

Challenges in Rice Farming in the Eyes of the Farmers and through the Lens of Planned Behavior Theory

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ABSTRACT

Modern rice farming faces serious limitations. I explored the challenges, coping mechanisms, and insights of local rice farmers regarding rice production, from land preparation to selling, in the context of limited access to infrastructure, technology, and high-quality seeds. I employed a qualitative descriptive approach to gather diverse viewpoints from rice farmers using purposive sampling technique. I found challenges in rice farming such as ineffective pest and rat control, financial struggles, unpredictable harvests, and limited access to inputs and support. These were addressed through peer strategies, loan reliance, government subsidies, and assistance from agricultural technicians. As a result, farmers developed adaptive practices, improved productivity efforts, and sustained their livelihoods despite ongoing difficulties. Future research should use a mixed-methods approach to evaluate how access to resources and support services impact farm resilience and sustainability, while also examining the influence of farmer experience and community initiatives.

Keywords: Challenges in rice farming, rice farmers, Planned Behavior Theory

THE PROBLEM AND ITS SCOPE

Local rice farmers face persistent challenges in increasing rice production due to limited access to modern farming infrastructure, technology, and high-quality seeds. According to Casinillo and Serioño (2022), the continued use of traditional farming practices and low training in modernized agriculture hinder farmers from advancing rice production in the country.

The International Rice Research Institute (IRRI) highlighted in 2023 that expanding the "Seeds Without Borders" initiative aims to expedite the distribution of high-yielding, stress-tolerant rice varieties across South and Southeast Asia, including the Philippines, to enhance farmers' access to improved seeds. In January 2024, Agriculture Secretary Francisco Tiu Laurel Jr. stated that the Philippines requires at least PHP 1.3 trillion in investments over the next few years to boost rice production, reduce agricultural waste, and ensure food security, emphasizing the need for substantial improvements in irrigation and post-harvest facilities.

In Panabo City, Davao del Norte, Lonzaga et al. (2024) emphasized that inadequate infrastructure, limited irrigation, and restricted access to innovative farming technologies exacerbate the challenges faced by rice farmers, hindering their productivity and resilience. If these challenges remain unresolved, they could lead to decreased rice productivity, worsening rural poverty, and heightened threats to the country's food security.

The Department of Agriculture's secretary, Francisco Tiu Laurel stated the need to have 1.3 trillion pesos for agricultural infrastructure with large-scale projects to boost rice production, which is reported by Cordero (2024). This means a significant problem exists in the country's rice plantation sector because of infrastructure and machinery. For instance, scholars from Leyte cited that the low training in modernized farming and the continuous use of traditional ways are factors that raise problems with farmers from leveling up rice production (Casinillo & Serioño, 2022). Balie and Valera (2020) stated that rice production in the country is declining, which has increased poverty and food security. This situation is bringing national problems as rice farming remains the primary source of income for Filipinos in rural areas, specifically the marginalized people.

The heavy flooding experienced last February of 2024 brought 1.194 billion pesos in agricultural loss in the Davao region (Francisquette, 2024). Calamity is just one of the factors that affect farmers in the field. Lonzaga et al. (2024) added that in Panabo City, it would become worse if the infrastructure, irrigation, transportation of products, and access to innovative technology in farming were limited. This challenge is found in Davao del Norte, one of the region's big rice production provinces. Even though factors were identified, rice farmers' livelihood experiences and challenges in this area remain a significant concern, especially about the low changing farmgate prices from them to the market. Hence, I aimed to widen its understanding of how local farmers deal with these problems in rice production.

If these issues remain unaddressed, they could lead to decreased agricultural productivity, financial instability among farmers, and food security concerns (Arbes et al., 2023). Additionally, prolonged challenges in rice farming may result in reduced farmer engagement in agriculture, forcing them to seek alternative livelihoods, which could further impact local economies (Paracale et al., 2024). Palero and Castro (2023) also highlighted that post-harvest losses contribute to significant economic setbacks for farmers, requiring strategic interventions.

Despite existing studies on agricultural challenges, there remains a gap in research focusing on the firsthand experiences of local farmers in this specific region. While prior research has analyzed broader economic and environmental factors, fewer studies have explored farmers' lived experiences and adaptive strategies at the grassroots level. This study aims to bridge that gap by providing a comprehensive understanding of the struggles and resilience of local farmers, which could inform policies and interventions tailored to their needs. It is necessary to understand and dig deeper into how they navigate these challenges in sowing rice feeds, knowing the different problems they encounter in the field.

