ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XII Issue V May 2025

# The Sustainability and Financial Growth of Patupat and Muscovado Sugar Producers in Santiago City

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**DOI: https://doi.org/10.51244/IJRSI.2025.120500017**

**Received: 21 May 2025; Accepted: 27 May 2025; Published: 28 May 2025**

## ABSTRACT

This study aims to evaluate the sustainability and growth of patupat and muscovado sugar enterprises in Bannawag Santiago City. This study employed an explanatory sequential mixed-methods design to assess the sustainable practices and financial growth of Patupat and Muscovado sugar producers in Bannawag Norte, Santiago City. Using total enumeration, all 11 local producers served as respondents. Data were collected through a validated, reliable survey and semi-structured interviews, with additional insights from archival analysis. Conducted in the area known for sugarcane farming, the study used descriptive statistics and thematic analysis to interpret findings. Findings revealed that producers implement sustainable practices by using organic fertilizers and repurposing sugarcane remnants, while also contributing to local employment. Financially, they demonstrated growth in profitability, liquidity, and solvency, with optimism about business continuity. However, the study found no significant relationship between sustainable practices and financial growth. Producers also faced challenges such as competition, rising production costs, and seasonal fluctuations impacting their operations.

**Keywords:** Sustainability, Financial Growth, Patupat, Muscovado

## INTRODUCTION

Sugar is an important crop in the Philippines, grown across the country but especially abundant in the Visayas, particularly on Negros Island. Sugarcane output was $815 million in 2020, making it the fifth most valuable commodity after rice, bananas, corn, and coconut. Sugar is primarily eaten locally, with a minor fraction exported to the United States as part of the tariff-rate quota. Historically, the Philippines exported more than half of its sugar production to the United States, but exports have decreased dramatically as domestic demand has increased. For Fiscal Year 2021, the Philippine allocation is 138,154 metric tons commercial weight. The United States is currently the sole export market of Philippine raw sugar, where it is used by some sugar refineries on the west coast (United States Department of Agriculture, 2020).

Philippine sugarcane industry is contributing a lot of employment particularly in agriculture sector as a means of income for family subsistence. Sugarcane cultivation is typically undertaken by rich individuals or farmers with large land holdings and the ability to invest funds for commercial scale. Typically, this crop is grown to create sugar for both domestic and export markets. Because of their limited resources, small farmers rarely engage in sugarcane cultivation. In areas of the Philippines such as Negros, Tarlac, Cagayan, Mindanao, Panay, and others, it was discovered that large sugarcane growers or "Hacienderos" used people ("Sakadas") to complete the regular farm work from planting to harvesting sugarcane throughout the year.

Farmers in Bannawag Norte, Santiago City, Norther Luzon, are demonstrating how marginal and smallholding highland farms can be used to generate a very productive and progressive living that supports the community's economy. The community's development was aided by the Department of Agriculture and the City Government of Santiago, and they are now well-known for their One-Town-One Product (OTOP) "Patupat" (glutinous rice cooked by dipping in boiling sugarcane juice) (Peace Corps, 2020). They began engaging in this type of venture in 1988 and continue to do so now. The farmers grow sugarcane, process it, and market it directly within the community. Value-added activities and product promotion are village-style activities

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involving family members, with women and small children playing an especially important role. They made a variety of organic sugarcane products, including "patupat", vinegar, "tagapulot", wine, and mascovado sugar. The earnings were sufficient to support the social and economic advancement of their respective families. They were able to buy processing equipment, improve their farming operations, set up product display centers along the Santiago-Quirino Road, and send their children to school.

This study is consistent with the Sustainable Development Goals, particularly Goal 8: Decent Work and Economic Growth, because creating jobs in rural areas will help to reduce poverty and improve livelihoods, and it will also improve the community's economic stability by providing a stable income source for farmers and producers. This study is also consistent with Goal 11: Sustainable Cities and Communities, as it can help to encourage sustainable agricultural practices and support local communities in order to ensure that muscovado sugar producers have access to resources, markets, and infrastructure in order to foster economic resilience.

