



The relationship between sustainability practices and firm Performance in local restaurants in Laoag City, Ilocos Norte, Philippines

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ABSTRACT

This study was conducted to determine the sustainable practices and their effects on the firm performance of local restaurants in Laoag City, Ilocos Norte, Philippines. Using a descriptive-correlational research approach, data were gathered from 16 local restaurants via a structured survey questionnaire and analyzed using statistical methods, including frequency and percentage, weighted mean, Mann-Whitney U test, Spearman's rho, and Pearson-r correlation.

Findings revealed that the extent of sustainability practices among local restaurants was rated high. The degree of seriousness of problems encountered was rated moderately serious, while the overall firm performance was rated high. Results further showed that the form of business organization and years in operation had no significant effect on sustainability or firm performance. However, significant negative relationships were found between average monthly sales, net income, and selected sustainability and performance indicators. Sustainability practices were found to be significantly and negatively associated with the severity of problems encountered and positively associated with both financial and non-financial performance. Moreover, problem seriousness was negatively correlated with firm performance.

The study concluded that sustainability integration enhances restaurant performance by improving efficiency, profitability, and customer satisfaction while reducing operational challenges. Restaurant owners should institutionalize sustainability as a core business strategy through staff training, adopt energy and water-saving technologies, and implement proper waste segregation. Local governments must support BMBE registration, grant tax exemptions, and offer incentives such as property tax rebates, reduced permit fees, grants, low-interest loans, and technical assistance for water and energy savings and waste management. Partnerships with local producers should be promoted to build sustainable supply chains. Policymakers should reward sustainable practices with recognition, awards, and access to contracts, and integrate sustainability into regulations. Future research may replicate the study in other areas and include customer perception and digital innovation to further examine the long-term effects of sustainability on business performance in the restaurant sector.

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Introduction

Recently, sustainability has become a critical priority in business operations, particularly in the food service industry. As

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global environmental challenges intensify, restaurants are increasingly adopting sustainable practices such as energy efficiency, water conservation, waste reduction, and sourcing from local producers. These initiatives not only minimize environmental impact but also improve operational efficiency, reduce costs, and strengthen brand reputation.

Sustainability now shapes political, economic, business, and consumer landscapes worldwide. The United Nations Sustainable Development Goals (SDGs) have heightened awareness of environmental and social concerns, encouraging governments, businesses, and individuals to pursue collective solutions. In this context, the food service industry has embraced sustainability as a strategic advantage, attracting eco-conscious consumers and fostering customer loyalty.

A growing body of research has examined sustainability in the restaurant sector. Takacs and Borrión (2020) explored sustainable menu design and supply chain strategies that promote environmentally responsible consumption. Arun et al. (2021) found that health consciousness and environmental awareness significantly influence consumer dining choices. Madanaguli et al. (2022) highlighted the role of stakeholders in helping traditional restaurants transition to sustainable operations. Apak and Gürbüz (2022) identified environmental sustainability as the most widely adopted dimension, followed by social sustainability, while emphasizing the importance of economic sustainability in rural development. Collectively, these studies demonstrate increasing academic interest in sustainability and its implications for innovation, customer engagement, and long-term competitiveness in the restaurant industry.

Laoag City, the capital of Ilocos Norte, is known for its rich culinary heritage and vibrant food service sector. Many local restaurants have begun adopting environmentally responsible practices to align with national and global sustainability movements. In the Philippine context, sustainable restaurant management is recognized not only as an ethical responsibility but also as a strategic approach to reducing operational costs and optimizing resource use, ultimately improving financial and operational performance.

Despite these developments, Laoag City continues to face sustainability challenges affecting the food service industry. Climate change, supply chain disruptions, and labor shortages have strained food quality and security, increasing reliance on imported goods (Kabraso Multi-Purpose Cooperative, 2025; Mutale et al., 2025; World Food Programme, 2025). Local initiatives such as the “Narimat nga Aglawlaw” campaign promote green marketing and environmental awareness, yet inconsistent enforcement of waste management regulations limits their impact (Ilocos Norte Government, 2020). Waste management remains a persistent concern due to high plastic waste generation, inadequate segregation and collection systems, and limited participation in reduction and recycling programs among restaurant operators (World Bank, 2021; Aguate et al., 2023; malaya.com.ph, 2022; pna.gov.ph, 2023). Water and energy conservation also present ongoing challenges. Outdated water infrastructure, service interruptions, and inefficient energy consumption patterns hinder operational efficiency (Waterwise, 2023; EPA, 2024; FAO, 2022; DOE, 2023; UNEP, 2024; PrimeWater Ilocos Norte, 2025; Laoag City Government CLU, 2021). Addressing these issues requires stronger policy enforcement, greater investment in technology, and sustained collaboration among local government units, businesses, and the community.

While existing studies have explored environmental sustainability—particularly waste management, energy conservation, and eco-friendly packaging—several gaps remain. Small and medium enterprises often face revenue constraints that limit the adoption of sustainable practices. Although some research examines how consumer and employee awareness influence sustainability initiatives, the long-term financial outcomes of these practices remain underexplored. Eco-friendly branding has been shown to positively influence consumer perceptions, yet quantitative evidence directly linking green marketing to profitability and customer loyalty is limited. The Balanced Scorecard has been used to assess financial and non-financial performance indicators, but few studies have developed restaurant-specific frameworks that integrate sustainability measures. Furthermore, while structural challenges such as food waste, cost barriers, and limited awareness are documented, tailored solutions for low-revenue restaurants are underrepresented. Technology adoption—such as waste-tracking and energy-monitoring systems—has been identified as a performance driver, yet research in this area remains limited.

This study assessed the sustainable practices implemented by restaurants in Laoag City and evaluated their impact on firm performance. Specifically, it examined how water and energy conservation, waste reduction, and sustainable sourcing influence key performance indicators, including cost savings, customer loyalty, and overall profitability. Although substantial

literature exists on restaurant sustainability at both local and global levels, there remains a significant research gap concerning homegrown or locally established restaurants in Laoag City. This study seeks to address that gap by providing empirical insights into local sustainability practices and their implications for both environmental responsibility and business performance.

Literature review

Local restaurant

Restaurants play a vital role within the hospitality industry, serving as significant contributors to the broader business sector (Garcia et al., 2021). In recent years, the Philippines has mirrored global trends with a growing public awareness of environmental concerns. In response, the Philippine government has aligned its initiatives with the United Nations Sustainable Development Goals (SDGs), a worldwide framework aimed at eradicating poverty, protecting the environment and climate, and fostering peace and prosperity for all. Within the local restaurant context, these sustainability efforts are increasingly recognized as essential to both environmental responsibility and business performance (Baisa et al., 2024).

Researchers emphasized the importance of localism in the restaurant industry (Gössling & Hall, 2022), highlighting notable connections between local sourcing and sustainability in destination restaurant studies (Huang et al., 2022). In discussions about the food system, localism was frequently positioned in contrast to globalism (Hall & Gössling, 2016; Duncan, 2021). The demand for locally sourced food is rapidly emerging as a leading trend within the food industry (Thio et al., 2024). Localism has increasingly become a focal point in foodservice research, as highlighted in studies exploring sustainable culinary practices, economic transitions favoring local food systems, and the interplay between global and local influences in artisanal cuisine (Gössling & Hall, 2012; Duncan, 2021; Huang, Y., & Hall, C. M., 2023).

Business Profile. A business profile represents a company's identity and serves to inform, persuade, influence, and keep the company top-of-mind for its customers (Rahastine, 2022). A business profile represents a company's public image and must be consistently nurtured and enhanced to ensure long-term sustainability. As market competition intensifies over time, businesses must adopt diverse strategies to reinforce their profiles. These profiles may be presented in print or digital formats, and their content should not only fulfill internal corporate objectives but also align with evolving consumer expectations (Nikmah, 2024). Restaurants operated under various business structures, including sole proprietorships, partnerships, corporations, and franchises. The long-term sustainability depended on effective management and environmental concerns. Regardless of the size, the core objective of these businesses went beyond profit to emphasize environmental integrity and sustainability (Matriano et al., 2017).

Higher monthly sales enabled restaurants to invest in sustainable practices such as waste management and energy efficiency (Pereira-Moliner et al., 2021). Businesses were able to reduce food waste, which made up to 40% of total waste (Warshawsky, 2016). Financially stronger restaurants implemented waste reduction strategies (Clowes et al., 2017). Furthermore, increased revenue led to higher service quality, customer satisfaction, and business growth, thereby reinforcing sustainable operations (Mulyani et al., 2020).

According to Addug & Malinao (2025), 80% of small restaurateurs earned between ₱10,000 and ₱30,000 per month, indicating low revenue and limited growth potential. However, 10% reported earnings of ₱61,000 to ₱70,000, while another 10% reported earnings of ₱101,000 to ₱150,000, suggesting a small group of high-performing businesses. The income gap highlighted how effective use of online platforms, product diversification, and strong business strategies set successful restaurants apart.

Sustainable practices

Sustainable practices were regarded as a means of addressing issues the world faced, such as climate change, and refer to the act and process of minimizing environmental pollution and stopping harm to the environment. Sustainability and the rise in environmental concerns were closely related, which helped businesses focus more on integrating environmental impacts (Roxas et al., 2017; Bakos et al., 2020; Chege & Wang, 2020). In line with the study's context, environmental practices demonstrated how businesses had integrated natural factors into their business plans. This further clarified how a company's

actions regarding environmental practices reflected its perception of incorporating sustainability into its operations and moving toward sustainability standards.

Sustainable practices were also perceived differently in different countries, cultures, and values, depending on how companies conducted their business. Sustainable practices were considered essential not only for larger companies but also for smaller ones, as urbanisation and ongoing environmental degradation have slowed progress toward achieving environmental sustainability, one of the key objectives (Khan et al., 2022a).

However, smaller companies did not practice environmental sustainability due to low impact and cost considerations (Abdulaziz-al-Hajjani et al., 2022). Changing consumer needs and intense competition have led businesses to survive and grow despite environmental pressures (Siahaan & Tan, 2022). Nonetheless, businesses needed to adopt environmental sustainability for better corporate performance. Environmental practices benefited businesses in various ways. A study by Jagani and Hong (2022) showed how sustainability orientation enables the effective application of environmental practices. A company is deemed sustainable if it anticipates positive actions to reduce environmental harm. This significantly influences environmental sustainability practices. Ahmadi-GH and Bello-Pintado (2022) stated that implementing environmental practices requires adjustments to improve competitiveness. Firms must commit to environmental sustainability to achieve successful environmental outcomes.

Research on sustainability in the restaurant sector has predominantly emphasized environmental practices (Higgins-Desbiolles et al., 2017). While some studies have explored the motivations behind adopting sustainability measures and their implications for business outcomes, findings remain mixed. For instance, Bagur-Femenías et al. (2015) demonstrated that environmental management systems (EMSs) significantly enhance competitiveness and performance in hotels. However, this relationship was not statistically significant for restaurants, a divergence that may be attributable to structural differences, such as organizational size, regulatory frameworks, and communication strategies, between hotels and restaurants.

