Assessing Inventory Strategies on Business Performance among Food Manufacturing Enterprises

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ABSTRACT

Effective inventory management is crucial for food manufacturing businesses to achieve financial stability and operational efficiency. However, firms face challenges such as managing supply chain disruptions, maintaining product quality, adapting to market fluctuations, controlling costs, and meeting customer demands for faster delivery. This study investigated the inventory strategies of food manufacturing businesses in Davao del Sur. Employing quota sampling to ensure sufficient representation of each inventory strategy, this study examined the impact of different strategies on business performance among 200 businesses from five sub-sectors: bakeshops, meat processing, dairy, snack food, and beverage manufacturing. Data were collected through digital and print-based surveys, with a pilot test conducted to ensure reliability. Descriptive statistics and one-way ANOVA were used to analyze the data. Findings revealed that food manufacturing businesses in Davao del Sur adopted the four identified inventory strategies, with 50 businesses utilizing each. Findings revealed a pervasively high rating of satisfactory perceptions of the inventory strategies with mean scores ranging from 3.94 to 4.22, indicating high satisfaction levels. However, the results showed no significant difference in business performance across strategies, suggesting that their effectiveness depended on context and implementation. The study concluded that no single strategy is superior, emphasizing the need for businesses to tailor inventory management practices to meet specific operational demands.

Keywords: Inventory Management, Just-in-Time Inventory, ABC Analysis, Safety Stock Strategy, Hybrid Inventory System, Food Manufacturing, Inventory Managers SMEs, Philippines

INTRODUCTION

For a business to achieve its financial goals, it must have an organized structure in its operation, beginning with product planning and material acquisition. Balancing minimal input costs against maximizing output is important for operational efficiency and maintaining a competitive edge. However, even with this foundational plan, manufacturing firms worldwide face ongoing challenges such as managing supply chain disruptions, maintaining product quality, adapting to market fluctuations, controlling costs, and meeting customer demands for faster delivery in inventory management. While large corporations often use the Just-in-Time (JIT) Strategy, ABC Analysis, Safety Stock Strategy, and Hybrid Inventory System, many smaller local companies are not often mentioned in most studies.

Inventory management becomes even more complex in the food manufacturing sector, where the perishability of goods adds another layer of urgency. According to Ferguson & Ketzenberg (2005), as cited in Liu et al. (2021), perishable goods such as dairy, fruits, and vegetables tend to spoil quickly, leading to significant food waste. Approximately 1.3 billion tons of food are discarded annually, representing one-third of global food production. The United States alone loses about 15% of perishable goods during transportation and sales. Moreover, Song and Wu (2022) found that inefficient inventory decisions and suboptimal supply chain structures exacerbate these losses. To address these challenges, businesses must implement inventory strategies that

optimize restocking, storage conditions, and transportation logistics. To discuss further, Duong et al. (2018) highlighted that in the context of perishable and interchangeable goods, smart restocking strategies significantly improve inventory management by aligning stock levels with demand, reducing waste, and enhancing food security. In addition, Komijani and Sajadieh (2024) emphasized the importance of sophisticated inventory models that account for the uncertainties of perishable product lifespans. Failure to incorporate these considerations can lead to cost inefficiencies of up to 25%, further underscoring the necessity of data-driven inventory practices.

To emphasize on the global scale, unforeseen crises have significantly impacted the manufacturing sector, particularly in terms of inventory management practices. According to Kose et al. (2020), the recent pandemic disrupted global supply networks, leading to production problems, a drop in exportation rates, and funding issues—all of which directly influenced how businesses manage their inventories. Moreover, Alessandria et al. (2023) stated that during the recovery period from 2020 to 2022, larger manufacturing firms struggled with demand forecasting errors leading to inefficient inventory decisions. Overstocking tied up capital and increased storage expenses, while understocking resulted in missed sales opportunities and dissatisfied customers (Truong, 2021). In response to these challenges, companies have increasingly turned to technology-driven solutions to enhance inventory control. According to Amosu et al. (2024), AI-driven demand forecasting models have transformed inventory management by enabling precise and dynamic demand predictions. Companies leverage AI-powered inventory systems to reduce inventory levels by 14–20% while maintaining customer satisfaction (Tastewise, 2023). Furthermore, Song and Wu (2022) emphasize that direct supplier-to-retailer shipments have significantly lowered supply chain costs, proving the efficiency of modernized inventory strategies. As such, the integration of AI, predictive analytics, and streamlined logistics has become a crucial component of inventory management, ensuring resilience, cost-efficiency, and adaptability in an ever-changing market.

Amidst these global trends, the ASEAN region is particularly noteworthy as it faces major inventory management challenges, as manufacturers struggle with supply fluctuations, storage costs, and market uncertainties. In Indonesia, Timotious et al. (2022) noted that poor inventory strategies led to excess stock when demand fell, causing storage issues. In contrast, Kholik et al. (2023) found that when inventory management was optimized, it led to significant reductions in inventory costs, highlighting the importance of efficient inventory practices. In Cambodia, Molika (2024) highlighted how high electricity costs and expensive logistics affected efficient stock management. Vietnam's reliance on imports disrupted inventory control, making businesses vulnerable to market shifts, as Le and Nhieu (2022) observed. Meanwhile, according to the Ministry of Labor, Immigration and Population and International Labor Organization (2016), as cited in Falco et al. (2023), Myanmar's manufacturing sector struggles with waste due to outdated inventory practices. These cases underscore the importance of adaptive inventory strategies, especially for small and medium-sized enterprises (SMEs), which this study explored.

As the manufacturing sectors of neighboring Southeast Asian countries face difficulties, the Philippines is similarly affected by challenges in inventory management. According to Sanico et al. (2023), food manufacturers in the Philippines tend to order more materials than needed, increasing the risk of product damage during long-term storage. This issue is further compounded by the lack of a standardized restocking process, resulting in unplanned disruptions and additional costs (Bautista & Young, 2023). The consequences of such inefficiencies were evident, as Osmeña (2023) reported that manufacturers in Lapu-Lapu City were forced to cease operations due to high production costs. Moreover, Napa (2023) highlighted that businesses often purchase raw materials in bulk to maximize seasonal trade discounts. While this strategy may offer short-term financial benefits, it also exposes manufacturers to supply chain vulnerabilities. In connection with this, Suyo et al. (2021) emphasized that raw material suppliers, particularly farmers, face environmental risks that reduce supply, eventually leading to production failures. These findings imply that the Philippines shares almost identical problems with its neighboring countries in managing inventory because of inconsistency in restocking methods and mistakes in demand prediction, highlighting the urgent need to prevent inventory mishandling.

In the local context, food manufacturing businesses also deal with several obstacles regarding stock handling. The National Economic and Development Authority XI (2020) reported that the restrictions imposed by the recent pandemic challenged the resilience of the Davao Region's economy, affecting inventory management and

slowing the progress made in previous years. Moreover, food manufacturing firms, especially bakeshops in Davao del Sur, are challenging to manage as most rely on manual processes to run their businesses (Bermudez et al., 2021). In addition, Laorden et al. (2022) pointed out that since manufacturers depend on the availability of raw materials to make their products, buying and storing their supplies can hinder effective sales management. As small food manufacturers within Davao del Sur struggle to handle raw inventory effectively, there is an urgency to mitigate such adverse impacts through research and prevent further business damage within the region.

The urgency for conducting this study stemmed from the distinctive contextual factors present in Davao del Sur. To date, no scholarly research has specifically investigated the significance of particular inventory management techniques—namely, the Just-in-Time Strategy, ABC Analysis, Safety Stock Strategy, and Hybrid Inventory System—within this region. While existing literature may address analogous topics in other geographical areas, the specific dynamics and challenges encountered by small and medium-sized food manufacturers in Davao del Sur differ markedly. Thus, undertaking this research was essential for gaining a comprehensive understanding of inventory strategies that held particular relevance to the locale.

