific activities and provides more accurate product costing than traditional methods. This aligns with the theoretical premise that ABC offers superior visibility into cost drivers, thereby enhancing pricing decisions. Volume-based costing achieved an overall mean of 3.850. While respondents agreed that it provides a simple and understandable allocation method, its influence on the accuracy of product pricing decisions was rated slightly lower, reflecting the inherent limitations of using a single volume driver for diverse product lines.

The machine-hour rate method emerged as the most highly regarded allocation technique, achieving the highest overall mean of 4.235. Respondents strongly agreed that this method improves precision in assigning overhead to machine-intensive products and helps evaluate production efficiency. Given the highly automated nature of modern beverage bottling and brewing processes, this finding indicates that machine usage is recognized as the most significant driver of overhead consumption within the company.

Table 2: Perceptions of Overhead Cost Allocation Methods

Allocation Method	Overall Mean	Std. Deviation	Interpretation
Traditional Costing	3.764	0.691	Moderate to Strong
Activity-Based Costing (ABC)	4.003	0.742	Strong
Volume-Based Costing	3.850	0.709	Strong
Machine-Hour Rate	4.235	0.533	Very Strong

Source: Primary data, 2025.

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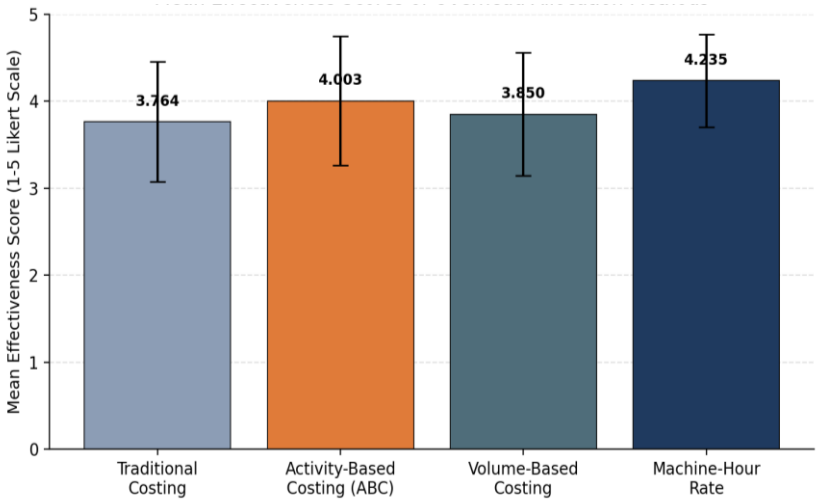


As illustrated in Figure 2, the machine-hour rate method recorded the highest mean effectiveness score, followed by Activity-Based Costing, volume-based costing, and traditional costing, respectively. The visual pattern reinforces the perceived superiority of machine-intensive allocation bases within the company's highly automated beverage production environment.

Pricing Strategies Employed

The second objective examined the pricing strategies employed for Bralirwa's beverage products. The data indicates that the company utilizes a blended pricing approach, adapting its strategy to different product segments and market conditions. Cost-based pricing recorded an overall mean of 3.970. Respondents strongly agreed that product costs serve as the primary basis for setting prices and that overhead cost accuracy directly affects these decisions. This underscores the foundational role of reliable cost allocation in maintaining financial stability. Competitive pricing achieved the highest overall mean of 4.250. The data shows strong agreement that Bralirwa actively considers competitors' prices to maintain market share and support customer retention. Accurate overhead allocation is viewed as essential for staying competitive without eroding profit margins.

Value-based pricing received an overall mean of 4.080. Respondents agreed that overhead cost information helps determine the value offered to customers, which in turn increases customer satisfaction. This is particularly relevant for the company's premium beer brands, where perceived value justifies a higher price point. Profit margin strategy recorded an overall mean of 4.122. There was strong agreement that the company sets product prices to achieve targeted profit margins, and that accurate overhead allocation ensures these margins remain stable, thereby guiding long-term financial planning.