Food Quality. Sustainable restaurant practices optimized kitchen efficiency, reduced costs, and influenced consumer choices through structured menus (Gössling & Hall, 2022; Babakhani et al., 2019). Vegetarian options and sustainability labels guided diners toward eco-friendly food choices, though effectiveness varied by demographic (Choi et al., 2021; Piester et al., 2020). Beyond environmental benefits, sustainable menus promoted healthier eating and social responsibility. Consumers increasingly preferred eco-conscious products, which prompted businesses to adopt green strategies (Agarwal & Kasliwal, 2017). Local sourcing, seasonal menus, and organic-certified ingredients reduce emissions while maintaining food quality (Elkhwesky et al, 2022; Bux & Amicarelli, 2025).

To minimize environmental impact, restaurants integrated responsible sourcing, inventory management, and waste reduction. Eco-friendly packaging, reduced food waste, and sustainable food preparation ensure long-term sustainability (Motoki et al., 2021).

Green Marketing Practices. Community outreach in the restaurant sector involved actively promoting sustainable behaviors, including community-based gardens, cooking events, charity work, and advocacy for sustainable eating practices and other forms of local activism, all of which contribute to environmental and social sustainability (Gössling & Hall, 2022). Consumer-driven advocacy and word-of-mouth efforts were particularly impactful in raising awareness, especially in countries with large populations, such as India and China, where higher pollution risks and carbon footprints necessitated stronger green initiatives.

A study by Saad and Ashry (2017) examined restaurants in Cairo—particularly those catering to tourists—and highlighted the importance of sourcing ingredients directly from local farmers and implementing waste-reduction strategies. However, findings indicated that employees had only moderate awareness of sustainability, with resource-conservation efforts, including energy and water savings, at a mid-level. The study also revealed financial constraints that hindered sustainable initiatives, limited employee training on green practices, and provided minimal customer support for such efforts.

Eren's (2023) research on fast-food restaurants and hotels in Istanbul examined how green restaurant imagery influenced

customers' perceptions of environmentally sustainable practices. The study found that both service quality and a restaurant's eco-friendly image shaped consumer attitudes, with customers generally receptive and positive toward sustainability efforts. *Waste Management.* Food waste in restaurants occurs at all stages of procurement, storage, production, and customer consumption. Fine-dining places wasted the most per customer due to menu changes and low guest volume. Quick-service restaurants wasted the least, followed by limited-service and casual-dining venues. Waste could begin earlier in the supply chain, depending on the chef's use of pre-prepared versus raw ingredients (McAdams et al., 2019). Accurate forecasting, communication with suppliers, strategic purchasing, and efficient management of perishable food were crucial for reducing waste and supporting sustainability. Disposable waste from packaging, storage, and tableware also raised environmental concerns (Amicarelli et al., 2021).

Beyond food waste, disposable packaging, storage, and tableware waste further contribute to environmental concerns. According to the European Environment Agency (EEA) 2020, the rise in off-premise dining due to COVID-19 has increased the use of single-use items, such as utensils and face masks. Managing various waste streams required strategic measures such as selective waste collection and reduced plastic use (Jeong et al., 2021).

Maynard et al. (2020) developed a checklist of sustainability indicators for restaurants, including: Waste management strategies; Implementing waste collection; Reducing packaging and prioritizing bulk ordering; Setting goals to lessen disposable usage; Limiting plastic use; Using returnable packaging for deliveries; and reusing and recycling glass materials. Adopting these practices could significantly reduce waste, promoting environmental and economic sustainability.

Water and Energy Conservation. Restaurants are widely recognized as among the most energy-intensive commercial businesses, with full-service establishments showing particularly high energy consumption. The largest share of energy use is attributed to cooking and food preparation, which accounts for 35% of total costs. This is followed by heating, ventilation, and air conditioning (HVAC) at 28%, sanitation at 18%, lighting at 13%, and refrigeration at 6% (Refrigeration Design Technologies, 2020). These figures underscore the importance of targeted conservation strategies within the sector.

Efficiency gains can be realized through the strategic design of buildings and the modernization of core systems, including HVAC, lighting, kitchen technologies, refrigeration units, cooking equipment, and water supply infrastructure (Gössling & Hall, 2022). Early adoption of energy-efficient practices positions restaurants to remain compliant with evolving standards and mitigates the risk of future penalties. Proactive energy consumption management also reduces the financial burden of retrofitting under stricter regulations (Cundy, 2024). Furthermore, encouraging staff to power down unused equipment—such as computers, lights, and machinery—contributes directly to operational efficiency and embeds sustainability into daily routines (Francis, 2024).

Case studies demonstrate that restaurants achieve measurable reductions in energy use by combining idle-time equipment shutdowns with investments in efficient lighting, appliances, cooking methods, and water-conserving practices (Madanaguli et al., 2022). In addition, some establishments have advanced their sustainability efforts by generating energy from renewable sources, thereby reducing reliance on conventional power systems and strengthening their environmental performance.

Problems encountered in practicing sustainability

With the continued expansion of the global food service industry, the pressures arising from the unsustainable exploitation of finite resources and the persistent problem of food waste are anticipated to intensify (Boccia et al., 2021; Chaturvedi et al., 2021; Kim et al., 2018). Accordingly, organizations in this sector must integrate sustainable practices into their operations (Di Vaio et al., 2019; Di Vaio et al., 2020).

Recent scholarship has increasingly underscored the adoption of sustainable practices as a central concern in the service industry, with particular attention to the food service sector (Chaturvedi et al., 2020a, 2020b). Within this context, the restaurant industry has undergone a marked transformation, positioning itself as an early adopter and leading proponent of sustainability-oriented initiatives.

Recently, consumers have begun to place greater significance on the green and eco-friendly dimensions of their food

consumption (Desai & Aronoff, 2020). For instance, as concerns regarding environmental preservation and sustainability intensified, a growing number of consumers started to prioritize food safety. In particular, the global COVID-19 pandemic prompted individuals to adopt healthier, more hygienic eating practices (Sim & Wiwanitkit, 2021). Furthermore, there were numerous outbreaks of foodborne illnesses linked to commonly consumed foods.

Over the past few years, scholarly attention has increasingly focused on the sustainability challenges confronting the food service and catering sector. Takacs and Borrión (2020) investigated sustainable menu design and the dynamics of catering supply chains, while Arun et al. (2021) examined the emergence of green restaurants and the influence of consumer behavior. Madanaguli et al. (2022) analyzed the transition of restaurants toward environmentally sustainable models, and Apak and Gürbüz (2022) assessed sustainability indicators within restaurant operations. Across these studies, environmental sustainability emerged as the most widely implemented dimension, followed by social sustainability, whereas economic sustainability was identified as a potential driver of rural development.

Key obstacles to advancing sustainability in the restaurant industry include insufficient knowledge and awareness among both managers/owners and customers. The sector's structural characteristics also play a role, as the everyday behaviors of regular clients and visitors often contribute to higher levels of food waste. Another challenge is the limited availability of appropriate information and technologies to support effective eco-waste management. Menu design can further exacerbate waste generation when not carefully planned, while the overall complexity of restaurant operations makes it difficult to consistently integrate sustainable practices (Ho et al., 2021; Stöckli et al., 2018; Blum, 2020; Tehrani et al., 2020).

Firm performance

Firm performance was determined by financial and non-financial indicators, reflecting the firm's ability to meet stakeholder expectations. Financial performance gauged profitability, while non-financial performance assessed intangible benefits (e.g., customer satisfaction, internal processes, learning, and growth) (Samad, 2022; Mitra, 2021). The Balanced Scorecard has been recognized as a key framework for evaluating firm strategy and performance. Its dimensions contribute significantly to advancing strategic thinking, strengthening leadership, facilitating organizational change, and cultivating a constructive work culture.

Subsequently, when organizations incorporated the Balanced Scorecard as a metric for evaluating corporate performance, it subsequently empowered them to formulate a robust strategy that could be seamlessly integrated into their overarching goals and objectives (Karabulut, 2015). The four perspectives of firm performance were financial, customer, internal business processes, and innovation and learning.

Moreover, firms no longer merely assessed financial performance; they also evaluated overall organizational efficacy by assessing the effectiveness and efficiency of their actions (Mitra, 2021; Gupta & Gupta, 2020). Consequently, this study examined how corporate sustainability orientation and environmental practices enhanced firm performance through direct and indirect effects. The firm's primary goal was to maximize profit, driven by revenues and costs. To achieve this, a firm needed to increase revenues and/or reduce costs. The study of firm profitability originated from research on revenue and cost drivers. Various studies have published theories of the firm, accompanied by multiple empirical studies aimed at substantiating these theoretical frameworks. (Adentunji, Owolabi 2016).

Financial Performance. Integrating environmental practices can drive cost savings and revenue (sales) growth, as studies linked internal sustainability efforts to economic performance. Using eco-friendly materials reduced costs, while a structured system ensured sustainability across the organization.

The financial sustainability of the restaurant sector became increasingly vital, necessitating the adoption of financially sustainable management practices tailored to the industry's unique characteristics. Effective menu management played a key role in ensuring both sustainability and market competitiveness (Gomes et al., 2023). Gnonlonfoun (2017) identified several strategies for financial sustainability, including conducting thorough market research, enhancing customer service quality, and fostering a sense of passion within the business.

Green procurement extended sustainability by requiring suppliers to adopt eco-friendly practices, fostering competition and development. Collaboration with suppliers enhanced financial savings and product sustainability. Globalization heightened the need for green transportation, requiring industry-wide cooperation to reduce packaging and optimize freight efficiency, cutting costs and emissions (Esfahbodi et al., 2016).

Investment recovery helped businesses repurpose unused assets through resale and reuse, improving financial and environmental outcomes (Esfahbodi et al., 2016). Financial sustainability in restaurants depended on strategic management, market research, customer service, and cost-efficient menu planning (Gnonlonfoun, 2017; Lai et al., 2020).

Non-financial Performance. Green Employee Integration (GEI) aligned employees' eco-friendly behaviors with corporate sustainability efforts, covering both job-related ecological actions and voluntary initiatives (Norton et al., 2015; Sabbir & Taufique, 2022; Shi et al., 2022). Organizations enhanced GEI through training, mentorship, and support, motivating employees to contribute to environmental goals (Li et al., 2022; Shi et al., 2022). Proactive sustainability fostered competitive advantage and reinforced business success (Li et al., 2022; Mahmood et al., 2021; Shi et al., 2022).

The rising focus on ESG performance drove corporate strategies, with regulations mandating transparency in reporting to encourage sustainable development (Taherdangkoo et al., 2016). The Ability, Motivation, and Opportunity (AMO) theory posited that organizations optimize performance by equipping employees with skills, motivation, and opportunities, thereby ensuring long-term success (Al-Tit et al., 2020).

Social identity theory highlighted that sustainability initiatives strengthen employees' environmental commitments and organizational engagement. Their willingness to participate was influenced by motivation and reward mechanisms embedded in corporate strategies (Harwood, 2020). Employee well-being was an important goal for organizations. Jensen and Van der Voordt (2016) identified key value drivers in facility management. These included costs, risk, productivity, sustainability, health, and satisfaction. In a later study (Jensen & Van der Voordt, 2019), the authors introduced a framework that highlights the physical environment as a key driver of employee well-being.

