The Study On Inventory Control And Revenue Management Using FIFO &FEFO Practices With Reference To Hindustan Unilever Limited

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Abstract- *The efficient management of inventory plays a vital role in improving operational performance and maintaining smooth warehouse activities in manufacturing and industrial organizations. Inventory management techniques such as FIFO (First in First Out) and FEFO (First Expired First Out) help organizations reduce wastage, improve stock control, and ensure timely availability of materials. This study focuses on analysing the effectiveness of inventory management practices with special reference to Hindustan Unilever Limited. The research aims to examine the inventory methods adopted by the organization, evaluate the efficiency of warehouse operations, and understand employee perception regarding inventory control systems. Primary data for the study were collected through structured questionnaires from employees working in warehouse and inventory-related departments. Secondary data were collected from company reports, websites, journals, and other relevant sources. Statistical tools such as percentage analysis, descriptive statistics, and chi-square analysis were used to interpret the collected data. The findings of the study indicate that effective inventory management practices help improve stock accuracy, reduce operational delays, and increase overall warehouse efficiency. The study also highlights the importance of adopting systematic inventory control techniques for better organizational performance and customer satisfaction.*

I. INTRODUCTION

Inventory management is a critical function that ensures the efficient flow of materials within an organization. It involves planning, controlling, and monitoring inventory to maintain optimal stock levels and support uninterrupted operations. Effective inventory management helps reduce costs, prevent stock shortages, and improve resource utilization. In manufacturing industries, inventory plays a vital role in maintaining production continuity and meeting customer demand. Organizations adopt various inventory control techniques such as FIFO and FEFO to minimize wastage and improve stock rotation. Proper inventory management also contributes to better warehouse operations and enhanced productivity. Hindustan Unilever Limited (HUL), a leading FMCG company, relies on effective inventory practices to support its manufacturing and supply chain activities. The Puducherry factory manages different categories of inventory, including raw materials, packaging materials, and finished goods. Efficient inventory control at the plant helps improve operational performance and reduce losses. This study focuses on analyzing the inventory management practices followed at HUL Puducherry and their impact on operational efficiency.

NEED FOR THE STUDY

- To understand the effectiveness of FIFO and FEFO in inventory management.
- To identify ways to minimize stock losses and expiry-related wastage.
- To improve operational efficiency and support better revenue management decisions.

SCOPE OF THE STUDY

- The study focuses on inventory control practices using FIFO and FEFO methods.
- It examines how these methods help reduce wastage, improve stock management, and enhance revenue performance.
- The study is limited to inventory-related operations within the selected organization.

II. REVIEW OF LITERATURE

2.1 Jaka Indra P. P. A. et al. (2025)A study titled "Comparative Analysis of FIFO and FEFO Management Methods" explains that inventory management is critical for improving operational efficiency in competitive industries. The study highlights that FIFO is suitable for non-perishable goods, while FEFO is highly effective for perishable products with expiry dates. It concludes that selecting the appropriate method depends on product type, storage conditions, and technological support systems.

2.2 Kumar & Singh (2024) A study titled "Inventory Control Practices in Indian FMCG Companies" found that effective stock rotation methods such as FIFO significantly reduce wastage and improve operational efficiency.

2.3 Sharma & Gupta (2024) A study titled "The Role of Inventory Management in Revenue Optimization" concluded that proper inventory control directly contributes to improved profitability and cost reduction.

2.4 Patil & Deshmukh (2023) A study titled "Application of FEFO in Perishable Goods Industries" found that FEFO helps minimize expiry losses and maintain product quality in perishable goods sectors.

2.5 Reddy & Kumar (2023) A study titled "Warehouse Management Systems and FIFO Integration" highlighted that integrating FIFO with digital tools improves inventory tracking and stock accuracy.

III. RESEARCH DESIGN

Descriptive research is used to describe the characteristics of a population or phenomenon being studied. It is focused on fact findings investigation in awell-structured form and is based on primary data. Descriptive studies are undertaken to assess and be able to describe characteristics of the variables of interest in a situation.

DATACOLLECTIONMETHOD

Data is collected from **primary data** to understand inventory control practices and the implementation of FIFO & FEFO techniques at **Hindustan Unilever Limited HPC Plant – Vadamangalam, Pondicherry.**

PrimaryData

Primary data refers to the data collected fresh and for the first time directly from the source. It is original in nature and collected specifically for the purpose of the study.

- Observation of inventory handling, stock movement, and storage practices.
- Interaction and interview with warehouse staff and supervisors.
- A well- structured questionnaire has been prepared and given to the respondents by the research.