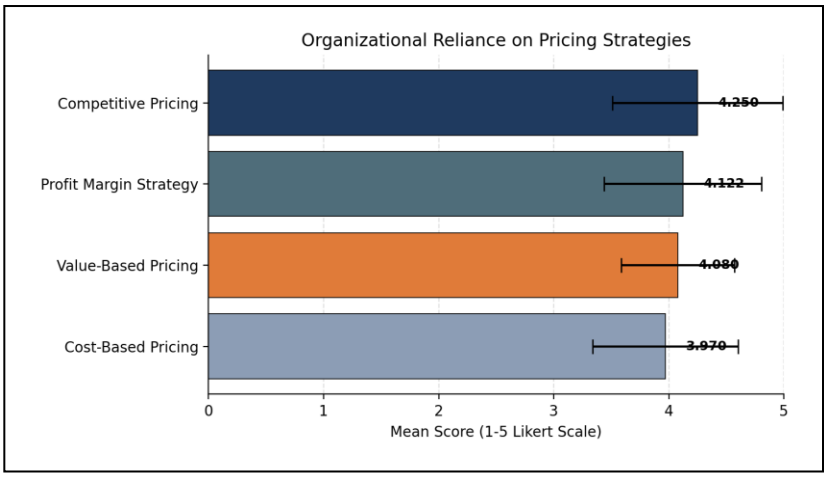
Table 3: Perceptions of Pricing Strategies

Pricing Strategy	Overall Mean	Std. Deviation	Interpretation

Cost-Based Pricing	3.970	0.630	Strong
Competitive Pricing	4.250	0.740	Very Strong
Value-Based Pricing	4.080	0.492	Strong
Profit Margin Strategy	4.122	0.685	Strong

Source: *Primary data, 2025*

Figure 3: Organizational Reliance on Pricing Strategies



Source: *Primary data, 2025*

Figure 3 orders the four pricing strategies from highest to lowest mean score, showing that competitive pricing is the most heavily relied upon strategy, followed closely by profit margin strategy, value-based pricing, and cost-based pricing. This hierarchy suggests that market positioning considerations weigh at least as heavily as internal cost structures in Bralirwa's pricing decisions.

Financial Performance Trends (2022-2024)

To contextualize the perceptual data, an analysis of secondary financial data from 2022 to 2024 was conducted. The cost of goods sold fluctuated during this period, recorded at 2,318 million RWF in 2022, decreasing slightly to 2,295 million RWF in 2023, and then increasing to 2,529 million RWF in 2024. Despite this fluctuation in absolute costs, the company's net profit margin demonstrated a steady and commendable improvement, rising from 14.3 percent in 2022 to 16.1 percent in 2023, and reaching 17.2 percent in 2024.

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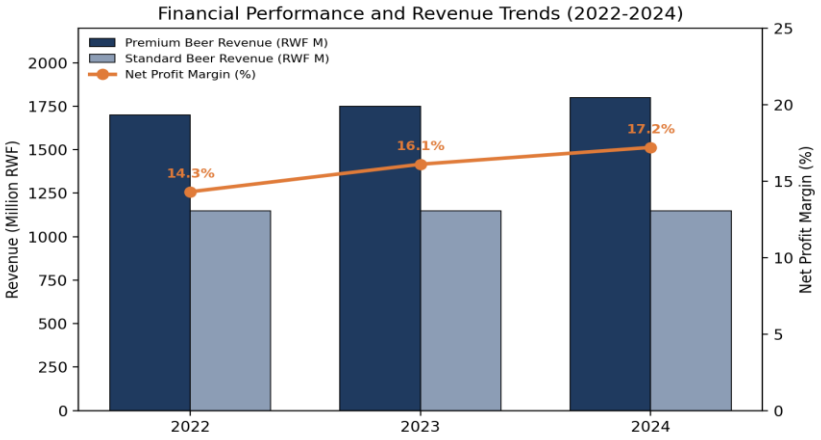
Furthermore, the gross profit ratio remained remarkably stable, hovering around 45.5 percent across all three years. This stability indicates effective cost control and pricing adjustments in response to input cost variations. Notably, revenue from premium beer products, which are priced using value-based strategies, increased consistently from 1,700 million RWF in 2022 to 1,750 million RWF in 2023, and 1,800 million RWF in 2024. In contrast, revenue from standard beer, priced competitively, remained static at 1,150 million RWF. This divergence highlights the success of the company's premium brand positioning and the effectiveness of value-based pricing in driving revenue growth.

Figure 4: Financial Performance and Revenue Trends (2022-2024)



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Source: Primary data, 2025.

Figure 4 visually corroborates the textual analysis: premium beer revenue rises steadily across the three years while standard beer revenue holds constant, and the net profit margin line trends upward in step with the growing share of premium, value-priced revenue.