Local food products could be supplied to various buyers like grocery stores, food service establishments, food hubs, retail outlets, and government institutions. Distributing to grocery stores could be challenging due to price look-up, product codes, and grading standards (Moldovan, 2016). Understanding buyer requirements was crucial for lasting relationships. The channel with the highest potential remained uncertain. Restaurants need to prompt deliveries and sufficient supply, while grocery stores can offer alternative products if needed. Local producers provided high-quality products and a competitive advantage in intermediate markets such as restaurants.

Relationship between the restaurant profile and firm performance

Researchers in Green Supply Chain Management (GSCM) often draw on institutional theory to explain the environmental drivers influencing organizational behavior. Institutional theory provides a useful framework for examining how firms respond to external pressures. It identifies three types of forces that lead to isomorphic changes within organizations: coercive, normative, and mimetic. Coercive pressures stem from authorities such as governments, normative pressures arise from collective efforts and professionalized industry standards, and mimetic pressures occur when firms imitate the practices of leading competitors. Although this categorization is well-established, how these forces interact to shape GSCM decisions remains less well understood (Sierra et al., 2015).

Beyond governmental coercion, firms encounter additional motivations to adopt environmentally responsible practices. Competitive dynamics over resources and customers encourage companies to integrate sustainability into their operations. Stakeholders such as financial institutions, suppliers, owners, and shareholders also exert influence, driven by the potential benefits associated with environmental transformation. Moreover, when competitors implement green practices, this creates further pressure for firms to follow suit, reinforcing the diffusion of sustainability across the industry.

Relationship between restaurant profile and its sustainable practices

The restaurant industry is often described as highly volatile due to significant uncertainty surrounding both customer demand

and resource availability (Cho et al., 2016). On a global scale, environmental sustainability has become a critical factor in determining the competitiveness of restaurant businesses (Bagur-Femenías, Martí, & Rocafort, 2015). Integrating sustainability into operations enables firms to maintain high-quality services in welcoming, attentive environments while also contributing to broader economic benefits. These include reducing pollution and waste, lowering emissions, generating employment opportunities, and fostering more equitable income distribution (Ayuso & Navarrete-Báez, 2018).

Historically, sustainability in restaurants has been recognized not only as a matter of global public health but also as a vital contributor to national environmental preservation and economic stability. Environmentally responsible practices enhance the health and well-being of customers and surrounding communities (Gandhi, Thanki, & Thakkar, 2018). Despite these benefits, many restaurants continue to face challenges in embedding environmental considerations into their daily operations, making the pursuit of sustainability an ongoing struggle within the sector.

As the foodservice industry grows globally, issues of resource utilization and food waste worsen. Business organizations had to prioritize sustainable practices (Boccia et al., 2021; Chaturvedi et al., 2021; Kim et al., 2018). Hence, for businesses in this industry, it was imperative to adopt sustainable practices (Di Vaio et al., 2020). Recent years have seen a rise in the importance of sustainability in the service industry, particularly in foodservice (Chaturvedi et al., 2020). Restaurants have transformed to implement sustainable practices such as recyclable cutlery, organic food, water-saving equipment, waste reduction, and an eco-friendly ambiance (Garcia-Garcia et al., 2016; Hamerman et al., 2018; Filimonau et al., 2020).

Relationship between sustainable practices of restaurants towards its firm performance

Environmental practices in restaurants varied globally due to urbanization and degradation (Khan et al., 2022). Smaller firms did not prioritize sustainability due to concerns about community impact and costs (Abdulaziz-al-Humaidan et al., 2022). Additionally, businesses adapted to customer demands and competition by expanding despite environmental instability (Siahaan & Tan, 2022). Moreover, companies had to engage in sustainable practices to improve performance, reputation, talent attraction, and innovation (Ahmadi-Gh & Bello-Pintado, 2022; Abdulaziz-al-Humaidan et al., 2022).

Firms prioritized environmental sustainability by integrating environmental objectives, interests, and plans to gain a competitive advantage (Risitano et al., 2022), leading to higher levels of firm outcomes. Environmental practices enhanced operational efficiency and desired business outcomes (Jagani & Paul, 2022). Likewise, Sardana et al. (2020) found that environmental practices are linked to firm performance in emerging economies due to awareness of sustainability, consumerism, and government regulations. Sustainability in restaurants was examined, focusing on environmental practices and factors driving sustainability and firm performance (Higgins-Desbiolles et al., 2017).

Since the COVID-19 outbreak, more restaurants have offered off-premise dining, increasing demand for dining disposables (King, 2020). Some dine-in restaurants now use disposable items and require staff to wear masks and gloves (Jeong et al., 2021).

Maynard et al. (2020) developed a comprehensive checklist of sustainability indicators tailored for restaurant operations. These indicators include establishing a documented strategy for managing non-food waste, implementing selective collection systems, and reducing packaging through bulk procurement. They also emphasize setting clear targets to minimize disposable items, reduce plastic use in meal distribution, and adopt returnable packaging for deliveries. Additional measures include reusing and recycling glass, encouraging customers to actively reduce waste, and using recycled or FSC-certified paper for office use. Collectively, these practices provide a structured approach to reducing disposables, thereby strengthening both environmental responsibility and economic performance within the restaurant sector.

Relationship between problems encountered and firm performance

Klynveld Peat Marwick Goerdeler (2016) reported on restaurant trends, including innovation strategies such as healthier food options, menu changes driven by regulations, more food choices, and new technologies. The report emphasized the importance of specialized menus, high-quality food, fast service, and the adoption of technology for orders, payments, and deliveries.

For example, Sok and O’Cass (2015) examined exploitative and exploratory innovation in the restaurant industry in relation to service quality. Lee, Hallak, and Sardeshmukh (2016) emphasized the need to assess innovation more broadly to gain a comprehensive understanding of its impact on restaurant performance. Innovation encompassed product, service, process, management, and marketing, all of which were crucial for creating new menu items and service systems to adapt to changing customer preferences.

Dunlap et al. (2016) found that firms with greater business experience and skilled employees were better positioned to utilize resources effectively. Their study suggested that established organizations were better able to engage in both exploitative and exploratory innovation than startups. In the restaurant context, the relationship between innovation ambidexterity and performance was shown to vary by business life cycle stage, with stronger positive outcomes anticipated for established restaurants than for newer entrants.

According to Filimonau and DeCoteau (2019), restaurants faced unsustainability challenges stemming from two key components: avoidable waste and emissions. Common drivers of food waste included poor forecasting, procurement inefficiencies, and lack of local sourcing (Filimonau et al., 2019; Trafialek et al., 2019). In-kitchen waste was often linked to spoilage, poor cooking skills, and flawed recipes (González-García et al., 2020). Restaurant policies, such as buffet timing and frequent menu changes, further exacerbated waste generation (Heikkilä et al., 2016).

Fieschi and Pretato (2018) stated that non-food waste originated from packaging, disposable cutlery, and non-biodegradable materials. According to Allen et al. (2021), fuel quality impacted the level of direct emissions, while food delivery operations further contributed to emissions.

Conceptual framework

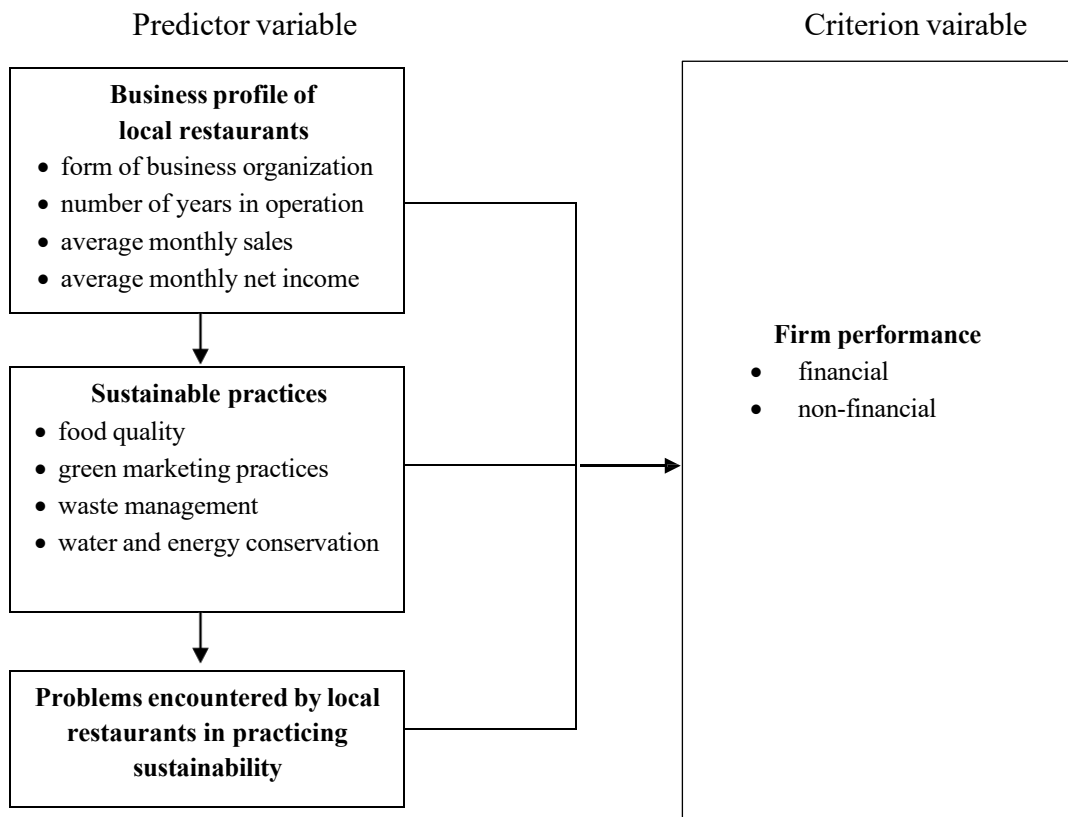


Figure 1. Research paradigm

Figure 1 presents the conceptual framework. The study examines how local restaurants’ business profiles, sustainable practices, and challenges influence firm performance. It examines the relationship among business profiles, sustainable

practices, and the seriousness of sustainability problems. It also explores how business profiles relate to financial performance, how sustainable practices affect firm performance, and how sustainability issues affect overall performance.