The sugar business has sustainability difficulties related to the management of natural resources such as soil, water, fossil fuels, and agrochemicals, as well as the effects of greenhouse gas emissions and socioeconomic restraints. Sustainable development has received a lot of attention in productive sectors like the sugar industry, with new paradigms and trends such as restructuring sugar mills in biorefineries and developing green chemicals from byproducts, taking into account issues like technology adoption for sustainability, circular economy, climate change, value chain, sustainability assessment, and decision making (Sotto & Villanueva, 2025). According to Reyes (2020), the study investigates how the tradition of muscovado sugar production influences community identities and social cohesiveness. These cultural characteristics influence the socioeconomic environment and resilience of the communities participating in the production process. This study is relevant because it provides quantitative information for decision makers towards a sustainable sugarcane agro-industry, based on the indicators used to build the sustainability index, to address actions such as increasing productive diversification by-products, improving access to credit, irrigation, management practices, and raw material quality, reducing production costs, eliminating fossil fuel use in factories, making fertilizer application more efficient, and (Bustamante et al., 2021).

The growth of patupat and muscovado sugar industries in Santiago City are of significant interest that lies on several factors such as Growing demand for natural and organic product that allows producers to charge higher prices for muscovado sugar and Patupat compared to refined sugars. By executing a premium pricing it boost the profit margin of the business or Investing in modern processing equipment and sustainable farming practices that can improve the process of making muscovado and Patupat product and Establishing a longterm contracts with buyers, it can also provide a stable revenue stream for the producers. Furthermore, patupat and muscovado sugar production can benefit small farmers by offering opportunities in markets and direct sales to consumers, as consumers are willing to pay more for high-quality and minimally processed products. In conclusion, the steady growth of patupat and muscovado sugar industry in Santiago City is crucial. These products preserve cultural heritage and help small farmers by selling at higher prices, boosting economic resilience (Philippine Sugar Millers Association Inc., 2021). The major expansion of sugarcane production occurred during the 20th century where new technology in sugar milling and the provision of adequate financing propelled the growth of sugar production and establishing it as the Philippine sugar industry. After World War II , further growth of the sugar industry occurred mainly due to the preferential treatment of Philippine sugar in the lucrative U.S. market. Sugar was the country’s major export and for a time, it contributed about 20 % of the country’s foreign exchange earnings (Yusoff et al., 2020). Looking ahead, the Muscovado sugar market is expected to experience significant expansion. The predicted CAGR of% suggests a strong market growth trajectory. Furthermore, the rising distribution channels, such as online retail platforms, specialized stores, and artisanal food markets, are expected to add to the market growth. The increased availability of Muscovado sugar in various product forms, such as granulated, powdered, and syrups, will extend the consumer base and drive market expansion.

The sugar agro-industry faces numerous sustainability challenges due to its negative environmental impacts, including land use change, soil degradation, high water consumption, atmospheric pollution from bagasse and trash burning, biodiversity loss from monocultures, and others (Rivera, 2023). Sugarcane farming has also been linked to significant socioeconomic hazards, including greater disparity in the rural sector, low wages,

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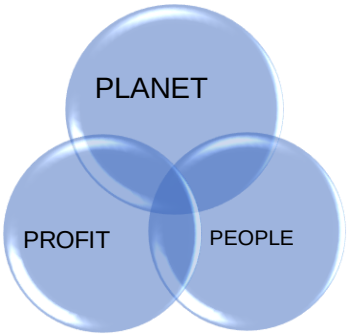
and even labor exploitation. Muscovado sugar production also faces problems in terms of market access and trade dynamics. Martinez & Rios (2022) study suggests that producers may face market integration issues as well as competition from larger-scale producers or other sweeteners. These factors have the potential to affect the profitability and long-term viability of muscovado sugar production across the globe. Therefore, this study aims to evaluate what sustainable practices are patupat and muscovado sugar producers employ to maintain a profitable but environmentally, economically, and socially friendly enterprise.

**Statement of the Problem**

This study aimed to evaluate the sustainability and growth of *patupat* and muscovado sugar enterprises in Bannawag, Santiago City. It specifically sought to identify the sustainable practices adopted by these enterprises in terms of environmental, economic, and social dimensions. Additionally, the study assessed the financial growth of these local industries by examining their profitability, liquidity, and solvency. The study also explored the various challenges encountered by *patupat* and muscovado sugar producers in achieving both sustainability and financial growth. Finally, it aimed to propose appropriate recommendations and strategies that could support and strengthen the operations of these traditional enterprises in the local community.