In structuring this study, the Mental Accounting Theory introduced by Thaler (1999) serves as a foundational framework. This theory articulates that small and medium enterprises mentally categorize expenses into separate accounts, often prioritizing immediate operational costs over long-term efficiency investments. In the case of food manufacturing SMEs, this may lead them to prioritize immediate operational costs like raw materials and labor over long-term investments in inventory strategies or technology. As a result, despite implementing inventory strategies, the lack of focus on efficiency gains may explain why such strategies don't lead to significant improvements in business performance.

In addition, the Lean Theory by Ohno (1988) provides additional insight, highlighting that inefficiencies in the early stages of business processes often result in defective products. This realization has led to the implementation of the Just-in-Time Strategy, which advocates for the procurement of production materials solely as needed and in the requisite quantities. In the context of food manufacturing SMEs in Davao del Sur, the manual processes and reliance on local suppliers might limit the effectiveness of JIT, as it requires precise control over inventory and supply chains that these smaller firms may not fully possess.

Additionally, the study incorporates the Pareto Principle, commonly known as the 80/20 rule, articulated by Pareto (1897), which asserts that 20% of business resources—be it machinery, raw materials, or operational components—account for 80% of a firm's outcomes. This principle informs the development of ABC Analysis, which prioritizes critical resources for enhanced oversight and optimization. In the context of this study, it offers insights into how SMEs can improve efficiency by focusing on the most impactful resources.

Moreover, unlike larger enterprises, small and medium-sized businesses are disproportionately vulnerable to operational disruptions, primarily because they lack the capacity to absorb the adverse effects of understocking. Consequently, this research utilizes the Demand Forecasting Theory by Wheelwright et al. (1998) as an additional analytical lens. This theory posits that manufacturing firms must adeptly forecast product demand utilizing historical data, prevailing trends, and market conditions to adequately prepare for necessary production inputs and maintain appropriate safety stock levels. By doing so, SMEs can better anticipate production needs and maintain sufficient safety stock levels, thereby minimizing the risks associated with stockouts and improving operational stability.

By the integration of these theories, the study provides a wider yet more specific perspective on the level of significance of the utilization of inventory strategies and how it influences business performance metrics. It bridges theoretical insights with practical applications, demonstrating how stock management can enhance operational efficiency, profitability, and enterprise performance as a whole in the perspective of individuals primarily engaged in inventory. Finally, the findings contribute to the existing body of knowledge on inventory optimization, providing valuable guidance and practical insights for small and medium sized enterprises in the food manufacturing sector that seek to mitigate risks, streamline operations, and maintain a competitive edge in the dynamic market.

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Statement of the Problem

Generally, this descriptive-comparative study investigated the difference in the performance of food manufacturing businesses based on inventory utilization.

Specifically, this study sought to the following questions:

1. What is the level of food manufacturing business performance in terms of inventory strategy utilization:

    1.1 Just-in-Time Strategy;
    1.2 ABC Analysis;
    1.3 Safety Stock Strategy; and
    1.4 Hybrid Inventory System?

2. Is there a significant difference in the performance of food manufacturing businesses in Davao del Sur when utilizing the different strategies in handling their inventories?

Hypothesis

To answer the problems listed in the preceding section objectively, the given null hypothesis was formulated:

H_0: There is no significant difference between the performance of food manufacturing businesses in Davao del Sur when the Just-in-Time Strategy, ABC Analysis, Safety Stock Strategy, or Hybrid Inventory System is utilized to handle their inventories.

Significance of the Study

The findings of this study were significant to the following:

Policymakers and Government Agencies. This study provided valuable insights for policymakers, particularly the Department of Trade and Industry (DTI), by highlighting the limited impact of inventory strategies on SME growth. By understanding that financial planning, market expansion, and technology adoption play a more significant role in business success, government agencies could refine their support programs. This study encouraged the development of training programs and funding initiatives that prioritize cost management, supply chain efficiency, and digital transformation, ensuring SMEs receive the necessary tools for long-term sustainability.

Large Food Manufacturers. This study helped large manufacturers evaluate the effectiveness of traditional and modern inventory approaches. By integrating data-driven inventory management with broader operational improvements, manufacturers could optimize efficiency, reduce waste, and strengthen their supply chain. The study also emphasized the need for adaptability in balancing stock levels, cost-effectiveness, and sustainability, equipping manufacturers with strategies to maintain a competitive edge in a fluctuating market.

Operations and Supply Chain Managers. The study provided critical insights into improving inventory tracking, forecasting, and restocking processes. By implementing real-time monitoring systems and optimizing supplier coordination, managers could enhance inventory accuracy while minimizing holding costs. The findings reinforced the importance of combining traditional inventory methods with technology-driven solutions to create a more responsive and cost-efficient supply chain.

Small and Medium-Sized Food Manufacturing Business Owners. This study guided SME owners in adopting a holistic approach to business growth. It emphasized that while inventory strategies contribute to operations, financial planning, supplier reliability, and market positioning have a greater impact on long-term success. By investing in digital tracking tools, strengthening supplier relationships, and leveraging government or private-sector support, SMEs could enhance productivity, increase profitability, and sustain business expansion.

Inventory Managers. This study helped inventory managers refine stock control methods by incorporating

demand forecasting, regular audits, and automated tools. The findings emphasized the role of strategic inventory alignment with customer demand, ensuring minimal waste and operational efficiency. By adopting a data-driven approach, inventory managers could improve stock accuracy, reduce excess costs, and contribute to the overall performance of the business.

Aspiring Entrepreneurs. The study provided aspiring business owners with a broader understanding of effective business management. Instead of relying solely on inventory strategies, new entrepreneurs were encouraged to focus on business innovation, financial stability, and market adaptability. The study's insights helped them develop well-rounded strategies, ensuring smoother business operations and long-term viability.

Future Researchers. This study contributed to the academic field by encouraging further exploration of factors that influence SME performance. Future researchers could build upon these findings by investigating financial strategies, innovation, leadership, and external economic influences. This study served as a foundation for developing more comprehensive business frameworks, guiding SMEs toward sustainable growth in the competitive food manufacturing sector.

Scope and Limitations

This study aimed to evaluate different inventory management strategies and the business performance of small and medium-sized enterprises (SMEs) in the food manufacturing sector of Davao del Sur. Specifically, the study examined the role of inventory strategies on business performance. The target respondents consisted solely of inventory managers who are at least two years employed in food manufacturing SMEs particularly bakeshops, meat processing shops, dairy product manufacturers, snack food businesses, and beverage manufacturers with fewer than 250 employees operating within Davao del Sur. The research employed a quantitative approach, utilizing surveys for data collection and statistical analysis to evaluate the relationship between the identified variables. Data collection and dissemination of results took place from August to January 2025.

This study recognized several limitations that impacted the interpretation and generalizability of its findings. First, the respondents were restricted to inventory managers with a minimum of two years of experience in their respective enterprises in Davao del Sur. This specific sample may not have adequately represented the larger population of food manufacturing inventory managers across the Philippines, potentially constraining the generalizability of the results to other regions. Second, the study employed quota sampling, a non-probability method that relies on a non-random selection technique, which may have introduced selection bias and limited the diversity of experiences and viewpoints captured in the analysis. This approach could have affected the comprehensiveness of the findings and the ability to generalize to other groups. Third, the survey questionnaire was designed to minimize respondent burden while ensuring a manageable length. Due to this consideration, the section focusing on business performance relied solely on the perceptions of inventory managers rather than actual financial reports or performance data. This decision may have influenced the extent of the research findings. Fourth, the research utilized descriptive statistics that are effective for identifying relationships between variables but cannot establish causal relationships, thereby limiting the depth of conclusions regarding cause-and-effect dynamics. Finally, the study exclusively relied on quantitative data and employed a nonparametric analysis tool, which may have diminished statistical power and restricted the ability to detect subtle relationships or differences. These limitations should be taken into account when interpreting the findings, as they may have influenced the scope, applicability, and precision of the conclusions drawn.