Significance of the Study

This study may bring a deeper understanding of the lived experiences of local farmers and the problems faced during rice production up to selling. This study may also deal with the farmers' firsthand experience of the rising price of rice in the market yet still the lowest farmgate price. This may also help get data from the local farmers about how the increasing rate of rice imports affects them locally.

Further, this study may help the local government unit assist local farmers in overcoming their current challenges in rice production, ultimately leading to more livelihood programs that promote economic stability and agricultural sustainability. This study also aligns with the United Nations' Sustainable Development Goals (SDGs), particularly SDG 2: Zero Hunger and SDG 8: Decent Work and Economic Growth, as it contributes to improving agricultural productivity, ensuring food security, and fostering sustainable livelihoods in rural communities.

For the education sector, this study may encourage more studies on developing our rice farmers' livelihood. This may be used to seek help from the national level to improve our rice farming so that we do not have to import more rice products outside the country.

Statement of the Problem

In this research, I aimed to understand the lived experiences of rice farmers in Davao del Norte amidst the rising price of rice in the market.

1. What are the issues and challenges of the rice farmers and landowners regarding agricultural practices and productivity in planting the rice fields?
2. What are the coping mechanisms of the rice farmers and landowners in sowing the rice fields?
3. What insights can be shared from the experiences and challenges of the rice farmers in planting rice in the fields?

Assumptions

This research operates on the qualitative assumption that local farmers' answers reflect their lived experiences. By analyzing their responses, thematic patterns were identified, shedding light on their challenges in rice planting production.

It is believed that these shared experiences hold valuable insights that may contribute to a deeper understanding of the phenomena occurring within the rice market. Gaining insights from the lived experiences of those directly involved in rice production is crucial for developing effective policies and interventions. By understanding farmers' specific challenges, policymakers and stakeholders can work collaboratively to create a more supportive and sustainable rice production system.

Theoretical Lens

The theory of planned behavior by Ajzen (1991, as cited by Samson, 2021) suggests that intentions shape behaviors and are influenced by attitudes, subjective norms, and perceived behavioral control.

This theory helps us understand how rice farmers react to the dilemma of higher import prices and lower farmgate prices. Economic pressure influences farmers' viewpoints, as they may perceive traditional farming methods as less sustainable and modern farming as high cost in nature. Community norms can be understood as influential subjective norms as farming communities confront this common challenge, potentially shaping collective responses or resistance. The farmers' perceived control over their actions is vital as they evaluate their capacity to adapt to market pressures, such

as by diversifying crops or exploring alternative markets. However, their intentions to change practices may be limited by actual control factors such as restricted access to resources or market information or little to no government help.

This economic strain may create conflicting pressures: the need to boost productivity to stay competitive versus the inclination to abandon rice farming due to low returns from import trading. TPB helps clarify why certain farmers persist with rice cultivation despite unfavorable prices, while others switch to different crops or exit farming altogether, based on their individual attitudes, social contexts, and perceived options within this challenging economic environment.