**Theoretical Framework**

**Triple Bottom Line Framework**




Elkington's Triple Bottom Line concept promotes the goal of sustainability in business practices, requiring corporations to consider social and environmental challenges in addition to profits when calculating the total cost of doing business. According to the triple-bottom-line theory, firms should pay equal attention to social and environmental issues as they do to financial issues. It also states that if a corporation concentrates solely on economics and does not consider how it interacts with society, it will be unable to grasp the big picture and hence cannot account for the overall cost of doing business. According to the Triple Bottom Line theory, businesses should focus on three bottom lines at the same time: profit, people, and the environment. In the context of the triple bottom line, profit can refer to more than just a company's financial performance. A corporation must ensure that its income is earned ethically and fairly. This involves approaching business partners and vendors with whom it shares charitable values. In the context of the triple bottom line, "people" refers to any individual who interacts with the company. This comprises staff, vendors, and clients. The largest deviation from purely financial reporting relates to reporting on environmental impacts. Often, a company must be forced between a lower-cost option or a more environmentally-friendly alternative. A company may also choose between a less favorable alternative (Sotto & Villanueva, 2025). This model is relevant to this study because it seeks to assess the sustainable practices that producers use in their patupat and muscovado sugar businesses to ensure that they are profitable while also being a environmentally and socially responsible producers.

## METHODOLOGY

This study employed an explanatory sequential mixed-methods design, starting with a quantitative survey followed by qualitative interviews and archival analysis, to explore the sustainable practices and financial growth of all 11 Patupat and Muscovado sugar producers in Bannawag Norte, Santiago City. Using total enumeration, all producers served as respondents, providing comprehensive and authentic insights. The setting, known for its sugarcane production, was ideal for the research. A validated questionnaire with strong

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reliability (Cronbach's alpha of 0.888) was used, covering demographic data, sustainability practices, financial performance, challenges, and recommendations. Data were gathered through consented surveys and face-to-face interviews, with results analyzed using descriptive statistics, mean distribution, and thematic analysis to interpret both numerical trends and personal experiences.

## RESULTS AND DISCUSSIONS

### Sustainable Practices of Patupat And Muscovado Sugar Producers in Bannawag

Table 1. The sustainable practices of Patupat and Muscovado Sugar Producers in Bannawag as to Environmental Sustainability with its corresponding Weighted Mean and Descriptive Interpretation

| | **Mean** | **D.I** |
|---|---|---|
| Patupat and muscovado sugar producers adopts environmentally friendly production practices and rendering of services | 3.82 | Strongly Agree |
| Patupat and muscovado sugar producers do not use toxic or chemicals in the production process | 3.27 | Strongly Agree |
| Products are produced with a minimum effect on environment | 3.91 | Strongly Agree |
| Products are made from sustainable materials | 3.82 | Strongly Agree |
| Patupat and muscovado sugar producers practice energy conservation activities | 3.73 | Strongly Agree |
| **General Weighted Mean** | **3.71** | **Strongly Agree** |

(The legend is as follows: 1.00 – 1.74 = Strongly Disagree; 1.75 – 2.49 = Disagree; 2.50 – 3.24 = Agree; 3.25 – 4.00 = Strongly Agree)

Table 1 reveals the sustainable practices of patupat and muscovado sugar producers as to environmental sustainablity with its corresponding weighted mean and descriptive interpretation. It can be seen that the respondents applies environmentally sustainable practices in the production of patupat and muscovado sugar, since the general weighted mean is 3.71 with a descriptive interpretation of "Strongly Agree". Although they all have a descriptive interpretation of strongly agree, patupat and muscovado sugar producers do not use toxic or chemicals in the production process garnered a low mean which shows that the producers do not apply these practices as to other practices mentioned. Moreover, the indicator "Products are produced with a minimum effect on environment", gained the highest mean of 3.91 with a descriptive interpretation of "Strongly Agree". The result illustrates that the patupat and muscovado sugar producers in Bannawag adopts environmentally sustainable practices from the production of patupat and muscovado sugar and only produced a minimum effect on the environment by using sustainable materials and practicing energy conservation activities.

In the interview conducted, respondents stated that organic fertilizers were used in sugarcane farming, and the plants were sourced from previous sugarcane harvests. After extracting the juice, the leftover sugarcane is dried and either utilized as fuel for cooking muscovado sugar or sold for additional income. The extraction process involves both industrial machines and manual methods. For patupat, dried leaves are used as wrappers, helping to reduce plastic consumption and minimize costs.

The Kalibutan Society Inc. (KSI 2021) and small-scale sugarcane farmers in Negros Occidental have also demonstrated a commitment to sustainable Muscovado production. Operating for over a decade, KSI has utilized traditional processing technologies and, with support from governmental and non-governmental

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organizations, has upgraded to more efficient and eco-friendly equipment. This transition aims to meet the growing demand for high-quality, sediment-free muscovado sugar while ensuring environmental sustainability.