Definition of Terms

The subsequent terms were defined to enhance comprehension of this research:

ABC Analysis. This refers to a categorized approach for determining the importance of items in inventory management. Inventories are classified into three categories: A, B, and C. 'A' items receive the most management effort and oversight due to their high value and demand, 'B' items are of moderate value and demand, and 'C' items receive the least attention as they are low-value and low-demand (Jenkins, 2024). In this study, ABC Analysis was evaluated based on the business utilization of categorized methods in purchasing inventory.

Business Performance. This refers to the measurable results from the business strategies based on the perception of profitability (Terpilowski, 2022). In this study, Business Performance was evaluated based on the perception of the inventory managers.

Food Manufacturing Business. This refers to a business that purchases raw materials or ingredients to be cooked and packaged into a product that customers can eat (Katana, 2024). It is also an operation focused on policies that prioritize convenience or profit over health, and primarily directed by quality, convenience, value, and consumer demand (Sadiku et al., 2020). In this study, small to medium food manufacturing businesses were evaluated based on the inventory strategy they are using.

Inventory Strategies. This refers to the business processes and systems in place to manage the flow of items across the supply chain (Lopienski, 2024). In this study, Inventory strategies were evaluated based on the perception of the inventory manager and owner.

Hybrid Inventory System. This refers to a business that uses a combination of inventory strategies in order to have flexibility in maintaining inventory (Forrest, 2025). In this study, the Hybrid Inventory System was used to define the combination of the three inventory strategies (ABC Analysis, Just-In-Time, and Safety Stock).

Just-In-Time Strategy. This refers to a strategy that involves the identification of non-valued items, the subsequent reduction or removal of these items, and ordering inventories only when needed to increase production and reduce inventory waste (Stojkanovic, 2021). In this study, the Just-in-Time Strategy was evaluated based on how the business keeps its inventory low and purchasing frequency high.

Safety Stock Strategy. This refers to maintaining an extra quantity of an inventory item to avoid out-of-stock events due to shifts in consumer demand (Kuuse, 2024). In this study, Safety stock Strategy was evaluated based on the business storing high amounts of inventory.

Small and Medium Enterprises (SMEs). This refers to a business with a limited number of employees, comprising 500 or fewer that consistently sustains its revenue and assets, operating within a designated threshold (Liberto, 2024; Lee & Narjoko, 2019). Furthermore, it is the manufacturing enterprises that assessed inventory strategies and business performance in the study.

METHODS

This chapter outlines the methodologies utilized in the study, including research design, respondent selection, sampling methods, data sources, data collection procedures, measurement techniques, and analysis methods, along with key ethical considerations.

Research Design

The study employed a descriptive-comparative research design to examine the impact of different inventory strategies on the business performance of food manufacturing firms. Since inventory strategies are pre-existing conditions that cannot be manipulated, this approach allows for the comparison of groups based on their chosen strategy. According to Maheshwari (2018), this approach, also called ex post facto research, investigates potential causal relationships between an independent and a dependent variable. Additionally, Dienna and Arnold (2019) highlight that descriptive-comparative research involves observing and measuring the characteristics of two or more groups of independent variables without manipulating them, aiming to identify and analyze differences between variables. This approach seeks to determine the extent to which the different inventory strategies differ, providing a comprehensive assessment of their characteristics and patterns, which aligns with this study's use of one-way ANOVA to analyze variations in business performance across different inventory strategy groups. Therefore, this research design facilitates a structured analysis of the relationship between inventory strategy utilization and business performance, offering meaningful insights into the comparative effectiveness of various strategies in practical applications.

In this study, descriptive analysis was employed to collect comprehensive data on inventory strategy utilization

levels and the perceptions of inventory managers on enterprise performance. This foundational dataset was analyzed using one-way ANOVA to assess the differences in business performance across firms utilizing different inventory strategies. The analysis further explored the impact of each strategy on performance, determining the effectiveness of these strategies in improving business outcomes.

In conclusion, the descriptive-comparative research methodology is both crucial and appropriate in this study for evaluating the insignificance between these inventory strategies. By integrating these analytical methods, this study sought to yield insights into the relationship between the variables and to offer evidence-based recommendations for small and medium-sized enterprises in the food manufacturing sector regarding the use of inventory strategies.

Respondents

The primary respondents for this study were inventory managers or business officers responsible for inventory decisions of small and medium enterprises in the food manufacturing sector of Davao del Sur. To qualify, respondents needed a minimum of two years of experience in inventory management. The study focused on food manufacturing businesses with fewer than 250 employees that followed specific inventory management strategies, such as Just-in-Time, ABC Analysis, Safety Stock, and Hybrid Inventory System. The choice of respondent criteria for this study stems from several reasons. First, inventory managers or business officers possess firsthand knowledge and practical experience in the implementation and impact of various inventory strategies, making them ideal informants for understanding the connection between inventory management practices and business performance. Second, the choice of Davao del Sur as the study's locale is primarily due to its accessibility, and its growing food manufacturing sector which presents a unique opportunity to examine inventory management practices in a region that is experiencing both economic development and industrial expansion. Third, the focus on SMEs is due to their significant role in the local economy and the distinct challenges they face compared to larger corporations.

Exclusions were applied to individuals not involved in inventory decisions or those with less than two years of

relevant experience. Additionally, workers of businesses with more than 250 employees or those operating outside of Davao del Sur were excluded from the study. However, factors such as the inventory managers' educational backgrounds, age, gender identity, and religious affiliation were not taken into account. Moreover, any inaccurate or incomplete responses that could not be reliably analyzed were also excluded. These criteria aimed to focus the study on the target population of inventory managers within SMEs in the food manufacturing sector, ensuring the quality and reliability of the data collected for analysis.

Sampling Technique

This study utilized quota sampling to identify and recruit participants. Quota sampling is a non-probability method where researchers select a convenience sample of individuals based on specific traits to represent a population (Fleetwood, 2024). This approach was especially suitable for the study due to some challenges. One challenge is the potential difficulty in accessing a sufficiently large and diverse pool of respondents, especially since small and medium enterprises (SMEs) in the food manufacturing sector may not be easy to identify or contact through conventional methods. Another challenge stems from the potential for respondent bias or reluctance to participate, particularly in industries where businesses may be protective of their operational practices or sensitive about sharing information. Quota sampling was chosen to help ensure sufficient representation of each inventory strategy, allowing meaningful comparisons of their impact on business performance. Additionally, the use of quotas ensures that the sample remains representative even if some businesses are unable or unwilling to participate.

Moreover, this study categorized businesses into four groups based on the inventory strategies employed, which are Just-in-Time, ABC Analysis, Safety Stock, and Hybrid Inventory System, ensuring that each strategy is adequately represented. The sample is drawn from five sub-sectors of the food manufacturing industry: bakeshops, meat processing shops, dairy, snack food, and beverage manufacturing. Each group comprised 50 businesses with a total sample size of 200. This aligns with the recommendations of Shah et al. (2020), who

emphasized that a sample size of 50 respondents per strategy is considered sufficient to ensure the validity of the instrument, as it allows the results to approximate a normal distribution. This study aimed to identify inventory managers in Davao del Sur who had at least two years of experience in their positions and are employed by SMEs in the food manufacturing sector. By targeting 50 respondents per strategy, totaling 200 qualified participants, this approach ensured a meaningful and representative sample, minimizing bias and providing sufficient data to address the study's objectives while maintaining the focus on inventory managers with relevance to the study.

Data Gathering Procedure

To advance the data-gathering phase of the study, the researchers implemented a series of systematic procedures, which included the following:

1. The researchers secured formal approval from the school principal before proceeding with the data collection.

2. The researchers had the questionnaire validated to ensure clarity and accuracy. Feedback from the validators was incorporated before proceeding with the pilot testing.