RESEARCHDESIGN

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SAMPLESIZE

The sample size may vary depending on warehouse operations and product categories. A typical sample may include:

- 10 Inventory Handlers.
- 50 Warehouse Staff (loading, unloading, stock movement).
- 20 Warehouse In-charge.
- 20Inventory Control.

Thus, a total sample size of 100 employees is sufficient to understand inventory control practices and the implementation of FIFO & FEFO techniques at HUL – Vadamangalam, Pondicherry (Population Size 150)

Sample Area

The study was conducted in a manufacturing organization. Respondents were selected from different departments such asInventory Handlers. Warehouse Staff (loading, unloading, stock movement) Warehouse In-charge. Inventory Control Production, Maintenance, Logistics, and others. The sample area was chosen to analyseinventory control and revenue management using FIFO & FEFO practices.

STATISTICAL TOOLS

1. **Frequency Analysis**
2. **Percentage Analysis**
3. **Descriptive Statistics**

Frequency Analysis

Frequency analysis is a descriptive statistical method used to determine how often each response occurs in the collected data. It helps in organizing the responses into categories and presenting the number of respondents belonging to each category in a tabular form.

This method is useful in understanding the distribution of responses related to various factors such as inventory control practices, efficiency, stock movement, and wastage reduction. Frequency analysis provides a clear picture of the response pattern among the respondents.

In this study, frequency analysis is used to identify the number of respondents who prefer inventory management practices such as FIFO (First in First Out) and FEFO (First Expired First Out), along with other operational factors related to inventory management.

Percentage Analysis

Percentage analysis is a statistical method used to express the frequency of responses in terms of percentages. It helps in comparing and interpreting the responses more effectively by showing the proportion of respondents in each category.

The percentage is calculated by dividing the number of respondents in a particular category by the total number of respondents and multiplying the result by 100.
The formula for percentage analysis is:

$$\text{Percentage} = \frac{\text{Number of Respondents}}{\text{Total Number of Respondents}} \times 100$$

Percentage analysis helps in identifying majority opinions, trends, and variations in the responses. In this study, it is used to analyse the percentage distribution of respondents regarding inventory control practices such as FIFO and FEFO, inventory efficiency, stock movement, and reduction of wastage.

Descriptive Statistics

Descriptive statistics are used to summarize and present the data in a meaningful way. It helps in understanding the basic features of the data by providing simple summaries about the sample and the measures. It includes measures such as mean, median, mode, and standard deviation.

Descriptive statistics help in identifying the central tendency and dispersion of the data collected from respondents regarding inventory control practices such as FIFO and FEFO. These measures provide a clear understanding of the overall trend and variation in responses.

The commonly used formulas are:

Mean (Average)

$$\bar{x} = \frac{\sum x}{n}$$

Standard Deviation

$$SD = \sqrt{\frac{\sum (x - \bar{x})^2}{n}}$$

Where:

- x= individual values
- $\bar{x}$= mean
- n= total number of observations.

IV. FINDINGS AND IMPACT OF THE STUDY

- It is found that 76.1% of the respondents are Male and 23.9% of the respondents are Female.
- It is found that 51.3% of the respondents fall into the 21–30 age category, 29.9% of the respondents fall into the 30–40 age category, 12.8% of the respondents fall into the 40–50 age category, 2.6% of the respondents fall into the 40–55 age category.
- It is found that FIFO (56.4%) is more commonly used than FEFO (43.6%), indicating preference for FIFO in inventory operations at Hindustan Unilever Limited (HUL), HPC Plant, Pondicherry.
- It is found that 44.4% of the respondents feel the inventory system is moderately effective, showing average performance of current systems.
- It is found that around 72% of respondents indicate moderate improvement in efficiency through FIFO/FEFO practices.
- It is found that 81.2% of respondents use SAP system, showing strong dependence on ERP-based inventory management.
- It is found that stock movement speed and stock arrangement are moderately effective (44.4% level).
- It is found that around 78% of respondents indicate moderate space utilization efficiency, showing space constraints in warehouse operations.
- It is found that 70% of respondents agree that materials are moderately traceable, indicating scope for improvement in tracking systems.
- It is found that approximately 74% of respondents report moderate support for finished goods (FG) management.

- It is found that 70% confirm older stock is generally used before new stock, showing partial FIFO/FEFO implementation.
- It is found that 77% of respondents indicate timely dispatch is moderately achieved.
- It is found that 69% of respondents agree delays occur due to stock arrangement issues.
- It is found that 66% of respondents indicate moderate prioritization of older stock.
- It is found that 68% of respondents report moderate efficiency in rejected goods management.