Table 2. The sustainable practices of Patupat and Muscovado Sugar in Bannawag as to Economic Sustainability with its corresponding Weighted Mean and Descriptive Interpretation

| | **Mean** | **D.I** |
|---|---|---|
| Patupat and muscovado sugar producers have realizable cost reductions compared with existing arrangements — care and ensure that cost reductions are not already reflected in lower costs included in the analysis | 3.09 | Agree |
| Patupat and muscovado sugar producers have increased revenue | 3.91 | Strongly Agree |
| Patupat and muscovado sugar producers have increased productivity such as improvements in performance or quality as measured | 3.64 | Strongly Agree |
| Patupat and muscovado sugar producers ensure that additional costs are being avoided | 3.82 | Strongly Agree |
| Patupat and muscovado sugar producers have residual value of any assets no longer required — the residual value should be costed according to its highest value alternative use. | 3.09 | Agree |
| **General Weighted Mean** | **3.51** | **Strongly Agree** |

(The legend is as follows: 1.00 – 1.74 = Strongly Disagree; 1.75 – 2.49 = Disagree; 2.50 – 3.24 = Agree; 3.25 – 4.00 = Strongly Agree)

Table 2 reveals the sustainable practices of patupat and muscovado sugar producers as to economic sustainability with its corresponding weighted mean and descriptive interpretation. It can be percieved from the result that the patupat and muscovado sugar producers ensures that additional cost are being avioded since the general weighted mean is 3.51 with a descriptive interpretation of “Strongly Agree”. Furthermore, the indicator “Patupat and muscovado sugar producers have increased revenue”, gained the highest mean of 3.91 with a descriptive interpretation of “Strongly Agree”. Based on the assessment, the patupat and muscovado sugar producers have increased revenue in the past few years. Followed by the indicators “Patupat and muscovado sugar producers ensure that additional costs are being avoided” with a mean of 3.82, “Patupat and muscovado sugar producers have increased productivity such as improvements in performance or quality as measured” with a mean of 3.64 and a descriptive interpretation of “Strongly Agree”. However, the indicators “Patupat and muscovado sugar producers have realizable cost reductions compared with existing arrangements — care and ensure that cost reductions are not already reflected in lower costs included in the analysis” and “Patupat and muscovado sugar producers have residual value of any assets no longer required — the residual value should be costed according to its highest value alternative use” have the lowest mean of 3.09 with a descriptive interpretation of “Agree”.

The result in general indicates that the patupat and muscovado sugar producers practices economic sustainability by avoiding additional cost which resulted a increased in the producers revenue.

In the interview conducted, respondents stated that dried leaves are used as wrappers for patupat to reduce plastic consumption and lower expenses. The respondents also adjust product prices in response to rising costs

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of goods. During special occasions, the respondents seize the opportunity to increase prices to maximize profits.

According to Cognitive Market Research, North America dominated the market in 2023 and accounted for a share of more than 45% of the global revenue due to several variables. The region's expansion is being propelled by a growing customer preference for natural and unrefined sweets, which aligns with health-conscious and gourmet culinary trends. The rich flavor and mineral content of muscovado sugar make it an appealing choice for various applications, from baking to beverage crafting. Muscovado sugar's rising presence in gourmet and specialized food products, as well as its adoption by renowned chefs and artisanal food producers, are driving growth in the market. The demand for quality and one-of-a-kind ingredients in the food and beverage industries is driving the Muscovado Sugar Market's expansion in North America (Deore, 2024).

Table 3. The sustainable practices of Patupat and Muscovado Sugar in Bannawag as to Social Sustainability with its corresponding Weighted Mean and Descriptive Interpretation

| | **Mean** | **D.I** |
|---|---|---|
| Patupat and muscovado sugar producers create more employment for the people in the community | 4.00 | Strongly Agree |
| Patupat and muscovado sugar producers have proper occupational health and safety | 4.00 | Strongly Agree |
| Patupat and muscovado sugar producers engages his employees to training and education | 4.00 | Strongly Agree |
| Patupat and muscovado sugar producers have good labor/management relations | 3.91 | Strongly Agree |
| Patupat and muscovado sugar producers have freedom of association and collective bargaining | 3.91 | Strongly Agree |
| Patupat and muscovado sugar producers ensures customer health and safety | 4.00 | Strongly Agree |
| Patupat and muscovado sugar producers has an effective product and service labelling | 3.91 | Strongly Agree |
| Patupat and muscovado sugar producers have effective marketing communications | 3.27 | Strongly Agree |
| Patupat and muscovado sugar producers engage to customer privacy | 3.82 | Strongly Agree |
| **General Weighted Mean** | **3.87** | **Strongly Agree** |