3. The researchers requested the statistician to conduct a Cronbach's alpha test to measure the consistency and reliability of the questionnaire.

4. The researchers conducted a pilot test with a small group of respondents to evaluate the clarity of the questionnaire before proceeding with full data collection.

5. The researchers sought out the inventory managers of food manufacturing businesses as they were the ones who answered the questionnaire.

6. The researchers requested the inventory handler's consent to participate in the study and contribute to its completion.

7. The researchers administered the questionnaire in either digital or print form, depending on what was more accessible and convenient for the respondents.

8. The researchers identified which inventory strategy the respondents used by including the indicators for using a specific strategy in the questionnaires.

9. In section B of the questionnaire, the respondents answered questions on a Dichotomous Scale, by selecting "yes" or "no" to indicate whether they practice a specific indicator.

10. In section C, the respondents assessed the impact of their inventory management strategy on business performance by answering the 5-point Likert scale ranging from 5—Very Satisfactory, 4—Satisfactory, 3—Neutral, 2—Unsatisfactory, and 1—Very Unsatisfactory.

11. After administering the dichotomous scale, the researchers systematically tallied the responses to classify inventory strategies used by the respondents.

12. After tallying and organizing the responses, data cleaning was performed. Participants who had been inventory handlers for less than two years were excluded to ensure the data represents experienced respondents.

13. Finally, after administering the Likert scale, the statistician calculated the mean and utilized descriptive statistics to summarize the effects of various inventory management strategies on the performance of food manufacturing businesses, following Table 2.

Measures

The study conducted a systematic and statistical examination of the difference of various inventory strategies, namely Just-in-Time, ABC Analysis, Safety Stock Strategy, and Hybrid Inventory System, on the business performance of food manufacturing firms in Davao del Sur. Data were collected using survey questionnaires, which were provided in both printed and online forms, based on what was most accessible for participants. The researcher-designed questionnaire comprised three sections, each aligned with the study's objectives. Section A gathered demographic information, including respondents' years of experience, number of employees, and location of the business. This data ensured that the selected participants met the study's inclusion criteria. By integrating this section, the study assured the inclusion of only eligible respondents in the analysis.

Section B of the questionnaire employed a Dichotomous Scale that determined which of the four specified inventory strategies they are utilizing based on the definitions outlined by Hutchins (1999); Stojanović and Regodić (2017); and Barros et al. (2021). A total of 15 validated items were included in this section. The inventory strategy was then determined using a frequency distribution table.

Moreover, Section C of the questionnaire focused on assessing business performance according to the perceptions of the inventory managers. A total of 4 validated items measured the extent to which the respondents perceived their business performance was influenced by the inventory strategy utilized by their enterprise. This portion employed the 5-point Likert Scale to quantify the responses, ranging from 1 (Very Unsatisfied) to 5 (Very Satisfied), similar to the study by Cuevas-Vargas et al. (2021). This structure allowed for a clear assessment of the perceived impact of inventory management strategies on business performance.

To validate and ensure reliability, the researchers conducted a pilot test with a representative sample of the target population. Cronbach's alpha was utilized to assess the internal consistency of the scales confirming their reliability. The finalized questionnaire was then distributed to the target respondents through both digital (Google Forms) and printed forms for accessibility and convenience. This method reinforced the ability of the study to analyze inventory strategy utilization and its role in SME performance.

Table 1 shows the reliability of the survey questionnaire based on Cronbach's alpha of the conducted pilot test.

Table 1. Results and Interpretation of Reliability Test

Factor	Cronbach's Alpha	No. of Items	Interpretation
Inventory Scale	0.812	15	Reliable
Business Performance	0.725	4	Reliable

The interpretation used to determine results from Section C of the questionnaire is presented in Table 2

Table 2. Table of Interpretation to Determine the Level of Perceived Business Performance of Food Manufacturing Businesses

Mean Range	Descriptive Rating	Interpretation
4.21 – 5.00	Very Satisfactory	Inventory strategy is highly effective, resulting in exceptional business performance.
3.41 – 4.20	Satisfactory	Inventory strategy is effective and contributes positively to business performance.
2.61 – 3.40	Neutral	Inventory strategy is moderately utilized, yielding average performance without significant impact.

1.81 – 2.60	Unsatisfactory	Inventory strategy is insufficiently applied, negatively impacting business performance.
1.00 – 1.80	Very Unsatisfactory	Poor utilization of inventory strategy leading to severe challenges in achieving business objectives.

Analysis and Interpretation

The statistical procedures outlined below were utilized to analyze the acquired data and address the study's research questions:

Mean. The mean was calculated to determine the average levels of inventory strategy utilization. As defined by Hayes (2024), the mean is the mathematical average of the numerical data gathered from the respondents that will be used in determining the measure of central tendency and allowing comparison between variables during the statistical analysis. This measure was crucial to the study as it provided a clear and objective basis for comparing the central tendencies of the data, facilitating a more accurate analysis of the impact of different inventory strategies on business performance.

Standard deviation. Standard deviation is a measure of dispersion that quantifies the spread of data that follows a normal distribution. According to Darling (2022), the standard deviation shows how closely the data points scatter around the mean. For quantitative variables, we present the measure of central tendency and measure of dispersion (Andrade, 2020). In this study, standard deviation was utilized to examine the variability in inventory managers' perceptions of business performance across different inventory strategies. By measuring how far individual responses deviated from the mean, the study assessed the consistency of perceptions, providing insights into the stability and reliability.

One-way Analysis of Variance (ANOVA). One-way ANOVA was utilized for assessing four distinct strategies, such as Just-in-Time, ABC analysis, Safety Stock Strategy, and Hybrid Inventory System among food manufacturing performance, specifically exploring their roles in business performance. As defined by Lind et al. (2018), it is a specific type of ANOVA test among various variations, and it is a statistical tool used to evaluate whether there are significant differences in the means of three or more independent groups. This approach was crucial to the study as it enabled the identification of significant differences in business performance across the various inventory strategies.

Ethical Considerations

This study places significant importance on ethical considerations to protect the rights of respondents of the study.

Anonymity is ensured in this study by not collecting personally identifiable information from respondents. As defined by Saunders et al. (2014), it is a form of confidentiality that specifically ensures the participants' identities are kept hidden, such as names and addresses. With that, researchers are responsible for safeguarding respondents' anonymity and commit to maintaining the confidentiality of sensitive information, which will be accessible only to the research team.

Confidentiality is a crucial aspect of this study, with a strong commitment to protecting the privacy of the information shared by respondents. This commitment requires careful planning and strict adherence to established research protocols, as highlighted in the work of Tudy and Tudy (2016). The information provided by respondents will be used solely for research purposes, and any findings shared in the final report will not include specific business names or identifying characteristics. Thus, the researchers prioritized protecting the participants' privacy rights, ensuring that sensitive information remained confidential.

Informed Consent was obtained from all participants before they took part in the study wherein thorough information about the study, including its benefits and possible risks were presented and agreed to by the respondents. After receiving the detailed explanation, participants were invited to decide voluntarily whether they wish to take part in the research. As outlined by Xu et al. (2020), informed consent involves the disclosure

of relevant information, the respondents' comprehension of this information, and a decision made voluntarily as part of the ethical rules to be followed by researchers. Thus, only those who fully agreed and completed the informed consent process were included in the study.

RESULTS AND DISCUSSION

This chapter focuses on data presentation, analysis, and interpretation. The first part examines the perceived business performance of inventory managers within these food manufacturers. The subsequent part highlights the significance of the differences observed between inventory strategies and their impact on business performance.

Level of Perceived Business Performance Among Inventory Managers

One of the main aims of this study is to evaluate the perceived business performance among inventory managers working in small and medium-sized food manufacturing businesses. Specifically, the research focuses on their perceptions regarding the effectiveness of Just-in-Time inventory, ABC Analysis, Safety Stock Strategy, and Hybrid Inventory Systems. To achieve this research objective, data were systematically collected from respondents and analyzed using descriptive statistics, with the mean employed to ascertain the levels of perceived business performance for each of the specified inventory strategies.