Relationship Between Overhead Allocation and Product Pricing

The third objective was to analyze the statistical relationship between overhead cost allocation methods and product pricing outcomes. A Spearman rank-order correlation analysis was conducted to assess this association. The results revealed a strong, positive, and statistically significant correlation between the effectiveness of overhead cost allocation and the success of product pricing strategies. The Spearman correlation coefficient was calculated at +0.801, with a significance level of $p < 0.01$ (two-tailed). This robust statistical finding indicates that as the perceived accuracy and effectiveness of overhead allocation methods improve, the organization's ability to implement successful and profitable pricing strategies increases proportionally. The strong correlation validates the hypothesis that refined cost allocation is not merely an accounting exercise, but a fundamental strategic driver of pricing behavior and financial performance.

Table 4: Spearman Correlation Analysis

Variable	Overhead Cost Allocation	Product Pricing
Overhead Cost Allocation - Correlation Coefficient	1.000	.801**
Sig. (2-tailed)	.	.000
N	12	12
Product Pricing - Correlation Coefficient	.801**	1.000
Sig. (2-tailed)	.000	.
N	12	12

*** Correlation is significant at the 0.01 level (2-tailed). Source: Primary data analysis, 2025:* **Source: Primary data, 2025.**

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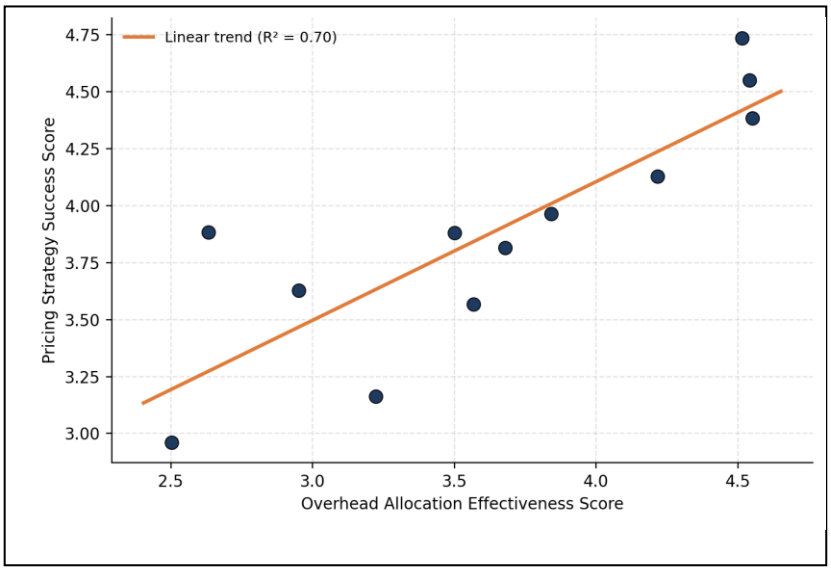
Figure 5: Correlation Between Overhead Allocation Effectiveness and Pricing Strategy Success

Figure 5: Correlation Between Overhead Allocation Effectiveness and Pricing Strategy Success



Source: Primary data, 2025.

The scatter plot in Figure 5 plots each respondent's overhead allocation effectiveness score against their pricing strategy success score. The upward-sloping trendline visually confirms the strong positive relationship reported in Table 4, with higher allocation effectiveness scores consistently associated with higher pricing strategy success scores.

Comparison with Previous Studies

The findings of this study align with and extend several established theories in cost and pricing management. The strong preference for machine-hour rate and Activity Based Costing over traditional costing corroborates the foundational arguments made by early researchers who highlighted the distortions inherent in volume-based allocation[16]. Furthermore, the observed link between accurate

[16]Alnestig and Segerstedt, "Product Costing in Ten Swedish Manufacturing Companies"; Cooper and Kaplan, "Measure Costs Right"; Cooper, Implementing Activity-Based Cost Management; Cooper and Kaplan, The Design of Cost Management Systems; Kaplan and Cooper, Cost & Effect.