(The legend is as follows: 1.00 – 1.74 = Strongly Disagree; 1.75 – 2.49 = Disagree; 2.50 – 3.24 = Agree; 3.25 – 4.00 = Strongly Agree)

Table 3 reveals the sustainable practices of patupat and muscovado sugar producers in Bannawag as to social sustainability with its corresponding weighted mean and descriptive interpretation. It can be seen in the result that the patupat and muscovado sugar producers strongly practices social sustainability since the general weighted mean in 3.87 with a descriptive interpretation of “Strongly Agree”. More so, the indicator “Patupat and muscovado sugar producers create more employment for the people in the community”, “Patupat and muscovado sugar producers have proper occupational health and safety”, “Patupat and muscovado sugar producers engages his employees to training and education”, and “Patupat and muscovado sugar producers

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ensures customer health and safety" gained the highest mean of 4.00 with a descriptive interpretation of "Strongly Agree". The patupat and muscovado sugar producers entails that they apply social sustainable practice with both job employment and the health and health and safety of the customers. Followed by the indicators "Patupat and muscovado sugar producers have good labor/management relations", "Patupat and muscovado sugar producers have freedom of association and collective bargaining", "Patupat and muscovado sugar producers has an effective product and service labelling" with a mean of 3.91, "Patupat and muscovado sugar producers engage to customer privacy" with a mean of 3.82, "Patupat and muscovado sugar producers have effective marketing communications" with a mean of 3.27 and a descriptive interpretation of "Strongly Agree".

The general results entails that the patupat and muscovado sugar producer strongly practices social sustainable practices by creating a more employment and training with the people in the community and ensure the safety and privacy of the customers.

In the interview conducted, respondents stated that the muscovado sugar and patupat business creates job opportunities for many people in the area, from farming to the production process. To ensure the products are safe and clean for consumers, they use organic ingredients and continuously monitor employees.

The production of patupat and muscovado sugar has significantly contributed to employment and economic development in various Philippine communities. In Bannawag Norte, Santiago City, Isabela, smallholder farmers have been cultivating sugarcane since 1988, engaging in value-added activities such as producing organic food products like patupat, vinegar, tagapulot, wine, and muscovado sugar. These endeavors involve family members, with notable participation from women and children, fostering community-based enterprises (Cañete, 2017). The income generated has enabled families to invest in processing equipment, enhance farming operations, establish product display centers, and support their children's education.

**Status of Financial Growth of Patupat and Muscovado Sugar**

Table 4. The status of financial growth of patupat and muscovado sugar as to Profitability with its corresponding Weighted Mean and Descriptive Interpretation

| | **Mean** | **D.I** |
|---|---|---|
| The business has made more profit this year compared to last year. | 3.18 | Good |
| The business is earning more than what we spend to run our business. | 3.64 | Outstanding |
| The business can set product prices that allow us to earn a good profit after paying all costs. | 3.73 | Outstanding |
| After covering all the expenses, the business has enough profit left. | 3.64 | Outstanding |
| The money invested in equipment or materials helps the business make more profit. | 3.55 | Outstanding |
| The business can keep our costs low while still making a profit. | 3.64 | Outstanding |
| The business' profits remain steady even during slower periods. | 2.55 | Good |
| The regular customers buy enough to help the business | 3.91 | Outstanding |

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| | | |
|---|---|---|
| earn a good profit. | | |
| The business is confident that our business will continue to make profits in the future. | 4.00 | Outstanding |
| . Overall, the business is making good profits. | 3.91 | Outstanding |
| **General Weighted Mean** | **3.56** | **Outstanding** |

(The legend is as follows: 1.00 – 1.74 = Poor; 1.75 – 2.49 = Far; 2.50 – 3.24 = Good; 3.25 – 4.00 = Outstanding)

Table 4 reveals the status of financial growth of patupat and muscovado sugar producers as to profitability with its corresponding weighted mean and descriptive interpretation. It can be seen in the result that the overall business of the patupat and muscovado sugar producers are making good profits, since the general weighted mean is 3.56 with a descriptive interpretation of "Outstanding". Furthermore, the indicator " The business are confident that our business will continue to make profits in the future" gained the highest mean of 4.00 with a descriptive interpretation of "Oustanding". The patupat and muscovado sugar producers are confident that with a good profit, the business will continue in the near future. The indicator "The business' profits remain steady even during slower periods" has the lowest mean of 2.55 with a descriptive interpretation of "Good".

The overall results entails that the patupat and muscovado sugar producers are making good profits even after paying all the cost in running the business. Despite the low profit during slower periods, the patupat and muscovado sugar producers are still confident that the business will continue in the future.