Table 3. Level of Perceived Business Performance among Inventory Strategies

	Mean	SD	Description
Just-in-Time Strategy	3.94	0.70	Satisfactory
ABC Analysis	4.03	0.72	Satisfactory
Safety Stock Strategy	4.22	0.61	Very Satisfactory
Hybrid Inventory System	4.05	0.68	Satisfactory

Table 3 presents the perceived business performance levels among the inventory managers. Furthermore, the standard deviations for all strategies were below 1, indicating a high level of consistency in the respondents' ratings and minimal variation in the perceived effectiveness of each strategy.

The survey results revealed that the Safety Stock Strategy received the highest level of perceived satisfaction in business performance by inventory managers. Achieving a mean score of 4.22, and categorized as Very Satisfactory, these favorable findings align with the literature introduced in the initial part of the study Chen and Alexander (2023), who illustrate the reliance on safety stock for stability. This indicates a positive perception of safety stock in maintaining stability, consistent with the idea that businesses view it as a reliable strategy for managing supply uncertainties. Moreover, the study mentioned in the introduction by Napa (2023) supports this finding by illustrating how businesses in the Philippines, particularly manufacturers heavily reliant on agricultural goods, often seek safety stock through bulk seasonal orders, as this strategy proves more cost-effective. This approach helps them manage supply uncertainties and secure necessary materials at lower prices, particularly during peak seasons, thus optimizing their inventory practices and mitigating the risk of stockouts. On the contrary, existing research including studies by Bhat (2022) and Darom et al. (2018), warns that excessive safety stock can result in inefficient resource allocation and potential lost sales during prolonged disruptions. Despite these negative findings, the survey results indicate a positive correlation between inventory managers' perceptions of the utilization of the Safety Stock Strategy in the business performance of the small and medium enterprises in the food manufacturing sector of the locale.

The findings also affirm the practical application of Demand Forecasting Theory by Wheelwright et al. (1998),

in inventory management as mentioned previously in this study. The strategy's high rating indicates that businesses recognize its importance in managing demand uncertainties, aligning with the theory's assertion that accurate forecasting facilitates appropriate inventory levels. This is particularly beneficial for small and midsize businesses vulnerable to supply chain disruptions.

Meanwhile, ABC Analysis ($\bar{x}$ = 4.03), Hybrid Inventory Systems ($\bar{x}$ = 4.05), and the Just-in-Time (JIT) Strategy ($\bar{x}$ = 3.94) all fall into the Satisfactory category. This suggests that these strategies are perceived as effective, albeit with varying degrees of applicability. Both ABC Analysis and Hybrid Inventory Systems, with means slightly above 4.00, indicate that businesses find value in categorizing inventory based on its value and demand, as well as in integrating multiple strategies to enhance operational efficiency.

Supporting the findings on ABC Analysis and Hybrid Inventory Systems is a comprehensive body of literature. Studies by Hukum and Shrouty (2019) and Simwa and Barasa (2024) demonstrate that ABC Analysis can directly enhance business performance by improving procurement, storage, and waste reduction, which aligns with the positive perceptions observed in this study. The alignment of inventory with demand and the reduction of costs, highlighted by Effiong and Akpan (2019), further support the improvements in operational efficiency and profitability. However, Gicheru and Ngugi (2023) critique ABC's limitations, such as inadequate forecasting and supply chain disruptions, which elucidate the necessity for a hybrid system to address these challenges and optimize outcomes. Pietrzak et al. (2020) reinforce this perspective by illustrating how reluctance to fully adopt ABC underscores the advantages of integrating more flexible, dynamic inventory management methods, potentially contributing to the satisfactory results of this study.

Furthermore, these positive findings on ABC Analysis and Hybrid Inventory System affirm the relevance of the Pareto Principle and Stochastic Inventory Theory discussed in the initial chapter. According to both theories, by concentrating on high-value items and adapting to fluctuations in demand and perishability, businesses can streamline operations, reduce costs, and minimize waste. These advancements have led to greater efficiency and performance, a fact recognized by the respondents, which resulted in satisfactory ratings.

Lastly, the Just-In-Time (JIT) strategy, with the lowest mean score of 3.94 is categorized as Satisfactory, meaning that it is effective and contributes positively to business performance. The Satisfactory findings regarding the JIT strategy are supported by research such as that of Anisere-Hameed and Bodunde (2021), who emphasize JIT's effectiveness in reducing inventory costs and enhancing operational efficiency. As mentioned in the introduction, Kholik et al. (2023) demonstrate significant reductions in inventory costs, further validating the cost-effectiveness of Just-in-Time (JIT) inventory strategies. Similarly, Ravindran et al. (2023) support this by highlighting the efficiency gains that JIT can bring to inventory management. Together, these findings emphasize the critical role of JIT in reducing costs and improving operational efficiency. However, while these findings are consistent with certain research, they also contradict some studies that suggest the JIT strategy is only marginally effective in improving food manufacturing performance. Challenges to JIT implementation are highlighted in the work of Kalaiarasan et al. (2022), which addresses the unpredictability of supplier deliveries, and Mankazana and Mukwakungu (2018), which discusses the frequently missed delivery dates that can disrupt operations. These insights indicate that despite the substantial benefits JIT offers, its success is contingent upon the reliability of suppliers and the specific contexts of the industry.

In addition, the findings support the Lean Theory by Ohno (1988) as conferred in the initial chapter, demonstrating how JIT minimizes inventory costs and improves operational efficiency by reducing waste in capital and resources. This aligns with the theory's emphasis on streamlining processes and eliminating non-value-adding steps, reinforcing JIT's role in creating a more efficient and cost-effective production system.

In summary, the study reflects inventory managers' perceptions of various inventory strategies, with Safety Stock ($\bar{x}$ = 4.21) rated Very Satisfactory, aligning with Demand Forecasting Theory. ABC Analysis ($\bar{x}$ = 4.03) and Hybrid Systems ($\bar{x}$ = 4.05) support the Pareto Principle and Stochastic Inventory Theory, highlighting their perceived efficiency in categorization, demand adaptation, and waste reduction. Just-in-Time ($\bar{x}$ = 3.94), while aligning with Lean Theory, is viewed as less effective due to supply chain challenges. These findings emphasize how managers perceive inventory strategies' role in resource optimization and business stability.

Significance of the Differences Between Inventory Strategies on Business Performance

The main objective of this study is to examine the significance of inventory strategies on business performance. Specifically, the study aims to explore whether the perceived influence of inventory strategies on manufacturing performance is significant. To achieve this, the data collected from participants were analyzed using one-way analysis of variance (ANOVA).

Table 4. Significance of the Differences Between Inventory Strategies on Business Performance

	Sum of Square	**df**	**Mean Square**	**F**	**p**	**Decision**
Between Groups	2.050	3	0.683	1.480	0.221	Failed to Reject H_0
Within Groups	90.470	3	0.462			
Total	92.520	199				

Table 4 shows the results of a one-way analysis of variance (ANOVA) to determine the significance of the differences among the different inventory strategies. The F value is 1.480, with 3 and 196 degrees of freedom. The p-value is 0.221, which is greater than 0.05. This indicates that the null hypothesis cannot be rejected. Therefore, it can be concluded that there is no significant difference in perceived business performance among the four inventory strategies.

The findings of this study stress the absence of statistically significant differences in the effects of various inventory management strategies on food manufacturing business performance. Specifically, in the case of Safety Stock, while prior research conducted by Jonsson and Mattsson (2019) indicated a notable impact on performance, the statistical analysis employed in this study reveals that Safety Stock, despite its prevalence as an inventory strategy, does not exhibit a significant effect on performance across the studied cases. The findings are consistent with the research conducted by Barros et al. (2021), which posits that while the Safety Stock Strategy is employed in inventory management to mitigate uncertainties associated with demand and supply, it does not entirely alleviate all related challenges. This highlights the inherent limitations of the strategy and its lack of significance. Such insights imply that the impact of Safety Stock on business performance may not be as evident or uniform as previously assumed.