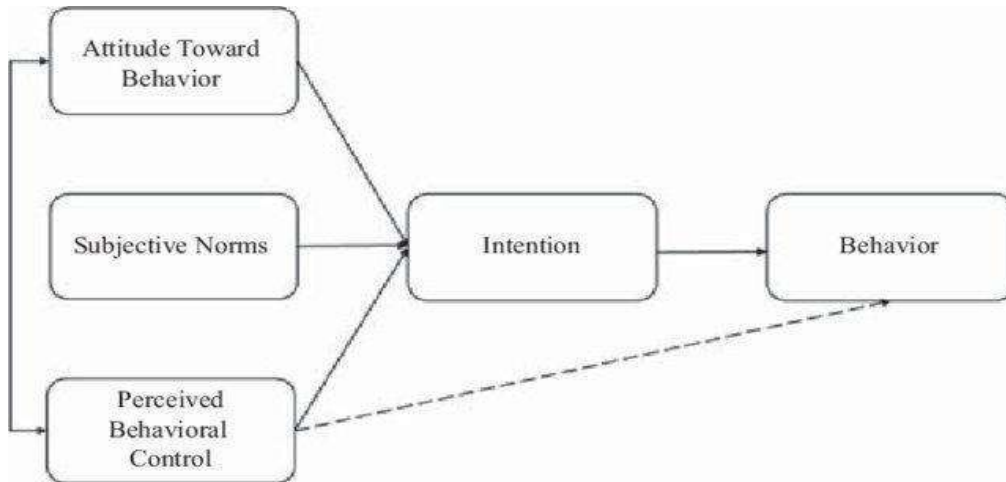


Figure 1. Theoretical Framework

Paradigm

Exploring the lived experiences of rice farmers facing challenges (e.g., climate change, market factors, water scarcity, farming technology) and how these challenges influence their behavioral intentions related to farming practices through the Theory of Planned Behavior lens. The focus research question is how rice farmers make sense of and respond to challenges within their specific contexts, and how such experiences shape their attitudes, perceived norms, and sense of control over their farming practices.

METHODOLOGY

In this section, I thoroughly discussed the study's research design, the participants involved, the selection process, the responsibilities, ethical considerations, data collection and type of analysis, and the study's trustworthiness.

Research Design

In this research, I employed a qualitative descriptive design to explore and understand the lived experiences of individuals engaged in rice farming. This approach was appropriate for providing clear, comprehensive summaries of participants' perspectives, staying close to their actual words and meanings (Bradshaw et al., 2021). This included conducting interviews with different actors engaged in the phenomena through in-depth interviews or focus group discussions. By examining individual cases, I gained an in-depth understanding of their unique and subjective experiences, which provided a more explicit context.

I believed that by using this design, I could uncover thorough and meaningful answers to societal questions concerning rice farming and production. This approach enabled a deeper understanding of the lived experiences of rice farmers and landowners who were affected by the various challenges in rice cultivation. Their diverse stories and insights helped me understand the strategies they adopted and the day-to-day struggles they encountered in rice farming.

Locale of the Study

For this study, I have chosen one of the municipalities in Davao del Norte as the target research locale. In 2023, this province recorded a rice yield of 4.39 metric tons per hectare, based on data from the Philippine Rice Information System (2023). Davao del Norte's economy is primarily anchored in agriculture, with vast areas of land devoted to both staple and industrial crops. Agricultural production contributes approximately 63.41% to the province's total income (National Economic and Development Authority, Davao Region, 2023). I find this location particularly advantageous for my research, as the province plays a key role in supplying rice products within the region. Selecting participants from this area allows me to explore the lived experiences of individuals directly involved in rice farming and production.

Sample and Sampling Techniques

Purposive sampling for participant selection was conducted. This ensured that the participants provided enriching sharing of their lived experiences. Nikolopoulou (2022) stated that purposive sampling encompasses a set of non-probability sampling methods where units are chosen based on specific characteristics required for the sample. Put simply, participants were deliberately selected in purposive sampling. There were (12) target participants for in-depth interviews (IDI).

As this study sought to understand the diverse experiences of the participants, the pool of participants consists of four (4) farmers and landowners; these are individuals who are the owners at the same time as the farmers of their land. Four (4) maintainers of the land only. The last case is four (4) landowners who let other farmers till their land. These participants have answered from different perspectives on rice farming and its challenges.

Role of Researcher

A researcher conducting a case study on rice farming, I have a special position as an investigator who must assimilate all social science techniques with agricultural expertise to understand farming practices, impediments, and environments comprehensively. While carrying out the assigned I interacted with the farming community with agricultural cycles well inside their thoughts and set time constraints. Building a strong understanding of agricultural ideas is necessary for research to understand the technical dimensions of rice farming and to gain the farmers' trust by showing a real interest and respect for their knowledge and experience. I utilized different data collection methods, which involved phone calls for confirmation of interviews and farm visits for the actual interview activities.

There were intensive interviews with farmers and landowners, maintainers of the land, and landowners. I analyzed the agricultural records to establish the research problem of rice farming. I, therefore, skillfully wrestled with status; having to stand as an outsider researching farming issues is acknowledging that the farmers are the experts of their own experiences.

Research Instrument

I collected comprehensive data through an in-depth interview using a semi-structured interview guide. Open-ended questions provide flexibility and frequently characterize semi-structured interviews. Using predetermined questions in a specific sequence facilitates straightforward participant comparison but may also be restrictive. A less structured type of question can facilitate pattern recognition while enabling comparisons among my participants (George, 2022). Hence, in this study, I utilized a semi-structured interview guide to understand the challenges and strategies and gained insight from the experiences of rice farmers in different cases.