A case study by Canete et al. (2017) in Bannawag Norte, Santiago City, Isabela, examined the profitability of various sugarcane-based products. The study found that patupat production yielded the highest profit margin per bundle at Php38.94, while muscovado sugar production resulted in a profit margin of Php26.55 per kilogram. The average return on investment (ROI) for all sugarcane products was calculated at 75.13% per farm per hectare, indicating a favorable return of Php0.75 for every peso invested.

These findings align with studies by Del Rosario and Santos (2021), who documented steady profitability and producer confidence among muscovado sugar makers in the Philippines, emphasizing cost-effective production as a key factor for sustainability. Similarly, Garcia and Mendoza (2022) reported that small-scale sugarcane-based enterprises, including patupat and muscovado producers, showed good to outstanding profitability levels and expressed confidence in sustaining operations, driven by strong market demand and community support.

Lopez and Reyes (2023) further corroborated these findings, noting consistent profits for traditional sugar products despite seasonal downturns, with producers maintaining optimism about future business prospects. Tan and Bautista (2020) observed that patupat production yields competitive profit margins, though profitability fluctuates with market seasonality, yet producer confidence remains high due to established local markets and traditional consumption patterns.

Table 5. The status of financial growth of patupat and muscovado sugar as to Liquidity with its corresponding Weighted Mean and Descriptive Interpretation

| | **Mean** | **D.I** |
|---|---|---|
| The business has enough cash to pay all the bills on time. | 3.18 | Good |
| The business can easily cover short-term expenses without borrowing money. | 3.73 | Outstanding |

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| | | |
|---|---|---|
| The business can quickly turn products or inventory into cash when needed. | 3.36 | Outstanding |
| The business have enough money in hand to deal with unexpected expenses. | 3.45 | Outstanding |
| The business has no trouble paying suppliers and workers on time. | 3.82 | Outstanding |
| The business can easily access cash when needed for business operations. | 3.36 | Outstanding |
| The business can collect payments from customers on time to keep the cash flow steady. | 3.64 | Outstanding |
| The business does not have to delay payments or rely on loans to cover daily expenses. | 3.73 | Outstanding |
| The business is confident that the cash flow will remain strong in the future. | 3.73 | Outstanding |
| . Overall, the business has good liquidity and can handle financial needs easily. | 3.82 | Outstanding |
| **General Weighted Mean** | **3.58** | **Outstanding** |

(The legend is as follows: 1.00 – 1.74 = Poor; 1.75 – 2.49 = Far; 2.50 – 3.24 = Good; 3.25 – 4.00 = Outstanding)

Table 5 reveals the status of financial growth of patupat and muscovado sugar producers as to liquidity with its corresponding weighted mean and descriptive interpretation. It can be percieved from the result that the patupat and muscovado sugar producers have a good business liquidity and can handle financial needs easily, since the general weighted mean is 3.58 with a descriptive interpretation of "Oustanding". The indicator "The business has no trouble paying suppliers and workers on time" and" Overall, the business has good liquidity and can handle financial needs easily" has the highest mean of 3.82 with a descriptive interpretation of "Oustanding". Although they all have an oustanding descriptive interpretation, the business has enough cash to pay all the bills on time garnered the lowest mean of 3.18 with a descriptive interpretation of "Good", which entails that the patupat and muscovado sugar producers does not have enough cash to pay bills on time.

The result in general indicates that the patupat and muscovado sugar producers keep the cash flows steady all the time to cover the expenses and deal with unexpected expenses without the need of borrowing money from the creditors and confident as well that the cash flow will remain strong in the future.

Ensuring timely payments to suppliers and workers is crucial for the sustainability of patupat and muscovado sugar producers. A case study by Dr. Diosdado C. Cañete (2017) in Bannawag Norte, Santiago City, Isabela, highlights the financial viability of these enterprises. The study reports that patupat production yields a profit margin of Php38.94 per bundle, while muscovado sugar offers a margin of Php26.55 per kilogram. These profit margins contribute to a return on investment (ROI) of 75.13% per farm per hectare, indicating robust financial health. Such profitability enables producers to meet financial obligations to suppliers and workers promptly. Additionally, the study notes that farmers have diversified their product lines to include vinegar, wine, and molasses, further enhancing income stability. This diversification, coupled with effective marketing strategies targeting both walk-in consumers and wholesalers, ensures a steady revenue stream. The consistent cash flow from these activities supports the timely payment of operational expenses, including wages and supplier fees.