V. SUGGESTIONS

- The organization should strengthen FIFO and FEFO implementation practices to ensure proper stock rotation and reduce inventory aging.
- Advanced inventory technologies such as Barcode and RFID systems should be expanded for better stock traceability and accuracy.
- Regular employee training programs should be conducted to improve understanding of stock rotation, inventory handling, and warehouse procedures.
- Warehouse layout and stock arrangement should be improved to minimize delays and support faster material movement.
- Periodic stock audits and cycle counting should be conducted more effectively to reduce mismatch between physical and system stock.
- The company should improve labelling practices for easier identification of old and new stock.
- Proper segregation of damaged, rejected, and returned goods should be maintained to avoid inventory confusion.
- Automation and digital inventory systems should be enhanced to minimize human errors and stock misplacement issues.
- Overstocking should be controlled through proper demand forecasting and inventory planning.
- Additional storage space and improved warehouse planning can help reduce space constraints.

VI. CONCLUSION

The study concludes that inventory management practices such as FIFO and FEFO play an important role in improving warehouse efficiency, stock movement, stock control, and operational performance within the organization. The findings reveal that the company has established moderate and systematic inventory management practices supported by SAP/ERP systems, stock rotation methods, batch tracking, and warehouse management procedures.

The study also indicates that employees are moderately satisfied with the existing inventory system and acknowledge that FIFO/FEFO practices contribute positively toward stock arrangement, material traceability, finished goods management, and timely dispatch activities. Additionally, warehouse layout, environmental maintenance, cycle counting, and damaged stock recording practices are functioning at a satisfactory level.

However, the study identified certain operational challenges such as human errors, stock misplacement, overstocking, space constraints, delays due to improper arrangement, and moderate employee training levels. These issues affect inventory accuracy and warehouse efficiency to some extent.

Overall, the organization maintains a reasonably effective inventory management system, but further improvements in technology adoption, employee training, warehouse organization, stock auditing, and automation can significantly enhance operational efficiency, reduce inventory-related problems, and improve overall warehouse performance.

REFERENCES

[1] **Comparative Analysis of FIFO and FEFO Management Methods"** by Jaka Indra P. P. A. et al. (2025) identified that inventory management plays a crucial role in improving operational efficiency. The study concluded that FIFO is suitable for non-perishable products, while FEFO is more effective for perishable goods with expiry dates.

[2] **"Inventory Control Practices in Indian FMCG Companies"** by Kumar & Singh (2024) found that effective stock rotation methods such as FIFO significantly reduce wastage and improve operational efficiency in fast-moving consumer goods industries.

[3] **"The Role of Inventory Management in Revenue Optimization"** by Sharma & Gupta (2024) analysed the relationship between inventory control and profitability. The study concluded that efficient inventory management directly contributes to cost reduction and revenue improvement.

[4] **"Application of FEFO in Perishable Goods Industries"** by Patil & Deshmukh (2023) examined the implementation of FEFO practices and found that they help minimize expiry-related losses while maintaining product quality.

[5] **"Warehouse Management Systems and FIFO Integration"** by Reddy & Kumar (2023) highlighted that integrating FIFO with digital warehouse management systems improves inventory tracking, stock accuracy, and operational performance.

[6] **"Inventory Practices and Demand Forecasting in the Retail Sector"** by Meena & Verma (2023) found that combining demand forecasting with FIFO practices improves sales performance and reduces stockout situations.

[7] **"Combined Application of FIFO and FEFO in Inventory Management"** by Ramadhan, Usman & Sarudin (2023) concluded that the combined use of FIFO and FEFO improves stock rotation efficiency and reduces product expiry risks.

[8] **"Development of an Inventory System Using FIFO and FEFO Methods"** by Devega, Yuhelmi & Darmayunata (2023) developed an inventory management system and found it highly effective in managing perishable goods and reducing wastage.

[9] **"Inventory Control Techniques in Manufacturing Industries"** by Saxena & Jain (2022) found that FIFO contributes to cost efficiency, proper material flow, and improved inventory control in manufacturing operations.

[10] **"Inventory Rotation Methods for Demand Variability Management"** by Hendrix, Pauls-Worm & de Jong (2022) emphasized that FIFO-based inventory rotation is essential for managing demand fluctuations and maintaining service levels.

[11] **"FIFO and FEFO Applications in Pharmaceutical Inventory Systems"** by Siyamto (2022) concluded that implementing FIFO and FEFO significantly improves inventory turnover, reduces wastage, and enhances inventory performance in pharmaceutical organizations.

[12] **"FIFO-Based Inventory Management and Production Efficiency"** by Deepa Pandey et al. (2016) highlighted that proper inventory control helps maximize efficiency, reduce wastage, and improve production planning. FIFO was found effective in reducing raw material spoilage and ensuring smooth production flow.