The interview guide created is based on the research objectives and was checked by my research adviser and further validated and reviewed by three field experts, who provided feedback on question relevance, clarity, and comprehensiveness. They also helped identify any biases or leading questions that could impact responses, enhancing the research instrument's quality for more reliable and valid data collection in this study.

Each session's copy of the interview guide was prepared to allow important comments and markings. Given its nature as a guide, questions were asked in various orders, and some were omitted if participants had already addressed the topic.

Ethical Consideration

I followed all standard procedures and practices when conducting qualitative research. This study has been designed with a holistic approach to ethical issues relevant to a qualitative study of local rice farmers. In this way, I addressed possible risks by implementing different safeguards, emphasizing minimal risk and participant respect. Thus, this research confirms social value because it helps to create sustainable programs and future legislation based on the insights of farmers. I ensured participants knew they were assured they would participate freely and without threat or coercion, accompanied by full and well-informed consent, and with an explicitly specified amount of three hundred fifty pesos for their time. Second, I strictly enforced the Data Privacy Act 2012 in that all gathered information is encoded in alpha-numerical form and secured in a password-protected hard drive.

I utilized purposive sampling to ensure fairness in selecting the participants with clear criteria for inclusion. Face-to-face approaches to interviews allowed me to carefully manage the processes of data collection in consideration of participants' availability and comfort. Respect for the community is crucial, and I pledge not to interfere with local customs or culture. My approach, characterized by transparency, encompasses the disclosure of any possible conflicts of interest, the intention to disseminate research results to pertinent institutions, and the demonstration of my professional

qualifications through advanced education and research experience. This comprehensive strategy helps me safeguard participants while generating valuable insights into regional agricultural concerns.

Data Collection

The following procedures guided me in obtaining sufficient and rich data from the participants of this study:

With the help of my adviser, I secured permission to conduct the study from different offices: the Research Ethics Committee (REC) and the Dean's Office of the graduate school. Subsequently, I asked for an endorsement letter from these mentioned offices. Before data gathering, I ensured that the participants provided their consent through informed consent. The forms were read to them so that they understood the content and the purpose of conducting this study. Afterward, they affixed their signatures once they fully understood and agreed to participate in the study.

The data gathering through IDI was done face-to-face. The twelve (12) participants were interviewed individually. The questions in the interview guide were translated into local dialects to gather rich data from the participants, allowing them to be open and answer in whichever way they preferred. An audio recorder was used to keep the shared lived experiences of the participants. I provided monetary value equivalent to a farmer's minimum wage after the interview to express my simple way of giving thanks for their voluntary participation.

Data Analysis

To help me analyze the data I collected, I adhered to the six processes of thematic analysis presented by Braun and Clarke (2006; as studied by Maguire & Delahunt, 2017). These are familiarization, generating code, searching themes, reviewing themes, defining these themes, and writing up or reporting.

The initial step involved familiarizing myself with the data by reading and reviewing the transcripts. This is crucial to ensuring I have a good grasp of the information at hand. Next, I assigned code to the data, organizing it systematically to condense a large amount of material into manageable segments of significance. The third stage is to generate themes by reviewing the codes, some of which were linked to a particular theme. By the end of this phase, the codes were grouped into broader topics relevant to the study. During the fourth step of the analysis, I reviewed these topics, made revisions, and further developed them into main themes. I examined the data associated with each theme to assess its support. The fifth step involved defining the themes and refining them to capture the essence of each theme. Finally, I presented a structured analytical framework based on the concepts presented. With the help of a data analyst, the framework created was further checked and improved.

Validity of Research Questions and Interview Guide

The research utilized a very rigorous validation process in which participant pilot testing is considered secondary to expert validation to validate the research questions and interview guide. This validation process consists of gathering very detailed feedback from seasoned scholars and experts in education leadership. According to Merriam and Tisdell (2015), this approach to validation can nurture the optimal quality of research instruments with the possibility of being more accurate, relevant, and responsive toward the provision of rich and valuable data.

A semi-structured interview approach was utilized as the principal research tool since this study is qualitative. This protocol has been well designed to seek school administrators' viewpoints and practical experience about their educational leadership capacities. Thanks to the open-ended questions, participants provided personal anecdotes and ideas that may not have surfaced through more rigorous data collection techniques. Such an approach is particularly beneficial to qualitative research due to the flexibility it allows the researcher to get contextualized, nuanced information from participants (Patton, 2015; Yin, 2018). While ensuring homogeneity between interviews, the semi-structured method maintains a balance between de novo subjects and unpredictable disclosures that can emerge during conversations.