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Similar research underscores the importance of diversified product lines and sound liquidity management in ensuring financial sustainability in small-scale agricultural businesses (Del Rosario & Santos, 2021; Garcia & Mendoza, 2022).

Table 6. The status of financial growth of patupat and muscovado sugar as to Solvency with its corresponding Weighted Mean and Descriptive Interpretation

| | **Mean** | **D.I** |
|---|---|---|
| The business has enough assets to cover all the long-term debts. | 3.82 | Outstanding |
| The business can pay off all its loans and still have money left for operations. | 4.00 | Outstanding |
| The business is confident that the business can continue operating without facing financial trouble. | 3.82 | Outstanding |
| The business can handle long-term financial obligations without difficulty. | 3.27 | Outstanding |
| The business is not worried about its ability to pay back loans over the long term. | 3.64 | Outstanding |
| The business has a good balance between its assets and liabilities. | 3.55 | Outstanding |
| The business does not need to rely on selling assets to pay off long-term debts. | 3.91 | Outstanding |
| The business has a strong financial foundation to meet future challenges. | 3.82 | Outstanding |
| The business has enough resources to invest in long-term growth without risking solvency. | 3.91 | Outstanding |
| . Overall, the business is solvent and can meet long-term financial commitments. | 3.91 | Outstanding |
| **General Weighted Mean** | **3.77** | **Outstanding** |

(The legend is as follows: 1.00 – 1.74 = Poor; 1.75 – 2.49 = Far; 2.50 – 3.24 = Good; 3.25 – 4.00 = Outstanding)

Table 6 reveals the status of financial growth of patupat and muscovado sugar producers as to solvency with its corresponding weighted mean and descriptive interpretation. It can be seen in the result that the business of patupat and muscovado sugar producers are solvent and can meet long-term financial commitments, since the general weighted mean is 3.77 with a descriptive interpretation of "Outstanding". Furthermore, the indicator "The business can pay off all its loans and still have money left for operations" has gained the highest mean of 4.00 with a descriptive interpretation of "Outstanding". While the indicator "The business can handle long-term financial obligations without difficulty" garnered the lowest mean of 3.27 with a descriptive interpretation of "Outstainding".

The general result entails that although experiencing some difficulty, the patupat and muscovado sugar producers are not worried about the business' ability to pay back long-term loans without the need of selling off the business' asset and still have money left for the operations.

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A case study by Dr. Diosdado C. Cañete (2017) in Bannawag Norte, Santiago City, Isabela, highlights the financial viability of sugarcane-based products. The study reports a return on investment (ROI) of 75.13% per farm per hectare, with patupat production yielding a profit margin of Php38.94 per bundle and muscovado sugar at Php26.55 per kilogram. This robust profitability suggests that producers have the financial capacity to reinvest in their operations, acquire processing equipment, and enhance farming practices without compromising their financial stability.

**Challenges Faced by the Patupat and Muscovado Sugar Enterprises in Terms of Sustainability and Financial Growth**

Table 7. The challenges faced by the patupat and muscovado sugar enterprises in terms of sustainability and financial growth with its corresponding Weighted Mean and Descriptive Interpretation

| | **Mean** | **D.I** |
|---|---|---|
| The business face significant challenges in sourcing quality raw materials. | 1.09 | Strongly Disagree |
| The cost of production has been increasing steadily. | 2.55 | Agree |
| The business experience difficulties in accessing markets for our products. | 1.09 | Strongly Disagree |
| Competition from other producers affects the business' profitability. | 3.00 | Agree |
| Regulatory requirements and compliance are a major challenge. | 1.00 | Strongly Disagree |
| The business struggle with limited access to financing for business operations. | 1.09 | Strongly Disagree |
| There is a lack of skilled labor in the business' industry. | 1.00 | Strongly Disagree |
| Seasonal variations significantly impact the business' production and sales. | 3.09 | Agree |
| Technological advancements are difficult to implement in the business' production processes. | 1.55 | Strongly Disagree |
| . Transportation and logistics issues hinder the business' distribution efforts. | 1.00 | Strongly Disagree |
| . Marketing and promotional activities are a challenge for the business. | 1.18 | Strongly Disagree |
| . Environmental concerns and sustainability requirements pose significant challenges. | 1.36 | Strongly Disagree |
| . The volatility of market prices affects the business' revenue stability. | 1.36 | Strongly Disagree |
| . The business face difficulties in maintaining consistent product quality. | 1.27 | Strongly Disagree |

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| | | |
|---|---|---|
| . Collaboration with other producers or associations is challenging. | 1.27 | Strongly Disagree |
| **General Weighted Mean** | **1.53** | **Strongly Disagree** |