Similarly, the results concerning ABC Analysis do not corroborate the findings of Simwa and Barasa (2024), who reported a significant correlation with business performance. Although ABC Analysis is widely acknowledged for its utility in decision-making and inventory optimization, this study found no statistically significant difference in its impact on business performance. The findings of this research align with the conclusions drawn by Durana et al. (2019), which indicated that there is no evidence to suggest that ABC analysis significantly influences business performance. This implies that ABC Analysis may not exert a universal influence on business performance, particularly when applied across diverse organizations or industries within the food manufacturing sector.

This study also identified a lack of significant difference regarding hybrid systems, which contrasts with the results reported by Roy (2024) and Kırmızı et al. (2024), who demonstrated the clear significance of integrating various inventory strategies in operating a food manufacturing company. Despite the acknowledged advantages of hybrid systems, the absence of statistical significance in this study suggests that their impact on procurement efficiency and overall business performance may not be universally stark, with their effectiveness likely contingent upon specific contextual variables.

To further illustrate the results, the examination of the Just-in-Time (JIT) strategy revealed no statistically significant difference in its impact on operational performance, aligning with the observations made by Nyamah et al. (2022), who noted that JIT does not invariably lead to improved business outcomes across certain industries. While JIT is frequently associated with enhanced efficiency and cost reduction, the lack of statistical

significance found in this study indicates that its effects on business performance may be variable and not universally quantifiable.

As numerous studies focused on larger manufacturing firms affirm the importance of inventory management strategies in enhancing business performance, several studies support the findings of this research concerning small and medium-sized enterprises (SMEs). As noted by Lefebvre (2024), due to their limited resources and simpler operational structures, SMEs often view inventory management strategies as insignificant to their overall financial performance. As a result, they tend to prioritize immediate operational concerns over the implementation of organized inventory systems. Additionally, Setyaningsih and Kelle (2021) indicate that SMEs typically foster close, trust-based relationships with their suppliers, rendering structured inventory management strategies less relevant compared to their applications in larger companies. These insights underscore the unique operational dynamics of SMEs, highlighting that while organized inventory management strategies may not be critical, the flexibility inherent in their operations and strong supplier relationships are essential.

Further, Akinlabi (2021) emphasized that productivity is a crucial aspect of business performance and found no significant difference between the use of inventory strategies and productivity in food manufacturing. This aligns with the study's findings, as the lack of impact on productivity suggests that inventory strategies alone do not substantially influence overall business performance. Similarly, Ali et al. (2022) failed to reject their null hypothesis, concluding that inventory strategies do not have a significant impact on operating profit, a key driver of business performance. This further supports the idea that other operational factors, such as manual processes and supply chain accessibility, may play a more critical role in determining the success of food manufacturing SMEs.

Building on the previous discussion, the study found no significant difference in the use of inventory strategies and the performance of SMEs in the food manufacturing sector, due to several challenges already identified in the introduction. Bermudez et al. (2021) highlighted that food manufacturing firms, especially bakeshops, face difficulties in managing their businesses effectively, as many still rely on manual processes for operations. This reliance on traditional methods limits the adoption of more advanced inventory management techniques, which are often employed by larger firms. Although the inventory strategies used by SMEs in this study share similar concepts with those of larger firms, these strategies are less anchored to technology and modern tools, making them less effective in driving significant improvements in business performance. Additionally, Laorden et al. (2022) pointed out that the proximity of suppliers to the locale of the food manufacturing businesses reduces the need for highly complex inventory management systems. In this case, the relatively short supply chain and ease of access to raw materials in Davao del Sur might make advanced inventory strategies less critical, as businesses can rely on frequent restocking and adjustments to meet demand. This closeness to suppliers could diminish the impact of inventory management practices on overall business performance. These factors suggest that the limited technological integration and the local supply advantages contributed to the statistically insignificant difference in performance despite the use of inventory strategies.

To further illustrate the findings, the decision to reject the null hypothesis challenges the theories that support the positive perceptions of inventory managers while aligning with the Mental Accounting Theory developed by Thaler (1999). This theory posits that SMEs mentally categorize expenses, often viewing inventory management strategies as unnecessary costs rather than vital investments. Since effective inventory strategies typically require upfront investments in technology, training, or process enhancements, SMEs may classify them as non-essential expenses. Such mental accounting biases cause them to underestimate the value of structured inventory systems. Consequently, inventory management is perceived merely as an administrative function rather than a strategic tool for enhancing performance, further contributing to the statistically insignificant role on overall business success.

In conclusion, the study's findings emphasize that while various inventory management strategies are often thought to correlate with positive business outcomes, their actual impact on operational performance may not be statistically significant across all contexts, especially within the small and medium-sized food manufacturing sector. Previous literature, which observed significant impacts, primarily focused on large food manufacturing businesses with extensive warehouses and relatively gigantic inventories to manage. However, the current study, conducted in small and medium-sized food manufacturing businesses, found no significant differences in the

effectiveness of the strategies. This is likely due to the smaller and more manageable inventory sizes in these firms which may seem immaterial compared to larger manufacturers. The absence of significant differences among the strategies suggests that, although each inventory method is perceived as contributing positively to business performance, no single strategy distinctly outperforms the others. This indicates that inventory managers perceive these strategies as comparably valuable, with the variations in their effectiveness insufficiently pronounced to achieve statistical significance. While the data does not definitively establish a causal relationship, there remains potential for these strategies to enhance operational efficiency equitably, contingent upon the specific context and implementation methods.

Summary

The objective of this study was to investigate and analyze the impact of various inventory management strategies on the performance of small and medium enterprises (SMEs) within the food manufacturing sector of Davao del Sur. Employing a causal-comparative research design and descriptive statistics, the study explored the levels of inventory strategy utilization and the perceived satisfaction of inventory managers in this sector to uncover their interconnections. Data collection focused on assessing the satisfaction perceptions of inventory managers. The research aimed to evaluate business performance based on the implementation of four distinct inventory strategies: Just-in-Time (JIT), ABC Analysis, Safety Stock Strategy, and Hybrid Inventory System. Additionally, the research sought to identify any significant differences in performance resulting from the application of these strategies.

The results indicated that food manufacturing businesses in the area had positive perceptions of the four identified inventory strategies, with businesses expressing that their chosen strategies contributed to smoother operations or enhanced efficiency. However, despite these favorable perceptions, the statistical analysis revealed no significant differences in business outcomes among the strategies. This indicates that, while businesses believed their inventory strategies were beneficial, the study did not find concrete evidence to support the idea that any one strategy outperformed the others in terms of improving business performance. Essentially, the positive perceptions of the strategies did not translate into measurable improvements in key business outcomes.

CONCLUSIONS

After a thorough investigation of the variables involved in this study, the following conclusions are drawn:

1. The Safety Stock Strategy was perceived as the most satisfactory inventory management strategy to utilize. Overall, the level of inventory strategies utilization in food manufacturing business performance demonstrated strong consistency, which indicates that there is a high level of satisfaction perceived by the managers.

2. There is no significant difference in utilizing inventory strategies in the performance of food manufacturing businesses in Davao del Sur. Hence, this implies that there is no definitive support among the inventory strategies enhancing the business performance.

RECOMMENDATIONS

Based on the findings of this study evaluating the insignificance of inventory strategies on food manufacturing business performance, the following recommendations are proposed to help policymakers, business owners, and future researchers focus on more impactful factors that contribute to SME growth and sustainability.

1. Policymakers and government agencies, particularly the Department of Trade and Industry (DTI), should reassess existing SME support programs. Policymakers should prioritize enhancing financial assistance, production efficiency, market expansion, and technology adoption over inventory strategies. Developing training programs for SMEs to improve cost management, optimize the supply chain, and adopt modern practices is essential for long-term growth.