Trustworthiness of the Study

I took extra care while conducting this research on the lived experiences of rice farmers to pay attention to ethical considerations. As stated by Bhandari (2021), a code of conduct in data collection by all researchers is essential. I sought permission from the ethics committee of the HCDG graduate school to ensure my research adheres to a strict ethical framework. There are no risks involved in the study for the participants, who were told about the purpose of the study before they agreed to volunteer. I respected their decision to volunteer any time up until or during the interview process. Interviews were conducted at a time chosen by them, and a gesture was given for their time taken and efforts.

I used several key strategies based on the information by Connelly (2016) to ensure that credibility and rigor are maintained in the research work. Factors in these included transferability, dependability, and confirmability. Based on Stahl and King's (2020) suggestions, triangulation can be implemented to identify patterns based on several field sources.

Member checking and long-term interaction with participants were done to ensure the credibility of the results. This shall be done through individual, in-depth interviews as well as focus group discussions. Springer (2022) holds that my strategy entailed a detailed description of the context of the study that enhances the potential for transferring findings to other comparable settings. This research employed an inquiry audit, ensuring dependability by having an independent third party go through my research methods and data analysis. Furthermore, the study ensured confirmability because findings were based on responses from only the participants, and there is a detailed audit trail of how all data is interpreted without bias.

RESULTS

This chapter presents the revised thematic findings of the study. The results are organized according to the Theory of Planned Behavior (Ajzen, 1991), focusing on attitudes, subjective norms, perceived behavioral control, intentions, and farming behaviors demonstrated by rice farmers in Davao del Norte. The themes highlight the economic, environmental, and social realities experienced by participants, as well as the coping mechanisms they employ to sustain rice farming despite recurring challenges.

Themes and Sub-themes

This section delves into the challenges, coping strategies, and insights from the experiences of owners, who are also farmers in rice farming. Guided by the theoretical lens of the theory of planned behavior, the analysis explores how their attitude, subjective norms, and perceived behavior control their intention, which influences their behavior to face challenges in rice farming.

Attitudes towards rice farming

This theme encompasses farmers and landowners' experiences and challenges in rice farming that are categorized as follows: dealing with pests, weeds, and unpredictable harvests; assessing financial feasibility, including fertilizer and labor costs; and expecting and experiencing frustrations with financial and technical assistance. These subthemes are discussed elaborately in the subsequent paragraph.

Dealing with pests, weeds, and unpredictable harvests. Participants consistently described pest infestations, weeds, and unstable harvests as major challenges affecting rice productivity. Farmers identified tungro disease, rats, stem borers, and weed growth as recurring threats that reduce yields and increase production uncertainty. These experiences reflect the TPB construct of perceived behavioral control, wherein farmers recognized that many agricultural threats are difficult to fully control despite preventive efforts. The unpredictability of harvest outcomes also influenced their attitudes toward farming, often reinforcing cautious decision-making and risk-avoidance strategies.

Assessing financial feasibility, including fertilizer and labor costs. Participants emphasized that rising fertilizer prices, labor expenses, and low farm-gate prices significantly reduce profitability. Farmers reported that the cost of production often exceeds expected income, leaving little financial return after harvest. Within the TPB framework, these economic realities shape negative attitudes toward financial sustainability in farming while simultaneously influencing behavioral intentions regarding borrowing, delayed investment, and reduced farm expansion.

Expecting and experiencing frustrations with financial and technical assistance. Farmers expressed dissatisfaction regarding inconsistent government support, delayed assistance, and insufficient agricultural inputs. Although some participants acknowledged receiving seeds and fertilizers, they emphasized that these interventions were often incomplete without access to pesticides, irrigation, and stable pricing mechanisms. These findings demonstrate how subjective norms and perceived behavioral control influence farming decisions, as participants continued to rely on institutional assistance despite uncertainty regarding its adequacy.

Managing Financial Difficulties Through Loans and External Assistance. Participants described borrowing money, seeking assistance from landowners, and relying on informal credit systems as necessary survival strategies. These practices reflect adaptive behavioral responses under financial pressure. Within the TPB framework, borrowing behavior was influenced by limited perceived control over market conditions and farming income, while social expectations to continue farming reinforced the intention to sustain agricultural work.

Adopting Strategies Based on Peer Advice and Local Norms. Participants commonly relied on advice from fellow farmers, agricultural technicians, and community practices when addressing crop diseases, pest outbreaks, and planting schedules. This finding strongly reflects the TPB construct of subjective norms, wherein decisions are shaped by the expectations, experiences, and practices of significant members of the farming community.