Statement of the problem

This study aimed to determine the sustainable practices and their effects on the firm performance of local restaurants in Laoag City, Ilocos Norte. Specifically, it sought to answer the following questions:

1. What is the business profile of a local restaurant in terms of:
 - 1.1 form of business organization;
 - 1.2 number of years of operation;
 - 1.3 average monthly sales; and
 - 1.4 average monthly net income?
2. To what extent do the local restaurants practice sustainability in terms of:
 - 2.1 food quality;
 - 2.2 green marketing practices;
 - 2.3 Waste Management; and
 - 2.4 Water and energy conservation?
3. What is the degree of seriousness of the problems encountered by local restaurants in practicing sustainability?
4. What is the level of firm performance of the local restaurants in terms of:
 - 4.1 financial;
 - 4.2 non-financial?
5. Is there a significant relationship between the business profile of local restaurants and the extent of their sustainable practices in terms of:
 - 5.1 Food quality
 - 5.2 green marketing practices;
 - 5.3 Waste Management; and
 - 5.4 Water and energy conservation?
6. Is there a significant relationship between the extent of sustainable practices and the degree of seriousness of the problems encountered by local restaurants in practicing sustainability?
7. Is there a significant relationship between the business profile of local restaurants and their level of firm performance in terms of:
 - 7.1 Financial Performance
 - 7.2 non-financial performance?
8. Is there a significant relationship between the extent of sustainable practices of local restaurants and the level of their firm performance in terms of:
 - 8.1 Financial Performance
 - 8.2 non-financial performance?
9. Is there a significant relationship between the degree of seriousness of the problems encountered by local restaurants and the level of their firm performance in terms of:
 - 9.1 Financial Performance
 - 9.2 non-financial performance?

Hypothesis

To better understand how sustainability affects the everyday operations of local restaurants in Laoag City, the study set several hypotheses as a guide. These hypotheses were created to explore whether certain business characteristics, the sustainable

practices restaurants try to follow, and the challenges they encounter are connected to how well they perform financially and non-financially. By laying out these expected relationships, the study hopes to see how sustainability efforts—big or small—may shape the success and overall performance of local restaurants in the city.

Ha1. There is a significant relationship between the business profile of local restaurants and the extent of their sustainable practices in terms of:

- a. food quality;
- b. green marketing practices;
- c. waste management; and
- d. water and energy conservation.

Ha2. There is a significant relationship between the extent of sustainable practices and the seriousness of the problems encountered by local restaurants in implementing sustainability.

Ha3. There is a significant relationship between the business profile of local restaurants and their level of firm performance in terms of:

- a. financial performance; and
- b. non-financial performance.

Ha4. There is a significant relationship between the extent of sustainable practices of local restaurants and the level of their firm performance in terms of:

- a. financial performance; and
- b. non-financial performance.

Ha5. There is a significant relationship between the degree of seriousness of the problems encountered by local restaurants and the level of their firm performance in terms of:

- a. financial performance;
- b. non-financial performance.

Scope and delimitation of the study

This study examined the sustainable practices of local restaurants in Laoag City, Ilocos Norte, Philippines, and their effects on firm performance. It assessed business profiles, including business form, years in operation, average monthly sales, and net income. The research also evaluated sustainability practices in food quality, green marketing, waste management, and water and energy conservation, as well as the severity of problems encountered in implementing these practices. Finally, it analyzed firm performance across financial and non-financial aspects and explored the relationships among business profiles, sustainability practices, encountered problems, and overall performance.

The study was limited to local restaurants in Laoag City, Ilocos Norte, that were legally registered and had been open for at least 3 years. Only those restaurants that were actively operating were included.

Research methodology

Research design

The study used a descriptive-correlational design to examine sustainable practices and their effects on local restaurants' performance. Descriptive research, as Siedlecki (2020) explains, gives a detailed picture of a group or situation, helping reveal patterns and trends. This makes it useful for understanding sustainability behaviors and business outcomes (Calderon & Gonzales, 2018). The correlational part of the study then examined the relationship between sustainability practices and firm performance, without changing or controlling the variables. As Miksza et al. (2023) point out, correlational research shows the strength and direction of these relationships. Together, these approaches enabled the study to describe the level of sustainable practices and explore their relationship with restaurant performance.

The study was conducted in Laoag City, Province of Ilocos Norte, in the northernmost part of Luzon. Known for its rich culinary heritage, the city is a destination where both local and international visitors enjoy a wide array of sumptuous dishes.

Population

The study population comprised locally established restaurants in Laoag City, Ilocos Norte, that had operated for at least 3 years. The respondents were either the restaurant owners or their duly authorized managers. A total enumeration approach was used. Based on the list provided by the Business Processing and Licensing Office (BPLO) of Laoag City, 36 local restaurants were initially identified. However, only 20 met the inclusion criteria and were deemed eligible for the study. Survey questionnaires were distributed to all 20 qualified establishments, but only 16 participated. Four restaurants were excluded because they did not meet the required years-of-operation criterion or declined to provide the necessary data.

Data gathering instruments

The study used a survey questionnaire adapted from previous research, with closed-ended Likert-scale questions.

The first part gathered basic information about the restaurants, including business type, years of operation, and average monthly sales and income.

The next section measured sustainable practices in four areas: food quality, green marketing, waste management, and resource conservation, based on established studies.

The survey also asked about common sustainability challenges, including financial, regulatory, and operational barriers.

Finally, it assessed firm performance by examining financial results, cost efficiency, and non-financial benefits, such as customer and stakeholder trust.

Data gathering procedure

Before data collection, the researcher secured formal approval from the City Mayor of Laoag City and obtained a list of qualified restaurants from the Business Permit and Licensing Office, limited to establishments that have operated for at least 3 years. Using total enumeration, all 20 eligible restaurants were included in the study. Owners were prioritized as respondents, with managers serving as authorized representatives when necessary. Informed consent was obtained to ensure voluntary and ethical participation. Printed questionnaires were personally distributed and completed independently by the respondents.

Ethical considerations

This study gathered insights from restaurant owners and managers in Laoag City regarding their sustainability practices and firm performance. All participants were clearly informed about the study's purpose, procedures, and their rights, including the right to participate voluntarily and withdraw at any time without consequences.

Permission was secured before distributing the questionnaires, and strict confidentiality was observed. Responses were anonymized and securely stored to protect sensitive business information. Participants were not pressured to disclose trade secrets or confidential data.

The findings were reported honestly, objectively, and in aggregate form to ensure that no individual business could be identified. By adhering to institutional and ethics board guidelines, the study upheld privacy, fairness, and research integrity while contributing meaningful academic insights.

Tools for data analysis

The collected data underwent thorough statistical analysis to ensure accuracy in interpretation. Quantitative responses were analyzed using both descriptive and inferential statistical methods. Descriptive statistics, such as frequencies and percentages,

were used to describe the business profiles of local restaurants. The weighted mean was used to assess the extent of sustainability practices, the seriousness of the problems encountered in implementing sustainability, and the level of firm performance.

The following were used to analyze the mean ratings.

Extent of sustainability practices:

<i>Scale</i>	<i>Range of Values</i>	<i>Descriptor</i>	<i>Descriptive Interpretation</i>
5	4.51 - 5.00	Strongly Agree	Very great extent (VHE)
4	3.51 - 4.50	Agree	High extent (HE)
3	2.51 - 3.50	Somewhat Agree	Moderate Extent (ME)
2	1.51 - 2.50	Disagree	Low Extent (L)
1	1.00 - 1.50	Disagree	Very Low Extent (VLE)

Degree of seriousness of the problems encountered by local restaurants in practicing sustainability:

<i>Scale</i>	<i>Range of Values</i>	<i>Descriptor</i>	<i>Descriptive Interpretation</i>
5	4.51 - 5.00	Strongly Agree	Very serious (VS)
4	3.51 - 4.50	Agree	Serious (S)
3	2.51 - 3.50	Somewhat Agree	Moderately Serious (MS)
2	1.51 - 2.50	Disagree	Slightly serious (SS)
1	1.00 - 1.50	Strongly Disagree	Not a problem (NAP)

Level of firm performance:

<i>Scale</i>	<i>Range of Values</i>	<i>Descriptor</i>	<i>Descriptive Interpretation</i>
5	4.51 - 5.00	Strongly Agree	Very high (VH)
4	3.51 - 4.50	Agree	High (H)
3	2.51 - 3.50	Somewhat Agree	Moderate (M)
2	1.51 - 2.50	Disagree	Low (L)
1	1.00 - 1.50	Disagree	Very Low (VL)

Furthermore, the Mann–Whitney U test, Spearman's rho, and Pearson's r were used to assess relationships among the study variables.

The Statistical Package for the Social Sciences (SPSS) version 20 was used to analyze and interpret the data. The interpretation level will be set to 0.05.

Data presentation and analysis

The data are presented in accordance with the statement of the problem. The study answered the following questions:

Problem 1. What is the business profile of a local restaurant in terms of:

- 1.1 form of business organization;**
- 1.2 number of years of operation;**
- 1.3 average monthly sales; and**
- 1.4 average monthly net income?**

Table 1. Business profile of local restaurants in Laoag City, Ilocos Norte. (n=16)

	Frequency (f)	Percentage (%)
Form of business organization		
Sole Proprietorship	13	81.25
Partnership	0	0.00
Corporation	3	18.75
Others	0	0.00

Total	16	100.00
Number of years in operation		
3-5 years	6	37.50
6-8 years	4	25.00
9-11 years	0	0.00
More than 11 years	6	37.50
Total	16	100.00
Average monthly sales		
Php 100,000 and below	5	31.25
Php 100,001-Php 150,000	4	25.00
Php 150,001-Php 200,000	0	0
Php 200,001-Php 250,000	3	18.75
Above Php 250,000	4	25.00
Total	16	100.00
Average monthly net income		
Below Php 50,000	6	37.50
Php 50,001-Php 100,000	6	37.50
Php 100,001-Php 150,000	1	6.25
Above Php 150,001	3	18.75
Total	16	100.00

Source: Authors' own table (2025)

Table 1 presents the business profiles of the 16 participating local restaurants in Laoag City, Ilocos Norte.

Most establishments (81.25%) operate as sole proprietorships, while only 18.75% are corporations, indicating that the sector is largely composed of small, owner-managed businesses with direct managerial control and limited capitalization.

In terms of years of operation, 37.50% have been operating for 3–5 years, another 37.50% for more than 10 years, and 25% for 6–8 years. This balanced mix of newer and long-established restaurants suggests both industry resilience and continued entrepreneurial growth. Longer-operating businesses may have stronger systems and financial stability, which can support sustainability initiatives.

Regarding average monthly sales, 31.25% reported ₱100,000 or less, 25% earned ₱100,001–₱150,000, 18.75% reported ₱150,001–₱200,000, and 25% earned above ₱250,000, with none falling between ₱200,001–₱250,000. These figures show that most operate within the low- to mid-income range, though some generate higher revenues. Differences in sales may be influenced by business size, location, market reach, and marketing strategies. Restaurants with higher sales are likely to have greater financial flexibility to adopt sustainability measures, such as energy-efficient equipment, waste segregation systems, and eco-friendly packaging.

For average monthly net income, 37.50% earned below ₱50,000, another 37.50% earned ₱50,001–₱100,000, 6.25% earned ₱100,001–₱150,000, and 18.75% earned above ₱150,001. These results indicate generally modest profit margins typical of small and medium-sized enterprises, which may limit investment in capital-intensive sustainability programs unless clear cost-saving benefits are evident. However, the presence of more profitable establishments suggests that sustainability and financial success can coexist when effectively managed.