2. Large food manufacturers should enhance market awareness and inventory management strategies by

assessing the effectiveness of both traditional and modern approaches. A data-driven strategy can help optimize efficiency, minimize waste, and strengthen supply chain operations. By integrating the best practices from both methods, manufacturers can achieve cost-effectiveness, sustainability, and a competitive edge in the market.

3. Operations and supply chain managers should implement real-time inventory tracking systems to monitor stock levels accurately and reduce excess holding costs. Utilizing demand forecasting software can improve planning and prevent shortages, while regular audits can help identify inefficiencies in the supply chain. Collaborating with suppliers for just-in-time deliveries and optimizing warehouse layouts can further streamline operations. By integrating both traditional and modern inventory methods, managers can enhance efficiency, reduce waste, and create a more responsive supply chain.

4. Small and medium-sized food manufacturing business owners should recognize that inventory strategies alone do not significantly impact business performance. Instead, a more holistic approach by adopting a comprehensive business strategy by integrating efficient inventory management with strong financial planning, technology adoption, and market expansion efforts. Investing in affordable digital inventory systems can enhance tracking accuracy, while building reliable supplier partnerships can improve cost efficiency and supply consistency. Accessing government or private sector support for funding and training can help optimize operations. By balancing inventory control with broader business improvements, SMEs can boost productivity, increase profitability, and achieve long-term growth.

5. Inventory managers should implement data-driven tracking systems to monitor stock levels accurately and reduce excess inventory costs. Regular inventory audits and demand forecasting can help minimize waste and prevent stock shortages. Collaborating with suppliers for efficient restocking schedules and using automated inventory tools can improve accuracy and efficiency. By aligning inventory levels with customer demand and optimizing supply chain coordination, businesses can enhance operational performance and support long-term growth.

6. Aspiring entrepreneurs should use the findings of this study to develop a well-rounded approach to business management. Instead of focusing solely on inventory strategies, new business owners should prioritize refining their business ideas, enhancing product innovation, and acquiring essential entrepreneurial skills. By directing their attention to these critical areas, aspiring entrepreneurs should be better equipped to successfully launch and sustain their businesses.

7. Future researchers should explore other factors that may significantly influence SMEs' success, such as financial strategies, innovation, leadership, and external economic conditions. Further research should aim to provide deeper insights into business performance, helping develop more effective business strategies and policies tailored to SMEs in the food manufacturing sector.

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LIST OF TABLES

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APPENDICES

APPENDIX A

CERTIFICATE OF EDITING AND STATISTICAL REVIEW

COR JESU COLLEGE, INC.

Sacred Heart Avenue, Digos City,Province of Davao del Sur, Philippines
Tel. No.: (082) 553-2433 local 101 • Fax No.: (082) 553-2333 • www.cjc.edu.ph

SPSS RESULTS

Oneway

Descriptives

Business Performance

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bound	Upper Bound	Minimum	Maximum
Just-in-Time Strategy	50	3.9350	.70496	.09970	3.7347	4.1353	2.25	5.00
ABC Analysis	50	4.0250	.72360	.10233	3.8194	4.2306	1.00	5.00
Safety Stock Strategy	50	4.2150	.60821	.08601	4.0421	4.3879	2.50	5.00
Overlapping	50	4.0450	.67516	.09548	3.8531	4.2369	1.25	5.00
Total	200	4.0550	.68185	.04821	3.9599	4.1501	1.00	5.00

ANOVA

Business Performance

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.050	3	.683	1.480	.221
Within Groups	90.470	196	.462		
Total	92.520	199			

Verified by:

CLEFO CAN, MAEd-MT
Research Statistician

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APPENDIX B

VALIDATION SHEET FOR SURVEY QUESTIONNAIRE

COR JESU COLLEGE, INC.

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RESEARCH QUESTIONNAIRE VALIDATION

Directions: This tool asks for your evaluation of the questionnaire to be used in the data gathering for the investigation stated above to establish its validity. Please give your honest assessment using the criteria stated below; please check (✓) only one from the selection.

Research Title: ***Evaluating the Impact of Food Manufacturing Business Performance***
Name of Validator: ______________________
Degree: ______________________
Position: ______________________

Scale: 5 – Excellent 4 – Very Good 3 – Good 2 – Fair 1 – Poor

Indicators	5	4	3	2	1
1. Clarity and Directions of Items The vocabulary level, language, structure, and conceptual level of participants. The test directions and the items are written clearly and understandably.	✓				
2. Presentation and Organization of items The items are presented and organized logically.		✓			
3. Suitability of Items The item appropriately presented the substance of the research. The questions are designed to determine the skills that are supposed to be measured.	✓				
4. Adequateness of the Content The number of questions per area is representative enough of all the questions needed for the research.	✓				
5. Attainment of Purpose The instrument as a whole fulfills the objectives needed for the research.	✓				
6. Objective Each item question requires only one specific answer or measures only one behavior and no aspect of the questionnaires suggests in the past of the researcher.	✓				
7. Scale and Evaluation Rating The scale adapted is appropriate for the item.	✓				

Comments and Suggestions:

Please see minor corrections in the questionnaire.

[illegible handwritten name]
Signature Over Printed Name

COR JESU COLLEGE, INC

Sacred Heart Avenue, Digos City Province of Davao del Sur, Philippines

RESEARCH QUESTIONNAIRE VALIDATION

Directions: This tool asks for your evaluation of the questionnaire to be used in the data gathering for the investigation stated above to establish its validity. Please give your honest assessment using the criteria stated below; please check (✓) only one from the selection.

Research Title: ***Evaluating the Impact of Food Manufacturing Business Performance***
Name of Validator: KELVIN G. BOSOHN
Degree: MASTER OF BUSINESS ADMINISTRATION - BUSINESS MANAGEMENT
Position: FULL TIME FACULTY - CJCI

Scale: 5 – Excellent 4 – Very Good 3 – Good 2 – Fair 1 – Poor

Indicators	5	4	3	2	1
1. Clarity and Directions of Items The vocabulary level, language, structure, and conceptual level of participants. The test directions and the items are written clearly and understandably.		✓			
2. Presentation and Organization of items The items are presented and organized logically.		✓			
3. Suitability of Items The item appropriately presented the substance of the research. The questions are designed to determine the skills that are supposed to be measured.		✓			
4. Adequateness of the Content The number of questions per area is representative enough of all the questions needed for the research.		✓			
5. Attainment of Purpose The instrument as a whole fulfills the objectives needed for the research.	✓				
6. Objective Each item question requires only one specific answer or measures only one behavior and no aspect of the questionnaires suggests in the part of the researcher.	✓				
7. Scale and Evaluation Rating. The scale adapted is appropriate for the item.	✓				

Comments and Suggestions:

KELVIN G. BOSOHN, MBM
Signature Over Printed Name

APPENDIX C

INFORMED CONSENT FORM

INFORMED CONSENT FORM

Statement and Purpose. This research is entitled *"**Evaluating the Impact of Inventory Strategies on Food Manufacturing Business Performance**"*. This study aims to provide a comparative analysis of how inventory management techniques impact the performance of Davao del Sur's food manufacturing sector.

Participation. Participation in this study involves completing a survey that examines inventory management strategies and their impact on food manufacturing business performance. Kindly note that your participation is entirely voluntary, and you may withdraw from the study at any time without any repercussions.

Benefits and Risks. The benefit of your participation is your contribution to this study in determining whether inventory management strategies impact food manufacturing business performance. There are no risks associated with responding to the questionnaire because the contents are general experiences or observations and do not involve sensitive concerns or issues.

Confidentiality Your information and identity as you participate in the study will be secured and confidential. Your name will only be reflected in the Informed Consent Form and it will be covered after you sign. Your responses will be kept confidential and will only be used exclusively for research purposes.