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cost allocation and improved pricing decisions is consistent with studies demonstrating that ABC enhances competitive pricing capabilities[17]. The financial results, showing stable gross margins and improved net profit margins despite fluctuating costs of goods sold, reflect the successful application of target costing and strategic cost management principles[18]. The increasing revenue from premium products priced via value-based strategies strongly supports the integrative frameworks for value-based pricing, which emphasize that understanding true costs is a prerequisite for capturing customer value[19]. Additionally, the findings resonate with recent empirical work in emerging markets. The positive impact of refined cost allocation on production management and financial performance mirrors observations in the Nigerian pharmaceutical and manufacturing sectors[20]. The specific context of Bralirwa Plc also aligns with recent local studies emphasizing the critical role of cost behavior analysis and cost control in sustaining the financial performance of Rwandan manufacturing industries[21]. The integration of normal costing with

[17]Eddy Cardinaels, Filip Roodhooft, and Luk Warlop, "The Value of Activity-Based Costing in Competitive Pricing Decisions," Journal of Management Accounting Research 16, no. 1 (2004): 133–148, https://doi.org/10.2308/jmar.2004.16.1.133; Ling Chen, Yan He, and Zhen Qiao, "Product Pricing Based on Activity-Based Costing," Research Journal of Finance and Accounting 5, no. 18 (2014), https://iiste.org/Journals/index.php/RJFA/article/view/16214; Ibrahim Al-Nahoud and Tareq Bani-Khalid, "The Effect of Activity-Based Costing (ABC) System on the Corporate Pricing Decisions in the Jordanian Industrial Sector," Global Journal of Management and Business Research: D Accounting and Auditing 19, no. 2 (2019): 58–67, https://journalofbusiness.org/index.php/GJMBR/article/view/2751.

[18]Ralf Ewert and Christoph Ernst, "Target Costing, Co-ordination and Strategic Cost Management," European Accounting Review 8, no. 1 (1999): 23–49, https://doi.org/10.1080/096381899336131; Lisa M. Ellram, "Purchasing and Supply Management's Participation in the Target Costing Process," Journal of Supply Chain Management 36, no. 2 (2000): 18–26, https://doi.org/10.1111/j.1745-493X.2000.tb00076.x; Lisa M. Ellram, "The Implementation of Target Costing in the United States: Theory versus Practice," Journal of Supply Chain Management 42, no. 1 (2006): 13–26, https://doi.org/10.1111/j.1745-493X.2006.04201003.x; Patricia Everaert, Steven Loosveld, Tom Maesschalck, Jamila Saghroun, and Marijke Scholliers, "Characteristics of Target Costing: Theoretical and Field Study Perspectives," Qualitative Research in Accounting & Management 3, no. 3 (2006): 236–263, https://doi.org/10.1108/11766090610705425; Patricia Everaert and Werner Bruggeman, "Time-Driven Activity-Based Costing: Exploring the Underlying Model," Cost Management 20, no. 2 (2006): 16–20; David M. Faltin, "Target Costing," in Wiley StatsRef: Statistics Reference Online (Hoboken, NJ: Wiley, 2014), https://doi.org/10.1002/9781118445112.stat04015.

[19]Hinterhuber, "Towards Value-Based Pricing"; Hinterhuber, "Value Quantification"; Hinterhuber and Liozu, "Is It Time to Rethink Your Pricing Strategy?"; Liozu et al., "Conceptualization of Value-Based Pricing."

[20]Ebiuwa Gladys Mieseigha, "Activity Based Costing and Product Pricing Decision: The Nigerian Case," Acta Universitatis Danubius. Œconomica 10, no. 3 (2014): 73–81; Judith Chidinma Muoneke and Kabiru Isa Dandago, "Activity-Based Costing for Better Production Management in the Nigerian Pharmaceutical Industry," International Journal of Research and Innovation in Social Science (2024), https://doi.org/10.47772/IJRISS.2024.814MG0014.

[21]Mukayivara and Rusibana, "The Effect of Cost Control"; Mukabatsinda and Mbonigaba, "Cost Behavior Analysis."

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activity-based elements, as observed in the blended approach at Bralirwa, reflects modern structured frameworks for manufacturing operations[22].

Novelty and Contribution of the Study

This study makes several distinct contributions to the existing body of knowledge. First, it provides rare empirical evidence from the East African beverage sector, a context that is frequently underrepresented in global management accounting literature. Second, it uniquely bridges the gap between perceptual data from financial managers and objective, longitudinal financial performance metrics (2022 to 2024). By demonstrating a statistically significant correlation (+0.801) between the adoption of refined allocation methods like machine-hour rates and the successful execution of value-based and competitive pricing strategies, this research moves beyond theoretical advocacy for ABC. It provides concrete, localized evidence that sophisticated cost allocation is a decisive factor in achieving sustainable profitability and successful premium brand positioning in a developing economy.

