

Implementation Method High-Low, Scatterplot, And Least Squares In Cost Analysis

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ABSTRACT

This study aims to examine the application of the High-Low method, Scatterplot, and Least Squares in cost analysis, particularly in separating fixed and variable cost behavior. The research uses a library research approach by collecting and reviewing literature from textbooks, journals, and official publications related to cost estimation and cost behavior modeling. The findings indicate that the High-Low method is simple because it uses only the highest and lowest activity levels, but its accuracy is limited due to reliance on extreme data points. The Scatterplot method provides a visual representation of the relationship between cost and activity, helping identify patterns and potential outliers; however, its results may vary due to subjective judgment in determining the cost line. Meanwhile, the Least Squares method is considered the most accurate because it utilizes all available data to produce the best-fit regression line, although it requires more complex calculations and statistical understanding. Overall, the selection of the most suitable method depends on the objective of the analysis, data availability, and the level of accuracy required.

Keywords: Cost Analysis, High-Low Method, Scatterplot, Least Squares, Cost Behavior



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INTRODUCTION

Research background regarding the application of the High-Low, Scatterplot, and Least Squares methods Squares in analysis cost leave from importance information cost Which accurate for companies in facing increasingly fierce business competition (Rospani & Handajani, 2024). Every organization, whether manufacturing or service, is required to be able to manage resources efficiently in order to maximize profit And maintain sustainability his efforts (Giang, 2024). Wrong One aspectimportant in management the is ability For understand behavior cost, namely how costs change as the level of activity changes (Srirejeki et al., 2019)..

In practice, company costs are not always fixed, but often consist of both fixed and variable components. Therefore, an appropriate analytical method is needed to separate these two components so that management can plan, control, and make more effective decisions (Bressler & Pence, 2019). Misunderstanding cost behavior can lead to inappropriate pricing, inaccurate budget planning, and risky decision-making (Abu Afifa et al., 2023).

The High-Low, Scatterplot, and Least Squares methods are three commonly used approaches in cost analysis to estimate cost functions (Guiso & Zaccaria, 2023). The High-Low method is known for its simplicity, but it has the limitation of using only two extreme data points. Meanwhile, the Scatterplot method provides a visual representation of the relationship between variables. between cost And activity, so that make it easier in see pattern data, Although it still contains an element of subjectivity, the Least Squares method is

considered more accurate because it uses all available data to produce the best linear equation, but it requires more complex calculations (Thottoli, 2021).

With existence difference characteristics, excess, And weakness from each of these methods, it is important to conduct further studies on their application in cost analysis. This research is expected to provide a deeper understanding about methods the as well as help compan (Lawson et al., 2014) y in choose The method best suited to their conditions and cost analysis needs (Al Madani & Dahruji, 2022). Furthermore, the results of this study are also expected to serve as a reference for academics and practitioners in developing more effective and efficient cost management strategies.

METHOD

This research uses a library research method, which is a research method carried out by collecting, reviewing, and analyzing various literature sources relevant to the research topic (Nuriyah & Fakhri, 2022). This approach was chosen because the research focuses on conceptual and theoretical understanding regarding the application of the High-Low, Scatterplot, and Least Squares methods in cost analysis, so it does not require direct field data collection (Riyadh et al., 2020). The data sources used in this study are secondary data, obtained from various references such as management accounting textbooks, scientific journals, research articles, and official publications related to cost analysis (Temalagi & Borolla, 2021). The literature used is prioritized from credible and recent sources, so that the information obtained is relevant to current scientific developments (Bhat & Khan, 2023). The data collection technique is carried out through documentation studies, namely by reading, recording, and grouping important information from various sources that have been collected (Sanaa Adika Ramadhan, Muhammad Luthfi, Rifki Mahmudi, Khalisah Oktavia, Adinda Rabiatuladawiyah, Muhammad Fayaadh, 2024). The data obtained is then selected based on its suitability with the research focus, namely related to the concept, advantages, disadvantages, and application of the High-Low, Scatterplot, and Least Squares methods. And Least Squares in analysis cost (Aisyah, 2024). Technique analysis data Which used is a qualitative descriptive analysis, which systematically describes, compares, and interprets information from various sources (Lisa et al., 2022). Researchers synthesize various theories and previous research findings to gain a comprehensive understanding of each method and draw conclusions about the most effective method for cost analysis (Qudah et al., 2023).

By using this library research method, it is hoped that the research can provide a clear, systematic, and in-depth picture regarding the application of the High-Low, Scatterplot, and Least Squares methods, as well as their contribution in helping managerial decision making related to cost management (Chen et al., 2023).