Overall, the restaurant sector in Laoag City is largely small-scale and owner-operated, with varying levels of financial capacity. As Matriano et al. (2017) noted, restaurants operate under different business structures—including sole proprietorships, partnerships, corporations, and franchises—but long-term sustainability ultimately depends on sound management and environmental responsibility. Beyond profit, these businesses are increasingly expected to uphold environmental integrity and sustainable practices.

Problem 2. To what extent do the local restaurants practice sustainability in terms of:

- 2.1 food quality;**
- 2.2 green marketing practices;**
- 2.3 Waste management; and**
- 2.4 Water and energy conservation?**

Table 2. Extent of sustainability practices of local restaurants in Laoag City, Ilocos Norte. (n=16)

Indicators	Mean	Interpretation
Food quality		
1. Our restaurant purchases from reputable vendors with recycling protocols practiced at the source.	4.06	HE
2. Our restaurant purchased products packaged in recyclable, returnable, reusable containers	3.88	HE
3. Our restaurant primarily uses organic food.	3.75	HE
4. Our restaurant uses certified sustainable seafood/fish.	3.88	HE
5. The restaurant's ingredients used in food were healthy and fresh.	4.25	HE
6. Our restaurant food has nutritional value.	4.19	HE
7. Our restaurant has hygiene standards that are followed by the restaurant for food preparation.	4.69	VHE
8. The clothes of our restaurant's work staff members appear clean	4.69	VHE
9. Our restaurant's safety compliance is monitored, and deviations are corrected.	4.50	HE
10. Our restaurant is committed to customers' health and safety and provides training to employees.	4.81	VHE
Composite mean	4.27	HE
Green marketing practices		
1. Our restaurant's commitment to using eco-friendly utensils and containers significantly influences the overall satisfaction of the customer's dining experience.	4.44	HE
2. Our restaurant uses eco-friendly disposable products such as disposable utensils and takeout boxes.	4.63	VHE
3. Our restaurant minimizes the use of plastic when storing food products inside the refrigerator.	4.06	HE
4. Our restaurants issue napkins that are made from recycled paper (brown tissue)	2.94	ME
5. Our restaurant serves a proper portion of food to reduce food waste	4.50	HE
6. Our restaurant has a non-smoking policy (non-smoking within the property) for indoor air quality.	4.31	HE

Table 2 continued

Indicators	Mean	Interpretation
7. Our restaurant places live green plants to improve the quality of indoor air.	4.25	HE
8. Our restaurant uses fewer non-biodegradable supplies for takeaways.	4.13	HE
9. Our restaurant is open to adopting new or improving existing management systems with respect to policies and practices.	4.38	HE
10. Through green marketing, our restaurant can obtain a green reputation and brand image, and it can attract a new and larger client base.	4.25	HE
Composite mean	4.19	HE

1. Our restaurant uses cloth towels and sponges in the kitchen rather than paper towels.	4.56	VHE
2. Our restaurant uses washable utensils and dishes and limits the use of reusable items when serving food.	4.81	VHE
3. Our restaurant recycles paper, plastic, cardboard, glass, and aluminum at the back of the house.	3.44	ME
4. Our restaurant segregates waste products efficiently.	4.31	HE
5. Our restaurant had no bottled water served on-site.	2.81	ME
6. Our restaurant minimizes the use of single-use plastics and other non-recyclable materials.	4.25	HE
7. Our restaurant incorporates composting for organic waste into its menus.	3.50	ME
8. Our restaurant uses small portions of food supplies to minimize food waste.	3.63	HE
9. Our restaurant adopts practices to reduce emissions.	3.69	HE
10. Our restaurant adopts practices to reduce solid and liquid waste.	3.88	HE
Composite mean	3.89	HE

Water and energy conservation

1. Our restaurant uses faucets with sensors to help conserve water.	3.13	ME
2. Our restaurant uses urinals and toilets with less use of water usage.	3.63	HE
3. Our restaurant uses electricity and power that are generated from different sources, such as wind and solar panel systems.	2.75	ME
4. Our restaurant has posted signs that encourage water conservation in kitchens and bathrooms.	4.06	HE

Indicators	Mean	Interpretation
5. Our restaurant uses eco-labelled equipment (e.g. Energy Star-certified refrigerators and freezers)	3.50	ME
6. Our restaurant is integrated with smart technologies to enhance water efficiency and conservation.	2.94	ME
7. Our restaurant does regular equipment upgrades to help conserve water.	3.44	ME
8. Our restaurant encourages guests and employees to follow energy-saving practices.	3.75	HE
9. Our restaurant is integrated with smart technologies to enhance energy efficiency and conservation.	3.38	ME
10. Our restaurant turns off the appliances to reduce energy consumption when not in use	4.13	HE
Composite mean	3.47	ME
Overall mean	3.96	HE

Sources: Lee et al. (2020); Chaturvedi et al. (2022); Cantele and Cassia (2020); Kim et al. (2025); Cuevas et al. (2020); Virola (2019); Indian et al. (2022); Juliette et al. (2025); and Nguyen et al. (2023)

Legend:

Range of Mean Values	Descriptive Interpretation
1.00 - 1.50	Very low extent (VLE)
1.51 - 2.50	Low extent (LE)
2.51 - 3.50	Moderate extent (ME)
3.51 - 4.50	High extent (HE)
4.51 - 5.00	Very great extent (VHE)

In Table 2, the highest-rated dimension of sustainability practices among local restaurants in Laoag City was *Food Quality*, with a composite mean of 4.27 interpreted as *High Extent (HE)*. This reflects a strong commitment to hygiene, safety, and customer health, as shown by very high ratings for adherence to hygiene standards, staff cleanliness, and employee training. These findings align with Gössling and Hall (2022) and Babakhani et al. (2019), who emphasized that sustainable restaurant

practices often center on food safety, hygiene, and kitchen efficiency. Similarly, Elkhwesky et al (2022) and Bux and Amicarelli (2025) highlighted that local sourcing and the use of fresh, organic ingredients reduce environmental impact while enhancing customer trust and dining quality—consistent with the strong emphasis on food integrity observed in Laoag City’s restaurants.

Conversely, the lowest-rated dimension was *Water and Energy Conservation*, with a composite mean of 3.47, indicating *Moderate Extent (ME)*. Indicators such as renewable energy use, smart conservation technologies, and eco-labelled equipment received relatively low scores, pointing to limited adoption of resource-efficient practices. This outcome corresponds with Abdulaziz-al-Hajjani et al. (2022), who noted that smaller establishments often struggle to adopt cost-intensive sustainability technologies due to financial constraints. Supporting industry reports, such as Refrigeration Design Technologies (2020), Cundy (2024), and Francis (2024), also confirm that high operational costs and outdated equipment remain major barriers to efficient resource management in restaurants. Thus, while local restaurants demonstrate strong adherence to food quality and hygiene standards, their limited implementation of energy- and water-saving practices reflects financial and technological limitations rather than a lack of environmental concern.

3. What is the degree of seriousness of the problems encountered by local restaurants in practicing sustainability?

Table 3. Degree of seriousness of the problems encountered by local restaurants in practicing sustainability in Laoag City, Ilocos Norte. (n=16)

Indicators	Mean	Interpretation
1. Implementing an environmental management system is too expensive for our restaurant.	3.50	MS
2. Our restaurant feels restricted by environmental regulations, which are difficult to enforce.	3.50	MS
3. Our restaurant disposes of its food waste in the form of compost (only foods allowed for composting).	3.31	MS
4. Our restaurant carries out intelligent ordering systems, inventory monitoring, and inventory rotation to avoid food waste.	4.00	S
5. Our restaurant assesses its food waste during food distribution.	3.94	S
6. Our local government mandates the segregation of waste in restaurants as part of the conditions for securing a business permit.	3.75	S
7. Our staff has a low level of awareness of sustainability principles (e.g., climate change, sustainable dining, consumption, and production).	4.44	S
8. Our restaurant has no strong campaign on environmental sustainability.	2.69	MS
9. Our restaurant struggles to allocate sufficient budget for sustainable practices.	3.19	MS
10. Our restaurant faces operational challenges when integrating eco-friendly materials into daily service.	2.81	MS
Overall mean	3.46	MS

Sources: Cantele and Cassia (2020); Maynard et al. (2020); and Icamina et al. (2021)

Table 3 shows the severity of sustainability-related challenges for local restaurants in Laoag City, Ilocos Norte. Overall, the mean score of 3.46 (Moderately Serious) indicates that while restaurants do face difficulties in practicing sustainability, these challenges are manageable rather than overwhelming. Many establishments are trying to adopt sustainable practices, but they face moderate barriers, including cost constraints, limited awareness, and technical constraints. This suggests the need for stronger support from both management and local authorities.

The most serious concern, with a mean of 4.44 (Serious), is the low level of staff awareness regarding sustainability principles, including climate change, sustainable dining, and responsible consumption. This highlights that without proper knowledge and training; sustainability initiatives may not be consistently implemented. It underscores the importance of continuous staff education and capacity-building programs.

On the other hand, the least serious concern, with a mean of 2.69 (Moderately Serious), is the lack of a strong environmental sustainability campaign. This suggests that most restaurants already have some form of advocacy or awareness effort in place, even if these initiatives are not extensive.

These findings align with those of Ho et al. (2021), Stöckli et al. (2018), Blum (2020), and Tehrani et al. (2020), who identified key barriers to sustainability in restaurants, including limited knowledge among owners and staff, inadequate waste management technologies, and operational complexity. Similarly, Boccia et al. (2021), Chaturvedi et al. (2021), and Kim et al. (2018) noted that the rapid expansion of the food service industry increases resource use and food waste, strengthening the call for sustainable practices. Di Vaio et al. (2019, 2020) further emphasized that the adoption of sustainability is essential to addressing these global challenges. Together, these studies support the present findings that while restaurants are making efforts, practical barriers remain moderately serious.

4. What is the level of firm performance of the local restaurants in terms of:

4.1 financial;

4.2 non-financial?