If you have any questions or concerns about the research instrument or our study in particular, please feel free to contact us through the mobile phone number **0949 800 1600** or by e-mail at **sayonvince@g.cjc.edu.ph**. You may also contact our adviser, **Mr. Michael P. Aquino** through his email at **michaelaquino@g.cjc.edu.ph.**

CERTIFICATE OF CONSENT

I have been invited to participate in the study "***Evaluating the Impact of Inventory Strategies on Food Manufacturing Business Performance***". I have read the information provided, or it has been read to me. I have had the opportunity to ask questions about the study, and any questions I asked have been answered to my satisfaction. I consent voluntarily to be a respondent in this study.

APPENDIX E

SURVEY INSTRUMENT

RESEARCH QUESTIONNAIRE

Dear Respondents,

We, the Grade 12 students of Cor Jesu College, are currently conducting a study titled "***Evaluating the Impact of Inventory Strategies on Food Manufacturing Business Performance.***" We want to ask you to participate in this survey by answering the following questions as our valued respondents. The following questionnaire should

take between 5 and 10 minutes to complete. You are under no obligation to respond to any of the questions. Nevertheless, doing so will significantly aid us in completing our research and comprehending this topic.

Rest assured that the data gathered will be held strictly confidential and used only for academic purposes.

Name (optional**):** _____ **Date:** _____

Business Name (optional*):* _____

Questions	**YES**	**NO**
1. Our food manufacturing business is situated and is operating within Davao del Sur. (Ang among negosyo sa paghimo og pagkaon maanaa ug nagalihok sulod sa Davao del Sur.)		
2. Our food manufacturing business has less than 250 employees. (Ang among negosyo sa paghimo og pagkaon adunay menos sa 250 ka mga empleyado.)		
3. I have more than two (2) years of experience as the business inventory manager. (Aduna koy kapin sa duha (2) ka tuig nga kasinatian isip inventory manager sa among negosyo.)		

Inventory Strategy

Instructions: Kindly respond to each statement by indicating YES through a tick (✓) if it applies to your business or NO through a cross mark (✗) if it does not.

Questions	**YES**	**NO**
1. I maintain low levels of raw materials. (Ginapabilin na gamay ra ang among ingredients.)		
2. Our business' production schedules and obtaining raw materials are closely aligned with actual customers' demands. (Ang among iskedyul sa production ug pagpalit sa mga ingredients kay nagsunod kung kanus-a mas halinon ang among produkto.)		
3. I have a strong emphasis on quality at every stage of production to minimize the spoliation of foods. (Aduna koy lig-on nga pagtagad sa kalidad sa matag himo sa produksiyon aron dili dali madaot sa mga pagkaon na dili mahalin.)		
4. Our business purchases raw materials daily. (Matag adlaw mi mamalit ug ingredients.)		
5. Our inventory manager works closely with suppliers so that raw materials arrive with production is scheduled to begin. (Ang among inventory manager nagtrabaho og duol sa mga supplier aron ang mga ingredients moabot kung kanus-a ang produksiyon nakatakda na magsugod.)		
6. Our business conducts regular reviews and updates of inventory classifications based on usage, sales data, or value. (Ang among negosyo nagahimo og regular nga mga pagrebyu ug pag-update sa mga klasipikasyon sa imbentaryo base sa paggamit, datos sa baligya, o bili.)		
7. Our business ranks which product has the highest, moderate, and lowest demand. (Ginaranggo namo kung unsang produkto ang adunay pinakataas, katamtaman, ug pinakadili kayo na halinon.)		
8. Our business uses data analytics to determine inventory classification of which product is currently in high demand. (Ang among negosyo naggamit og data analytics aron mahibal-an ang klasipikasyon sa inventory kung unsang produkto ang kasamtangang taas halinon.)		

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9. Our business sells different amounts of each product. (Ang among negosyo nagbaligya og lain-lain na kadaghanon sa matag produkto.)		
10. Our business only purchases a certain product when it's in demand. (Ang among negosyo mopalit ra ug usa ka ingredients kung kini halinon.)		
11. Our business indicates the desired probability of not running out of stock of raw materials. (Ang among negosyo nagpakita sa gitinguhang posibilidad nga dili mahutdan og stock sa mga ingredients.)		
12. Our business maintains additional inventory beyond normal levels to protect against stockouts during high demand. (Ang among negosyo nagmintinar og dugang nga stock sa ingredients labaw pa sa normal nga lebel aron dili ma out-of-stock sa panahon na among product kay halinon.)		
13. We add extra stock to cover potential supplier delivery delays. (Ginapasobraan namo ang stocks sa among ingredients aron naa mi magamit sa panahon na dili kini madeliver sa saktong oras.)		
14. Our business purchases excessively high levels of stock from suppliers. (Ang among negosyo mopalit og sobra ka daghan daan na ingredients gikan sa mga supplier.)		
15. Our business maintains a safe stock level of raw materials more than we would need in a day of production. (Nagapalit mi ug daghan na stock sa ingredients na labaw pa sa among gikinahangkan.)		

Business Performance

Instructions: Please indicate your level of agreement with each statement by selecting the best option that reflects your opinion. **5** - Very Satisfactory, **4** - Satisfactory, **3** - Neutral, **2**- Unsatisfactory, **1**- Very Unsatisfactory.

Questions	**1**	**2**	**3**	**4**	**5**
1. Rate your business according to production efficiency. (Sukda ang inyong kahusayan sa produksiyon.)					
2. Rate your business according to cost management. (Sukda ang inyong pagdumala sa gasto.)					
3. Rate your business according to profitability. (Sukda ang inyong kapasidad nga muginansya.)					
4. Rate your satisfaction with your current inventory strategy. (Sukda ang imong kakontento sa inyong kasamtangan nga estratehiya sa imbentaryo.)					

Thank you so much, your participation is highly appreciated.

Have a blessed day ahead.

_____

Signature

APPENDIX F

STATISTICAL RESULT OF RELIABILITY TEST

Inventory Scale Reliability

Reliability Statistics	
Cronbach's Alpha	N of Items
.812	15

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
I maintain low levels of raw materials.	23.7097	12.080	.177	.820
Our business' production schedules and obtaining raw materials are closely aligned with actual customers' demands.	23.4194	10.985	.525	.794
I have a strong emphasis on quality at every stage of production to minimize the spoliation of foods.	23.2581	12.131	.441	.804
Our business purchases raw materials daily.	23.7097	11.413	.318	.812
Our inventory manager works closely with suppliers so that raw materials arrive as production is scheduled to begin.	23.4194	10.918	.546	.792
Our business conducts regular reviews and updates of inventory classifications based on usage, sales data, or value.	23.2903	11.613	.614	.795
Our business ranks which product has the highest, moderate, and lowest demand.	23.4516	11.123	.553	.792
Our business uses data analytics to determine inventory classification of which product is currently in high demand.	23.4839	10.858	.622	.787

Our business only purchases a certain product when it's in demand.	23.5161	12.191	.164	.820
Our business sells different amounts of each product.	23.4516	12.323	.141	.820
Our business indicates the desired probability of not running out of stock of raw materials.	23.3226	11.759	.465	.800
Our business maintains additional inventory beyond normal levels to protect against stockouts during high demand.	23.3871	11.045	.657	.787
We add extra stock to cover potential supplier delivery delays.	23.5161	11.391	.419	.802
Our business purchases excessively high levels of stock from suppliers.	23.9355	11.129	.457	.799
Our business maintains a safe stock level of raw materials more than we would need in a day of production.	23.8387	10.673	.552	.791

Business Performance Scale Reliability

Reliability Statistics	
Cronbach's Alpha	N of Items
.725	4

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Rate your business according to production efficiency.	12.1935	4.361	.617	.613
Rate your business according to cost management.	12.4839	4.191	.440	.716
Rate your business according to profitability.	12.4194	3.852	.625	.593
Rate your satisfaction with your current inventory strategy.	12.3548	4.770	.407	.722