RESULTS AND DISCUSSION

Based on results study literature from various source scientific, analysis cost The separation of fixed and variable costs is an important part of management accounting. The High-Low, Scatterplot, and Least Squares methods are the most commonly used approaches to estimating cost functions, each with its own characteristics, advantages, and limitations (Pakpahan & br Naibaho, 2023).

1. Results Study Literature about Analysis Cost

The study results show that cost analysis plays a strategic role in supporting managerial decision-making, particularly in budget planning and cost control. In the budgeting context, the use of analyses such as Standard Expenditure Analysis (ASB) is crucial for assessing the reasonableness of an activity's costs and improving spending efficiency and accountability (Al-Okaily, 2021). This demonstrates that cost analysis is not merely technical in nature but also has policy implications for financial management (Hasan et al., 2021). Besides That, study other confirm that approach analysis quantitative such as regression (which is in line with the Least Squares method) is able to provide more accurate results in modeling the relationship between variable costs and activities. This reinforces the importance of using statistical methods in modern cost analysis (Lutfi et al., 2022).

2. Discussion Method High- Low

The High-Low method is a simple technique that uses two extreme data points (highest and lowest activity) to determine fixed and variable costs. Based on the literature, this method is widely used because of its simplicity and the fact that it does not require calculation Which complex (Wanto & Nengzih, 2022). However, results study show that method This has a major weakness, namely that it is less accurate because it only considers a small part. data. If there is extreme data Which No representative, then estimation results cost candeviate from condition Actually. By Because That, method This more suitable used for initial analysis or rough estimation (Christina & Situmorang, 2021).

3. Discussion Method Scatterplot

The scatterplot method provides a visual approach by mapping the relationship between costs and activity levels in graphical form. Literature suggests that this method helps researchers or managers understand cost relationship patterns in general (Fitriya & Pribadi, 2018). Intuitive, such as linear or non-linear relationships. The advantage of this method is its ability to identify data patterns and outliers (Arner et al., 2019). However, its weakness lies in the subjectivity in drawing the estimation line. cost, so that the result very depends on interpretation analyst. With Thus, the method Scatterplot often used as supporting tools before done analysis which is more accurate (Kashangaki & Ericksen, 2018).

4. Discussion Method Least Squares

Method Least Squares (square smallest) is method statistics Which most accurate in cost analysis because it uses all available data to determine the best regression line. This method minimizes the sum of the squares of the differences between the actual and estimated values (Desitama & Habib, 2023). Results study show that method This give estimate Which more reliable compared method other, especially in taking decision strategic (Teixeira et al., 2020). Matter This in line with the use of regression models in various studies that are able to describe the relationship between variables more comprehensively. However, the Least Squares method requires more complex statistical analysis and calculation capabilities, so its use requires a deeper understanding (Riyadh et al., 2020).

5. Comparison And Synthesis

Based on literature review, third method own difference Which significant, that is:

1. High-Low: simple but not enough accurate
2. Scatterplot: visual And help interpretation, However subjective
3. Least Squares: most accurate but complex

With thus, election method analysis cost very depends on objective analysis, data availability, and the desired level of accuracy (Gaitonde et al., 2019). In practice, the Scatterplot method is often used as an initial step, followed by the Least Squares method to obtain more accurate results (Costescu et al., 2023).

6. Implications Research result

From the discussion, it can be concluded that implementing appropriate cost analysis methods will improve the quality of the resulting cost information (Feldman et al., 2021). This information is crucial for supporting operational efficiency, pricing, and financial planning. company. Besides That, integration method statistics like Least Squares in Cost analysis shows a shift from traditional approaches to more scientific and data-driven approaches

CONCLUSION

Based on results discussion from study literature, can concluded that analysis cost of owning role important in support taking decision managerial, especially for budget planning and cost control. In an effort to separate fixed and variable costs, the application of the High-Low, Scatterplot, and Least Squares methods provides a different approach:

1. The High-Low method is a method the simplest Because only using two point data extreme (activity highest And lowest). However, limitations mainlies in the poor accuracy because it only considers a small portion of the data.

2. The Scatterplot method helps analysis through a visual approach, making it easier to understand the pattern of relationships between costs and activities and identify outliers. However, the results may vary due to the subjective element in determining the estimation line.
3. The Least Squares method produces the most accurate estimates because it uses all the data. For get line regression best. However, method This need deeper statistical and calculation capabilities.

Therefore, the method chosen should be tailored to the analysis needs: for initial estimates, High-Low or Scatterplot can be used, while for more reliable and accurate results, Least Squares is recommended. Integrating visual approaches and statistical analysis can also be an effective strategy for obtaining more precise cost modeling to support the effectiveness of a company's cost management.

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