Table 4. Level of firm performance of local restaurants in Laoag City, Ilocos Norte. (n=16)

Indicators	Mean	Interpretation
Financial performance		
1. Our restaurant has experienced an increase in revenue (sales) due to sustainable practices.	3.13	M
2. Implementing sustainable practices improved the Return on Investment (ROI) and profitability of our restaurant.	3.38	M
3. Our net income (Profit before Taxes) has changed since implementing sustainable practices.	3.38	M
4. By implementing sustainable practices, our restaurant helps lower operational costs over time.	3.38	M
5. Our restaurant invests in energy-efficient systems (LED lighting, smart thermostats, and renewable energy sources), which can significantly reduce utility bills	3.88	H
6. Our restaurant uses water-saving technologies such as low-flow fixtures, water recycling systems, and efficient laundry processes to lower water bills and waste treatment costs.	3.56	H
7. Reducing, reusing, and recycling materials lowers the disposal costs of our restaurant.	3.88	H
8. Durable, eco-friendly materials often have lower maintenance costs and a longer lifespan, reducing repair and replacement costs.	3.81	H
9. Our restaurant receives tax incentives, rebates, or grants that encourage the adoption of green technologies and practices, thereby reducing the overall cost of sustainability investments.	3.13	M
10. Our restaurant offers discounted insurance premiums that invest in sustainable building practices or implement energy-saving measures.	3.13	M
Composite mean	3.46	M
Non-financial performance		
1. Our restaurant encourages the staff to volunteer for community projects, whether environmental cleanups, food drives, or educational support programs, demonstrating the commitment to community.	3.31	M
2. Stakeholder trust and satisfaction influence the financial and non-financial outcomes of our restaurant.	3.13	M
3. Our decision to promote Sustainable Food Practices (SFPs) is influenced by the competitive advantage gained.	3.56	H
4. Our restaurant can seize new market opportunities	4.06	H

5. Our restaurant has improved its corporate image.	4.06	H
6. Informing customers of our restaurant's sustainability initiatives and encouraging their participation.	3.50	M
7. Hosting sustainability workshops, such as cooking classes using local ingredients or upcycling craft sessions, offers guests fun and meaningful experiences.	3.06	M
8. Collaborating with community members to establish and maintain gardens can promote food security, biodiversity, and sustainable agriculture while fostering a sense of community pride and ownership.	3.75	H
9. Working with local nonprofit organizations and social enterprises on sustainability initiatives—such as tree planting, beach cleanups, or water conservation efforts—amplifies the impact of the restaurant’s contributions to environmental and social causes.	3.44	M
10. Organize workshops for residents and businesses to promote sustainability topics such as waste reduction, recycling, energy conservation, and responsible tourism practices.	4.00	H
Composite mean	3.59	H
Overall mean	3.53	H

Sources: Maniatis and Maniatis (2024); Garcia (2024); and Abdou et al. (2023)

Table 4 presents the level of performance of local restaurants in Laoag City across financial and non-financial outcomes.

The overall mean of 3.53 (High) indicates that restaurants generally demonstrate strong firm performance alongside their sustainability efforts. This suggests that integrating sustainable practices contributes not only to operational efficiency but also to improved competitiveness, reputation, and stakeholder relationships. Sustainability appears to function as a strategic advantage in the local food industry.

Financial performance. The composite mean of 3.46 (Moderate) shows that while restaurants recognize financial benefits from sustainability, these gains are not yet fully maximized. Improvements in cost control and operational efficiency are evident, but increases in profit, return on investment, and external incentives remain moderate. Initial transition costs may partly explain this pattern, though long-term adoption of eco-efficient systems may lead to greater savings.

The highest mean of 3.88 (High) was recorded for two indicators: investment in energy-efficient systems (e.g., LED lighting, smart thermostats, renewable energy), reducing utility bills, and reducing, reusing, and recycling materials, lowering disposal costs. These findings confirm that energy efficiency and waste reduction provide the most immediate and visible financial returns.

The lowest mean of 3.13 (Moderate) is associated with increased revenue due to sustainable practices (Maniatis & Maniatis, 2024), access to tax incentives or grants (Garcia, B., 2024), and discounted insurance premiums for sustainability measures (Garcia, B., 2024). This suggests that while internal cost savings are evident, external financial incentives and revenue growth directly linked to sustainability remain limited. Strengthened government support and policy incentives could further encourage sustainable adoption.

Non-financial performance. With a composite mean of 3.59 (High), restaurants show strong non-financial gains from sustainability practices. These include improved brand image, stronger customer trust, and greater community involvement (Abdou, Salem, & Hassan, 2023; Garcia, 2024). Sustainability enhances stakeholder relationships and supports long-term business stability beyond immediate financial returns (Maniatis & Maniatis, 2024).

The highest mean of 4.06 (High) was shared by “seizing new market opportunities” and “improving corporate image” (Garcia, B., 2024). This indicates that sustainability strengthens competitive positioning and attracts environmentally conscious customers. Green practices are viewed as both a marketing asset and a strategic differentiator.

The lowest mean of 3.06 (Moderate) relates to hosting sustainability workshops and experiential activities. While valued, these initiatives may not yet be prioritized due to resource or expertise constraints.

These findings align with those of Samad (2022) and Mitra (2021), who emphasized that firm performance encompasses both financial and non-financial indicators. Karabulut (2015) further noted that tools such as the Balanced Scorecard enhance strategic alignment and organizational improvement, thereby reinforcing the link between sustainability and performance. Gomes et al. (2023), Gnonlonfoun (2017), and Esfahbodi et al. (2016) highlighted that efficient operations, green procurement, and waste reduction improve competitiveness and cost savings—consistent with the present findings. Meanwhile, Norton et al. (2015), Shi et al. (2022), Li et al. (2022), Mahmood et al. (2021), and Harwood (2020) affirmed that sustainability enhances employee engagement, brand reputation, and competitive advantage, supporting the strong non-financial performance observed among Laoag City restaurants.

5. Is there a significant relationship between the business profile of local restaurants and the extent of their sustainable practices in terms of:

5.1 Food quality

5.2 green marketing practices;

5.3 Waste management; and

5.4 Water and energy conservation?

Table 5.1. Mann–Whitney U test results on the difference in the extent of sustainable practice when grouped according to form of ownership (n=16)

Sustainable practices	Form of ownership with higher mean rank	Mean rank (sole proprietorship)	Mean Rank (Corporation)	Mann–Whitney U	Z	p-value
Food quality	Sole proprietorship	8.96	6.50	13.500	-.811	.417
Green marketing practices	Sole proprietorship	9.38	4.67	8.000	-1.551	.121
Waste management	Sole proprietorship	9.00	6.33	13.000	-.884	.377
Water and energy conservation	Sole proprietorship	9.31	5.00	9.000	-1.418	.156

Source: Authors' own table (2025)

Table 5.1 presents the Mann–Whitney U test results on variations in sustainable practices by ownership type among local eateries in Laoag City. The data reveal that sole proprietorships consistently achieved higher mean ranks across all sustainable practice dimensions—food quality, green marketing practices, waste management, and water and energy conservation—than corporations.

However, the computed p-values for all variables (ranging from 0.121 to 0.417) exceed the 0.05 threshold. This indicates that there is no statistically significant variation in the extent of sustainable practices between sole proprietorships and corporations. This means that both types of ownership demonstrate relatively similar levels of engagement in sustainable business practices.

The findings imply that the form of ownership does not substantially influence the sustainability initiatives of local eateries in Laoag City. Regardless of whether the business is a sole proprietorship or a corporation, owners appear to adopt sustainable practices based on their awareness, resources, and operational needs rather than ownership structure (Matriano et al., 2017).

This result further suggests that sustainability initiatives and support programs—such as training on food safety, waste reduction, and energy efficiency—should be equally promoted to all local eateries, regardless of ownership form. The Bureau of Internal Revenue (BIR), City Government of Laoag, and relevant agencies may consider developing uniform sustainability

guidelines and incentives applicable to both sole proprietorships and corporations to foster a more consistent and inclusive approach to sustainable business operations.

According to Matriano et al. (2017), restaurants—regardless of size or form of ownership—share the same objective of maintaining profitability while upholding environmental integrity, which supports the result that the form of business organization does not significantly influence sustainability practices.

Table 5.2. Spearman's rho correlation coefficients were obtained to assess the relationship between the business profile, measured by years of operation, and the extent of their sustainable practices. (n=16)

Extent of practice on sustainability		Number of years of operations
Food quality	ρ	-.165
	(Sig. 2-tailed)	.541
Green marketing practices	ρ	.008
	(Sig. 2-tailed)	.977
Waste management	ρ	.000
	(Sig. 2-tailed)	1.000
Water and energy conservation	ρ	.189
	(Sig. 2-tailed)	.484

Source: Authors' own table (2025)

The Spearman's rho correlation analysis indicates that the length of time a restaurant has been operating is not significantly associated with the level of sustainability practices implemented in Laoag City, Ilocos Norte, since all p-values exceeded the 0.05 threshold for statistical significance.

Specifically, the correlation coefficients (ρ) ranged from -0.165 to 0.189 , indicating very weak relationships — both positive and negative — between years of operation and each dimension of sustainability (food quality, green marketing practices, waste management, and water and energy conservation). The negative coefficient in food quality ($\rho = -0.165$) suggests a slight inverse trend, meaning newer restaurants may engage in sustainability-related food quality practices as much as, or even slightly more than, older ones, though the relationship is statistically insignificant.

Similarly, the near-zero correlations in green marketing ($\rho = 0.008$) and waste management ($\rho = 0.000$) indicate that sustainability initiatives in these areas are not influenced by the restaurant's operating time. Even the weak positive association between water and energy conservation ($\rho = 0.189$) remains insignificant ($p = 0.484$), indicating that the implementation of these practices is not related to business length.

According to Dunlap et al. (2016), business experience and longevity do not automatically translate to better sustainability performance, as newer firms can also be innovative and adaptable in implementing sustainable practices—consistent with the weak and insignificant correlations found between years of operation and sustainability dimensions.

Table 5.3. Spearman's rho correlation coefficients were obtained to assess the relationship between the business profile, measured by average monthly sales, and the extent of their sustainable practices. (n=16)

Extent of practice on sustainability		Average monthly sales
Food quality	ρ	-.248
	(Sig. 2-tailed)	.354
Green marketing practices	ρ	-.495
	(Sig. 2-tailed)	.051
Waste management	ρ	-.720**
	(Sig. 2-tailed)	.002
Water and energy conservation	ρ	-.278
	(Sig. 2-tailed)	.298

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Authors' own table (2025)

The Spearman's rho correlation analysis shows a significant negative relationship between average monthly sales and the extent of waste management practices among local restaurants in Laoag City ($\rho = -0.720$, $p = 0.002$). This indicates that as sales increase, the extent of waste management practices tends to decrease, and vice versa. The strong negative correlation suggests that restaurants with higher sales may face greater operational pressures, possibly leading to less focus on waste segregation, recycling, or composting activities due to the fast-paced nature of their business operations.

Conversely, the relationships between average monthly sales and the other sustainability dimensions — food quality ($\rho = -0.248$, $p = 0.354$), green marketing practices ($\rho = -0.495$, $p = 0.051$), and water and energy conservation ($\rho = -0.278$, $p = 0.298$) — were not statistically significant. Although green marketing practices show a moderate negative correlation that approaches significance ($p = 0.051$), this still suggests that higher-selling restaurants are not necessarily more engaged in eco-friendly marketing or operational initiatives.

The significant inverse correlation between sales and waste management suggests that as restaurants in Laoag City grow and generate higher revenues, they may struggle to maintain consistent waste-reduction and recycling systems. This could be due to increased customer turnover, time constraints, or insufficient waste handling infrastructure as operations expand.

The lack of significant relationships in other sustainability areas suggests that financial performance alone does not dictate a restaurant's level of sustainability engagement. Efforts toward energy efficiency, water conservation, or sustainable sourcing may depend more on management values, staff awareness, and customer expectations than on sales volume.

Pereira-Moliner et al. (2021) found that while financial strength can facilitate sustainability initiatives, their actual implementation depends more on organizational commitment and long-term strategic orientation than on sales performance alone. These studies collectively support the finding that while higher revenues may coincide with weaker waste management, other sustainability practices are shaped primarily by management values and operational focus rather than financial capacity.