Limitations of the Study

Despite its robust methodology, this study is subject to certain limitations. The primary constraint is the relatively small sample size of 12 respondents. While purposive sampling ensured high data quality from key decision makers, the small number limits the generalizability of the findings to the broader population of all employees or to other beverage companies in Rwanda with different operational scales and cost structures. Additionally, the reliance on self-reported perceptual data via questionnaires introduces the potential for response bias, as participants may provide socially desirable answers that portray the company in a favorable light. Finally, restricted access to highly sensitive, granular internal costing sheets limited the depth of the secondary data analysis, preventing a more detailed product-level profitability breakdown.

Implications of the Findings

The findings carry significant implications for both theory and practice. For management practitioners, the results underscore the necessity of moving away from simplistic, traditional overhead allocation methods. The strong performance of the machine-hour rate method suggests that manufacturing firms with high capital intensity must align their cost drivers with their actual production realities. For strategic planners, the proven link between accurate cost data and successful value-based pricing implies that investments in

[22]Şükrü Yükçü and Serkan Korga, "Integrating Normal Costing and Activity-Based Costing: A Structured Framework and Applied Evidence from Manufacturing Operations," Journal of Accounting, Finance and Auditing Studies 12, no. 1 (2026): 33–44, https://doi.org/10.56578/jafas120103; Herry Karyadi, Galih Wicaksono, and Puji Fatmawati, "Joint Cost Allocation in Determining the Cost of Production in a Small Concrete Manufacturing Enterprise," Journal of Economics, Entrepreneurship Management Business and Accounting 4, no. 3 (2026): 39–52, https://doi.org/10.61255/jeemba.v4i3.821.

advanced cost management systems, such as Time-Driven Activity Based Costing[23], will yield direct returns through improved pricing accuracy and enhanced profit margins. The stable gross profit ratios achieved by Bralirwa Plc demonstrate that when cost allocation is accurate, management can confidently adjust prices to protect margins without losing market share.

Recommendations

Based on the findings, several actionable recommendations are proposed. First, Bralirwa Plc should formally transition its primary overhead allocation framework to a hybrid model that heavily weights machine-hour rates and Activity Based Costing principles, particularly for its complex and premium product lines. Second, the company should invest in continuous training for its finance and production staff on advanced cost management techniques to ensure the accurate identification and tracking of cost drivers. Third, management should leverage the proven success of value-based pricing by further expanding the premium product portfolio, using the accurate cost data to confidently set prices that capture maximum customer value. Finally, future research should expand the sample size to include multiple beverage companies across the East African region to validate these findings and explore the impact of Time-Driven Activity Based Costing on long-term strategic pricing decisions[24].

[23]Robert S. Kaplan and Steven R. Anderson, "Time-Driven Activity-Based Costing," Harvard Business Review 82, no. 11 (2004): 131–138, 150, https://hbr.org/2004/11/time-driven-activity-based-costing; Ahmed M. M. Ali, Yasir S. Malik, and Haider K. Al-Mamouri, "The Effect of Time-Driven Activity-Based Costing in Pricing Decisions," Journal of Accounting and Financial Studies (2021), https://jpgiafs.uobaghdad.edu.iq/index.php/JAFS/article/view/1012.

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Conclusion

This study comprehensively investigated the impact of overhead cost allocation methods on product pricing within Rwandan beverage companies, with a specific focus on Bralirwa Plc. The research successfully identified that the company employs a diverse array of allocation methods, with the machine-hour rate and Activity Based Costing methods receiving the highest levels of perceived effectiveness among financial and production experts. The analysis of pricing strategies revealed a sophisticated, blended approach, heavily reliant on competitive and value-based pricing to maintain market share and drive premium brand growth. Crucially, the statistical analysis established a strong, positive, and significant relationship between the effectiveness of overhead cost allocation and the success of product pricing strategies. The financial data from 2022 to 2024 further validated this relationship, demonstrating that accurate cost management directly supports stable gross profit ratios and steadily improving net profit margins, even amidst fluctuating production costs.

In conclusion, overhead allocation methods are not merely administrative accounting procedures. They are decisive strategic tools that fundamentally shape pricing policies and drive sustainable profitability. For Bralirwa Plc and similar manufacturing entities in emerging markets, the continuous refinement of cost allocation techniques, coupled with strategic, value-oriented pricing, remains essential for maintaining competitive advantage and ensuring long-term financial resilience.

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