(The legend is as follows: 1.00 – 1.74 = Strongly Disagree; 1.75 – 2.49 = Disagree; 2.50 – 3.24 = Agree; 3.25 – 4.00 = Strongly Agree)

Table 7 reveals the challenges faced by the patupat and muscovado sugar enterprises in terms of sustainability and financial growth with its corresponding weighted mean and descriptive interpretation. It can be perceived int he result that the patupat and muscovado sugar producers are not too much affected by the challenges faced by the business, since the generla weighted mean is 1.53 with a descriptive enterpretation of "Strongly Disagree". Furthermore, the indicators "Transportation and logistics issues hinder the business' distribution efforts" have the lowest mean of 1.00 with a descriptive interpretation of "Strongly Disagree". While the indicators "The cost of production has been increasing steadily" with a mean of 2.55, "Competition from other producers affects the business' profitability" with a mean of 3.00, and "Seasonal variations significantly impact the business' production and sales" with a mean of 3.09" have a descriptive interpretation of "Agree".

The general result implies that the producers although the business is affected with the some challenges such as the increase in the cost of production, the competition between the other producers, and the seasonal variations, the business can still apply sustainable practices and make the business profitable.

In the interview conducted, respondents stated that the machines used in the past are still in operation and do not pose any issues for producers. The respondents also mentioned that raw materials are purchased in bulk to secure discounts and reduce costs, ensuring that only fresh ingredients are used to maintain product quality. Due to strong competition, producers lower the product prices and offer discounts to loyal customers.

The cultivation of sugarcane, the primary raw material for muscovado sugar, is highly sensitive to climatic conditions. The Philippines experiences distinct wet and dry seasons, with the wet season typically from June to November and the dry season from December to May. During the dry season, particularly under El Niño conditions, reduced rainfall can lead to droughts, adversely affecting sugarcane growth and yield. For instance, in Negros Occidental, a major sugar-producing region, drought conditions have stunted sugarcane growth, potentially leading to lower yields in marketing year 2025. Seasonal production variations directly influence the market supply and pricing of muscovado sugar. High sugar prices have led to increased muscovado prices, with local retail prices ranging from Php124 to Php199 per kilogram. Export prices for high-quality muscovado have been reported to reach up to four times higher than domestic prices. These price fluctuations can affect consumer demand and sales volumes (USDA 2024).

## CONCLUSION

In conclusion, this study explored the growth of patupat and muscovado sugar enterprises in Bannawag, Santiago City, with a focus on their sustainable practices and financial performance. The findings affirmed that these traditional enterprises are making gradual strides in adopting environmentally friendly, economically sound, and socially inclusive practices. These efforts, in turn, reflect a positive impact on their profitability, liquidity, and solvency. However, these local producers continue to face significant challenges such as limited capital, lack of modern technology, and market accessibility, which hinder their progress toward sustainable and financially viable operations.

This study's unique contribution lies in highlighting the critical link between sustainability and financial feasibility within small-scale, traditional enterprises specifically patupat and muscovado sugar production which has been largely overlooked in existing research. By focusing on these culturally significant local industries, the research provides valuable insights into how heritage-based practices can be sustained economically while promoting community development. This novel perspective not only enriches the academic understanding of sustainable business models in rural settings but also offers practical guidance for policymakers and stakeholders aiming to support resilient and inclusive local economies.

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## RECOMMENDATIONS

The Muscovado and Patupat Producers must implement eco-friendly and cost-effective production methods to maintain long-term financial stability. They should also explore additional ways to repurpose sugarcane waste, such as biochar production or composting for soil enrichment.

The Local Government Unit (LGU) of Santiago City should support agricultural producers by ensuring affordable raw materials, enhancing infrastructure for better logistics, simplifying regulatory processes, and promoting local products through "Buy Local" campaigns.

The Muscovado and Patupat Producers must set competitive yet profitable pricing to balance affordability and revenue generation. Additionally, they should maintain a reserve fund to cover short-term obligations and unexpected expenses while seeking government grants, investor partnerships, or cooperative models to support business expansion. Patupat and muscovado sugar producers should adopt a basic yet systematic financial recording method. Customized templates for tracking daily sales, production costs, labor expenses, and raw material procurement should be developed to make recording easier and more consistent.

The Muscovado and Patupat Producers must strengthen branding, enhance their online presence, and establish partnerships with local businesses to boost sales. They should also explore new markets, including export opportunities, and develop value-added products such as flavored muscovado sugar or innovative patupat variations to attract more customers.

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