Table 5.4. Spearman rho correlation coefficients obtained on the test of relationships between the business profile in terms of average monthly net income and the extent of their sustainable practices (n=16)

Extent of practice on sustainability		Average monthly net income
Food quality	ρ	-.489
	(Sig. 2-tailed)	.055
Green marketing practices	ρ	-.671**
	(Sig. 2-tailed)	.004
Waste management	ρ	-.647**
	(Sig. 2-tailed)	.007
Water and energy conservation	ρ	-.511*
	(Sig. 2-tailed)	.043

****.** Correlation is significant at the 0.01 level (2-tailed).

***.** Correlation is significant at the 0.05 level (2-tailed).

Source: Authors' own table (2025)

The Spearman's rho correlation analysis reveals a significant negative relationship between average monthly net income and most sustainability practices among local restaurants in Laoag City. Specifically, green marketing practices ($\rho = -0.671$, $p = 0.004$), waste management ($\rho = -0.647$, $p = 0.007$), and water and energy conservation ($\rho = -0.511$, $p = 0.043$) all demonstrate significant negative relationships with net income. This indicates that restaurants with higher net income tend to engage less in sustainability initiatives, while those with lower net income tend to exhibit stronger adherence to such practices.

Meanwhile, the relationship between food quality and net income ($\rho = -0.489$, $p = 0.055$) is negative but not statistically significant, suggesting that sustainable food quality efforts—such as using locally sourced ingredients or minimizing food waste—may not depend directly on profitability.

These findings collectively imply that financially successful restaurants do not necessarily prioritize environmental

sustainability, possibly due to operational demands, cost-cutting priorities, or the absence of sustainability within their business frameworks.

Siahaan and Tan (2022) emphasized that many businesses, particularly in competitive markets, prioritize growth and profitability over environmental initiatives when financial performance is strong, thereby reducing emphasis on green marketing, waste management, and conservation efforts.

Therefore, H_{a1} is partially accepted, as significant associations between business profile and sustainability practices only in specific areas — namely waste management, green marketing, and water and energy conservation — when associated with business profile indicators (average monthly net sales and average monthly net income).

6. Is there a significant relationship between the extent of sustainable practices and the degree of seriousness of the problems encountered by local restaurants in practicing sustainability?

Table 6. Pearson correlation results on the relationship between the extent of sustainable practices and the degree of seriousness of the problems encountered by local restaurants in their sustainability practices. (n=16)

Sustainable practices		Problems encountered by local restaurants in practicing sustainability
Food quality	r	-.773**
	(Sig. 2-tailed)	.000
Green marketing practices	r	-.869**
	(Sig. 2-tailed)	.000
Waste management	r	-.735**
	(Sig. 2-tailed)	.001
Water and energy conservation	r	-.635**
	(Sig. 2-tailed)	.008

** Correlation is significant at the 0.01 level (2-tailed).

Table 6 presents the Pearson correlation results for the relationship between the extent of sustainable practices and the severity of challenges local restaurants face in practicing sustainability. The findings reveal that all aspects of sustainability—food quality ($r = -0.773$, $p = 0.000$), green marketing practices ($r = -0.869$, $p = 0.000$), waste management ($r = -0.735$, $p = 0.001$), and water and energy conservation ($r = -0.635$, $p = 0.008$)—have significant negative correlations at the 0.01 level. This indicates that the greater the extent of sustainable practices adopted by local restaurants, the less serious the problems they experience in implementing them. In other words, restaurants that have integrated sustainability more deeply into their operations tend to encounter fewer challenges in maintaining these initiatives. Notably, the strongest inverse relationship is observed in green marketing practices, suggesting that as restaurants become more active in promoting environmentally friendly products and services, the obstacles they face in sustainability efforts significantly lessen.

These findings imply that strengthening the implementation of sustainable practices can effectively reduce the challenges restaurants face. By continuously improving their systems for food quality management, green marketing, waste handling, and resource conservation, local restaurants can not only enhance operational efficiency but also mitigate the difficulties associated with sustainability efforts.

Hence, the second alternative hypothesis (H_{a2}) is accepted, confirming that a significant relationship exists between the extent of sustainable practices and the severity of the challenges local restaurants face in implementing sustainability.

Ho et al. (2021). Stöckli et al. (2018) and Blum (2020) identified that many of the problems encountered in restaurant sustainability—such as lack of knowledge, operational complexity, and limited eco-waste management—can be mitigated as businesses strengthen their sustainability systems and practices. This supports the observed significant negative correlations, indicating that the more comprehensive and consistent the sustainability efforts are, the fewer challenges are experienced.

Similarly, Maynard et al. (2020) emphasized that implementing structured sustainability indicators—such as waste reduction, responsible sourcing, and recycling programs—leads to improved efficiency and decreased operational barriers, aligning with the study’s finding that increased sustainable practices lessen problem severity. Madanaguli et al. (2022) and Apak & Gürbüz (2022) also noted that restaurants adopting integrated environmental management systems experience fewer sustainability-related difficulties due to improved organizational adaptation and greater stakeholder involvement.

7. Is there a significant relationship between the business profile of local restaurants and their level of firm performance in terms of:

7.1 Financial Performance

7.2 Non-financial performance?

Table 7.1. Mann–Whitney U test results on the difference in the level of firm performance when grouped according to form of ownership (n=16)

Firm performance	Form of Ownership with Higher Mean Rank	Mean Rank (Sole Proprietorship)	Mean Rank (Corporation)	Mann–Whitney U	Z	p-value
Financial	Sole proprietorship	9.27	5.17	9.500	-1.347	.178
Non-financial	Sole proprietorship	9.08	6.00	9.000	-1.020	.308

Source: Authors’ own table (2025)

Table 7.1 presents the Mann–Whitney U test results examining differences in firm performance across forms of ownership among local restaurants in Laoag City. Across both financial and non-financial dimensions of firm performance, sole proprietorships recorded higher mean ranks than corporations.

However, the p-values for both financial (0.178) and non-financial performance (0.308) both exceed the 0.05 threshold, indicating that the observed differences are not statistically significant. This suggests that there is no substantial difference in firm performance between sole proprietorships and corporations among local restaurants.

The findings imply that the form of ownership does not significantly affect the performance of local restaurants in Laoag City. Both sole proprietorships and corporations demonstrate comparable financial and non-financial performance.

Matriano et al. (2017) stated that restaurants, regardless of their business form—sole proprietorship, partnership, or corporation—share the same goal of achieving profitability while maintaining environmental and operational sustainability, supporting the conclusion that ownership structure does not significantly affect firm performance.

Table 7.2. Spearman's rho correlation coefficients were obtained to assess the relationship between the business profile, measured by years of operation, and firm performance. (n=16)

Firm Performance	Number of years of operations
Financial performance	ρ (Sig. 2-tailed)
	-1.102 .707
Non-financial performance	ρ (Sig. 2-tailed)
	.214 .427

Source: Authors’ own table (2025)

Table 7.2 presents the Spearman’s rho correlation results examining the link between years of operation and firm performance among local restaurants in Laoag City, Ilocos Norte. The computed correlation coefficients show very weak relationships for both financial performance ($\rho = -0.102$, $p = 0.707$) and non-financial performance ($\rho = 0.214$, $p = 0.427$). Since both p-values exceed the 0.05 significance threshold, the results indicate that the length of time a restaurant has been in operation is not significantly related to its overall performance.

This means that the longevity of business operations does not guarantee better financial or non-financial performance. Both

newly established and long-standing restaurants exhibit comparable levels of profitability, operational efficiency, customer satisfaction, and community involvement. The weak and insignificant correlations suggest that performance outcomes are determined by variables such as management capability, marketing effectiveness, innovation, and responsiveness to customer preferences rather than by the length of time in business.

These findings imply that sustained performance in the restaurant industry depends more on adaptive strategies, quality service, and customer engagement rather than business age. Hence, both new and established establishments can achieve high performance by effectively aligning their operations with market demands and sustainability-driven practices.

Lee, Hallak, and Sardeshmukh (2016) emphasized that organizational performance in the restaurant industry is better explained by innovation capability, service quality, and adaptability rather than the length of business operation.

Table 7.3. Spearman's rho was computed to assess the relationship between the business profile (measured by average monthly sales) and firm performance. (n=16)

Firm performance		Average monthly sales
Financial performance	ρ	-.458
	(Sig. 2-tailed)	.074
Non-financial performance	ρ	-.540*
	(Sig. 2-tailed)	.031

***. Correlation is significant at the 0.05 level (2-tailed).**

Table 7.3 presents Spearman's rho correlation results used to assess the relationship between local restaurants' average monthly sales and their level of firm performance.

For financial performance, the computed correlation coefficient (ρ) is -0.458 has a significance value of 0.074, which exceeds the 0.05 threshold. This reflects a negative but statistically insignificant relationship between average monthly sales and financial performance. In other words, changes in sales do not necessarily correspond to significant changes in the restaurant's financial outcomes, such as profitability or revenue efficiency.

However, for non-financial performance, the correlation coefficient (ρ) is -0.540, with a p-value of 0.031, which is less than 0.05. This indicates a moderate, statistically significant negative relationship between average monthly sales and non-financial performance. This implies that restaurants with higher sales often report lower levels of customer satisfaction, employee engagement, and operational efficiency, while those with lower sales show stronger performance in these areas.

The results imply that while higher sales figures may not directly improve a restaurant's financial metrics, they might actually negatively affect non-financial performance metrics. This could occur when restaurants prioritize sales growth over service quality or staff well-being, leading to operational strain or reduced customer satisfaction.

Sok and O'Cass (2015) and Lee, Hallak, and Sardeshmukh (2016) emphasized that rapid business growth without corresponding innovation or employee support can reduce customer satisfaction and internal performance levels, consistent with the observed decline in non-financial performance among higher-selling restaurants.

Table 7.4. Spearman's rho correlation coefficients were obtained to assess the relationship between the business profile, measured by average monthly net income, and firm performance. (n=16)

Firm performance		Average monthly net income
Financial performance	ρ	-.540*
	(Sig. 2-tailed)	.031
Non-financial performance	ρ	-.610*
	(Sig. 2-tailed)	.012

*. **Correlation is significant at the 0.05 level (2-tailed).**

Source: Authors' own table (2025)

Table 7.4 presents the Spearman rho correlation results between the average monthly net income of local restaurants and their level of firm performance.

For financial performance, the computed correlation coefficient (ρ) is -0.540 with a p-value of 0.031, which is significant at the 0.05 level. This indicates a moderate negative and statistically significant relationship between net income and financial performance. In practical terms, this means that restaurants with higher net incomes tend to report lower financial performance ratings, and vice versa. This inverse relationship may suggest that while some restaurants earn higher profits, their perceived or reported financial performance—possibly in terms of efficiency, liquidity, or stability—may not improve in proportion to those profits due to higher operating costs or management challenges that accompany income growth.