Persisting in Farming Despite Difficulties. Despite economic hardship, environmental risks, and unstable market prices, participants expressed strong determination to continue farming. Many viewed farming as both a livelihood and a

generational responsibility. This persistence reflects strong behavioral intentions within the TPB model, where attitudes toward responsibility, community expectations, and perceived obligations as providers motivate continued participation in rice farming.

Expanded Comparative Analysis with National Trends

The experiences of rice farmers in Davao del Norte reflect broader national trends affecting smallholder farmers across the Philippines. Similar to reports from Central Luzon and Western Visayas, participants described rising production costs, unstable rice prices, increasing debt dependency, and vulnerability to climate-related risks. However, the findings of this study also highlight localized concerns specific to Davao del Norte, including dependence on informal lending, limited irrigation reliability, and strong reliance on peer-based agricultural practices.

View and Standpoint

The experiences of rice farmers in Davao del Norte reflect broader national trends affecting smallholder farmers across the Philippines. Similar to reports from Central Luzon and Western Visayas, participants described rising production costs, unstable rice prices, increasing debt dependency, and vulnerability to climate-related risks. However, the findings of this study also highlight localized concerns specific to Davao del Norte, including dependence on informal lending, limited irrigation reliability, and strong reliance on peer-based agricultural practices.

The findings also align with concerns raised in national agricultural programs such as the Rice Tariffication Law and subsidy initiatives associated with programs like 'Seeds Without Borders.' While national policies were intended to improve rice competitiveness and input accessibility, participants revealed that support often remains insufficient at the local implementation level. This demonstrates the continuing gap between national agricultural policy objectives and the lived experiences of smallholder rice farmers in rural communities.

DISCUSSIONS

This chapter discusses the findings of the study in relation to existing literature and the Theory of Planned Behavior (TPB). The discussion focuses on how farmers' attitudes, subjective norms, perceived behavioral control, intentions, and behaviors influence their responses to economic, environmental, and institutional challenges in rice farming.

Attitudes Toward Rice Farming. Farmers demonstrated mixed attitudes toward rice farming. While participants acknowledged the financial instability caused by rising production costs and fluctuating market prices, they also maintained strong emotional and cultural attachment to farming as a livelihood. These findings support TPB assumptions that attitudes significantly influence behavioral intentions. Negative economic experiences shaped cautious financial decisions, while positive beliefs regarding responsibility and perseverance reinforced continued farming participation.

Subjective Norms and Community Influence. The findings revealed that farming practices are heavily influenced by peer advice, community norms, and guidance from agricultural technicians. Farmers often synchronized planting schedules, shared pest management techniques, and relied on collective experiences when making agricultural decisions. This demonstrates the strong influence of subjective norms in shaping farming behavior. The results also support previous Philippine studies indicating that agricultural knowledge-sharing remains highly community-centered among rural farmers.

Perceived Behavioral Control. Participants repeatedly expressed uncertainty regarding their ability to fully manage pests, weather conditions, water shortages, and market fluctuations. However, farmers continued to develop coping strategies such as borrowing money, consulting technicians, budgeting resources, and applying pest-control measures. These responses illustrate varying levels of perceived behavioral control, wherein farmers attempt to maintain influence over farming outcomes despite external limitations.

Behavioral Intentions and Persistence. The study showed that farmers maintained strong intentions to continue farming despite repeated losses and hardships. This persistence was strongly connected to family responsibility, limited alternative livelihoods, and generational attachment to farming. These findings strengthen the application of TPB in agricultural contexts by demonstrating how intentions are reinforced by social obligations, economic necessity, and cultural identity.

Contribution to the Field

This study contributes to the growing body of agricultural and behavioral research by applying the Theory of Planned Behavior to the lived experiences of rice farmers in Davao del Norte. Unlike broader national agricultural studies that focus primarily on productivity and policy, this research highlights how psychological, social, and economic factors interact to shape farmer decision-making at the community level.

The study also provides localized evidence supporting national findings regarding debt dependency, market instability, and insufficient institutional support among Filipino rice farmers. However, it further contributes by demonstrating how subjective norms and perceived behavioral control operate within close-knit rural farming communities. These findings may guide policymakers, extension workers, and agricultural organizations in designing interventions that are both economically responsive and behaviorally informed.

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