For non-financial performance, the correlation coefficient (ρ) is -0.610 with a p-value of 0.012, which is significant at the 0.05 level. This indicates a stronger negative, statistically significant association, suggesting that as restaurants' net income rises, their non-financial outcomes—such as customer satisfaction, employee morale, and innovation—decline.

These findings imply that while financial success is desirable, it may come at the expense of both financial and non-financial aspects of performance. Higher net income could result from aggressive sales strategies, cost-cutting, or increased workload, which might strain employees or reduce focus on service quality and sustainability.

The findings are supported by several studies cited in the document. Abdulaziz-al-Hajjani et al. (2022) and Siahaan and Tan (2022) explained that as restaurants achieve higher profitability, they often shift focus toward financial gains rather than sustainability and employee well-being, which can negatively affect both financial efficiency and non-financial outcomes—consistent with the observed significant negative correlations between net income and firm performance.

Based on the foregoing, H_{a3} is partially accepted. The results show no significant relationship between the form of business organization or years of operation and firm performance, whether financial or non-financial. However, significant associations are observed between average monthly net income and both financial and non-financial performance, and between average monthly sales and non-financial performance.

8. Is there a significant relationship between the extent of sustainable practices of local restaurants and the level of their firm performance in terms of:

8.1 Financial Performance

8.2 Non-financial performance?

Table 8. Pearson's correlation coefficient for the relationship between the extent of sustainable practices in local restaurants and the level of their firm performance. (n=16)

Sustainable practices		Firm performance	
		Financial performance	Non-financial performance
Food quality	r	.516*	.500*
	(Sig. 2-tailed)	.041	.049
Green marketing practices	r	.641**	.698**
	(Sig. 2-tailed)	.007	.003
Waste management	r	.693**	.849**
	(Sig. 2-tailed)	.003	.000
Water and energy conservation	r	.766**	.621*
	(Sig. 2-tailed)	.001	.010

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Table 8 presents the Pearson-r correlation results on the relationship between the extent of sustainable practices of local restaurants and their level of firm performance, measured in terms of financial and non-financial performance. The results revealed that all sustainable practice indicators are positively correlated with both financial and non-financial performance, with correlation coefficients ranging from 0.500 to 0.849, all statistically significant at the 0.05 or 0.01 level. Specifically, food quality shows a moderate positive correlation with financial performance ($r = 0.516$, $p = 0.041$) and non-financial performance ($r = 0.500$, $p = 0.049$). Green marketing practices exhibit a strong positive correlation with financial ($r = 0.641$, $p = 0.007$) and non-financial ($r = 0.698$, $p = 0.003$) performance. Similarly, waste management demonstrates a strong positive relationship with financial ($r = 0.693$, $p = 0.003$) and non-financial ($r = 0.849$, $p = 0.000$) performance. Lastly, water and energy conservation also show a strong positive correlation with both financial ($r = 0.766$, $p = 0.001$) and non-financial ($r = 0.621$, $p = 0.010$) performance.

These results indicate that the greater the extent of sustainable practices implemented by local restaurants, the higher their performance levels. Restaurants that prioritize sustainable operations tend to experience not only improved financial outcomes, such as profitability and efficiency, but also enhanced non-financial performance, including customer satisfaction, employee well-being, and innovation capacity.

The findings imply that sustainability is a key driver of business success among local restaurants. Implementing sustainability initiatives—such as improving food quality, adopting green marketing strategies, managing waste efficiently, and conserving water and energy—can lead to tangible and intangible benefits. These practices enhance brand reputation, attract environmentally conscious customers, and improve cost efficiency, thereby contributing to both financial gains and overall organizational growth.

Sardana et al. (2020) found that environmental practices are linked to firm performance, driven by awareness of sustainability, consumerism, and government regulations in emerging economies. Sustainability in restaurants is examined, focusing on environmental practices and factors driving sustainability and firm performance (Higgins-Desbiolles et al., 2017).

Therefore, H_{a4} is accepted. There is a significant relationship between the extent of sustainable practices in local restaurants and their firm performance, as measured by financial and non-financial indicators.

9. Is there a significant relationship between the degree of seriousness of the problems encountered by local restaurants and the level of their firm performance in terms of:

9.1 Financial Performance

9.2 Non-financial performance?

Table 9. Pearson's correlation result on the relationship between the degree of seriousness of the problems encountered by local restaurants and the level of their firm performance. (n=16)

Firm performance		Problems encountered by local restaurants in practicing sustainability
Financial performance	r	-.739**
	(Sig. 2-tailed)	.001
Non-financial performance	r	-.715**
	(Sig. 2-tailed)	.002

****Correlation is significant at the 0.01 level (2-tailed).**

Source: Authors' own table (2025)

Table 9 presents Pearson correlation results for the relationship between the seriousness of the problems local restaurants encounter in implementing sustainability and their firm performance. The results showed a significant negative correlation between the seriousness of problems and both financial performance ($r = -0.739$, $p = 0.001$) and non-financial performance ($r = -0.715$, $p = 0.002$), both significant at the 0.01 level (2-tailed). This indicates that as the seriousness of problems

encountered during the implementation of sustainability increases, firm performance decreases. Conversely, restaurants that experience fewer and less serious challenges in adopting sustainable practices tend to perform better both financially and non-financially.

The findings imply that overcoming or minimizing sustainability-related problems is crucial to achieving strong business performance. When local restaurants effectively address issues such as resource constraints, limited knowledge, or operational constraints in sustainability implementation, they are more likely to achieve better financial outcomes—such as profitability and cost efficiency—and stronger non-financial results, including customer satisfaction, employee morale, and innovation.

Bagur-Femenias et al. (2015) and Sardana et al. (2020) found that effective implementation of environmental and sustainability practices enhances firm competitiveness and performance, while operational and managerial challenges weaken both financial and non-financial outcomes—supporting the negative correlation between the seriousness of problems and firm performance. Similarly, Ho et al. (2021), Stöckli et al. (2018), and Blum (2020) identified that sustainability-related problems, such as lack of knowledge, technological limitations, and operational inefficiencies, significantly hinder business effectiveness, aligning with the finding that greater problem severity corresponds to lower performance levels.

Hence, the fifth alternative hypothesis (H_{a5}) — that there is a significant relationship between the degree of seriousness of the problems encountered by local restaurants and the level of their firm performance in terms of (a) financial performance and (b) non-financial performance — is accepted.

Results and discussion

The business profile of local restaurants in Laoag City shows that the sector is largely composed of small, owner-managed enterprises with limited but varying financial capacity. This reflects a hands-on management style typical of small and medium-sized businesses.

The findings reveal a strong implementation of sustainability practices in food quality, green marketing, waste management, and water and energy conservation. Most restaurants demonstrate commitment to food safety, waste reduction, and eco-friendly operations. Sustainability is viewed not only as an ethical responsibility but also as a practical means of improving efficiency and building customer trust.

Although restaurants encounter moderate challenges—such as limited funds, low awareness, and technical constraints—these do not prevent them from pursuing environmental initiatives.

In terms of performance, restaurants show a high overall level. Financial performance is moderate, indicating partial realization of cost savings and efficiency gains, while non-financial performance is high, reflecting improvements in reputation, customer satisfaction, and community engagement.

Statistical results indicate that business form and years of operation do not significantly affect sustainability practices or firm performance. This suggests that sustainability commitment depends more on management values, innovation, and operational efficiency than on business structure or longevity (Matriano et al., 2017).

Negative correlations were found between sales and waste management, and between net income and most sustainability dimensions, suggesting that higher-earning restaurants may prioritize operational demands over sustainability initiatives. In contrast, lower-income restaurants tend to be more resource-conscious.

A strong negative relationship was also found between the seriousness of sustainability problems and firm performance. Restaurants that effectively manage sustainability challenges perform better both financially and non-financially. Overall, the findings confirm that stronger sustainability practices are associated with fewer operational problems and higher business performance, highlighting sustainability as a driver of long-term success in Laoag City's restaurant sector (Cantele & Cassia, 2020; Da Costa Maynard et al., 2020; Icamina et al., 2021).

This study contributes to sustainability and hospitality literature by providing empirical evidence from locally established restaurants in Laoag City, a setting that remains underrepresented in research. The results show that sustainability practices—particularly in food quality, waste management, green marketing, and resource conservation—are significantly linked to firm performance. These findings support performance frameworks such as the Balanced Scorecard, demonstrating that sustainability enhances not only financial outcomes but also non-financial aspects, including corporate image, stakeholder trust, and market opportunities. Moreover, the negative relationship between sustainability practices and the seriousness of problems suggests that integrating sustainability can reduce operational challenges rather than increase them.

Practically, the results show that sustainability delivers measurable benefits for small, owner-managed restaurants. Cost-saving strategies like waste reduction and energy efficiency improve operational performance, while green marketing and responsible sourcing strengthen reputation and competitiveness. Restaurant owners and managers can enhance overall performance by embedding sustainability into daily operations through staff training, standardized procedures, and consistent monitoring of resources. The findings also highlight the role of institutional support. Local government units and policymakers can encourage broader adoption by offering incentives, technical assistance, capacity-building programs, and partnerships with local producers, and by recognizing sustainable businesses.

Despite these contributions, the study has limitations. The sample size of 16 restaurants limits generalizability. The use of self-reported data may introduce response bias, and the descriptive-correlational design does not establish causality. Additionally, the study focused on managerial perspectives and did not include customer or employee viewpoints, which are important for assessing non-financial outcomes.

Future research may expand the sample to include other cities or regions and incorporate variables such as customer satisfaction, employee engagement, and consumer perceptions. Longitudinal studies are recommended to assess the long-term effects of sustainability on performance. Further research may also explore digital and technological innovations—such as energy-monitoring systems and waste-tracking tools—to strengthen sustainability implementation and improve firm performance in the restaurant sector.

Conclusion

This study examined sustainable practices and their effects on the performance of local restaurants in Laoag City, Ilocos Norte, Philippines. Local restaurants in Laoag City reveal a sector largely composed of small-scale, owner-operated enterprises with varying levels of financial capacity. The extent of sustainability practices implemented by local restaurants is great. Challenges were found to be moderately serious, which suggests that while sustainability-related challenges are present, they are not deemed overwhelming by most local restaurants. The level of firm performance of local restaurants in Laoag City, Ilocos Norte, is high relative to their sustainability efforts. Correlation and difference analyses revealed that the business profile had a significant relationship with sustainability practices in specific areas (waste management, green marketing, and water and energy conservation), thus partially supporting Ha1. A significant relationship was found between the extent of sustainable practices and the severity of problems encountered by local restaurants, supporting Ha2. No significant relationship between the form of business organization or years of operation and firm performance was observed, while significant relationships between average monthly net income and financial/non-financial performance, and average monthly sales and non-financial performance, were detected, thus partially supporting Ha3. The extent of sustainable practices showed a significant positive relationship with firm performance in both financial and non-financial aspects, supporting Ha4. Lastly, a significant relationship between the seriousness of problems encountered and firm performance was observed, supporting Ha5. Therefore, the study generally concludes that sustainability integration enhances restaurant performance by improving efficiency, profitability, and customer satisfaction while reducing operational challenges.

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