FIELDS OF STRUGGLE: AN IN-DEPTH STUDY ON THE SOCIO-ECONOMIC ISSUES ENCOUNTERED BY FILIPINO RICE FARMERS

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ABSTRACT
Rice holds unparalleled importance in Filipino culture, serving as a fundamental dietary staple essential for daily sustenance. The stable and ample supply of rice is crucial for food security, relying heavily on the diligent efforts of Filipino rice farmers. Their vital role extends beyond agriculture, contributing significantly to the nation's well-being and cultural identity, emphasizing the imperative of sustaining their efforts for a stable and resilient food supply chain. This study falls under the broader domain of Agricultural Economics, which demands a thorough comprehension of government policies' effects on production and distribution. Also, this study focuses on the socio-economic aspects of rice farming in the Philippines, examining challenges within the broader agricultural sector, including land tenure, market dynamics, environmental factors and social issues. Discussion in this study of the intricate problems affecting Filipino rice farmers, encompassing land tenure uncertainties, economic uncertainties in market accessibility, environmental challenges impacting crop yields, and social dynamics shaping farmers' struggles are of great significance. Furthermore, the study aims to provide a comprehensive understanding of these challenges and contribute to informed policymaking, sustainable agricultural practices, and the well-being of those integral to the nation's food security. The study employs a targeted set of questions to explore the demographic profile of respondents, the main challenges faced by farmers, barriers in accessing markets, impacts of environmental factors, community dynamics, effects of existing agricultural policies and potential policy recommendations. Overall, the study seeks to unravel personal insights and recommendations from Filipino rice farmers on navigating challenges within Agricultural Economics, ultimately contributing to the improvement of conditions for these essential contributors to the nation's food security.

KEYWORDS: Agricultural Economics, Cooperatives, Credit Facilities, Environmental Factors, Filipino Rice Farmers, Government Policies, Land Tenure, Market Dynamics, Remission of Debts, Rice Farming, Socio-Economic Issues, Social Issues

INTRODUCTION
This study belongs to the broader area of specialization known as Agricultural Economics. Agricultural economics demands in-depth knowledge of problems pertaining to production, finance marketing and government policies, and their impact on production and distribution is very essential to find out suitable solutions for the farm problems (Tyagi, et al., 2020, p.3). This particular study explores the socio-economic aspects of rice farming in the Philippines, looking at the difficulties farmers face in the larger agricultural sector. This study covers topics like land tenure, market dynamics, environmental factors, and social issues, making it a thorough investigation within the field of Agricultural Economics.
According to the study of Tobias (2019), the Philippines became self-sufficient in rice in the 1970s and was a rice exporter to neighboring countries such as Indonesia, China, and Myanmar. However, the nation gradually became a net importer of rice due to its rapid population growth and limited ability to produce all of its needs for rice. After China, the Philippines is the world's second-largest importer of rice (Simeon, 2019). The nation imported rice primarily from Thailand (29%) and Vietnam (52%). Rice is a highly political commodity because it is the country's main staple. It has consistently served as the focal point of governmental agricultural policy Santiago (2019). The main goals of the policies are to increase food self-sufficiency and give rice farmers a high income while keeping prices reasonable for consumers. At the forefront of sustaining this vital supply chain are the diligent and industrious Filipino rice farmers, who play a significant role in meeting the nation's rice demands. The research focuses on the socio-economic dimensions of rice farming in the Philippines. It explores the complex web of difficulties that Filipino rice farmers face in their agricultural endeavors by going inside their everyday lives. The study investigates how these farmers' experiences are shaped by a variety of factors, including land tenure, market dynamics, environmental factors, and social issues. This study seeks to provide a holistic understanding of the socio-economic challenges confronting Filipino rice farmers, with the aim of contributing to informed policymaking, fostering sustainable agricultural practices, and advocating for the well-being of those who play a crucial role in the nation's food security.

Farmers are constrained and remained susceptible to poverty, hunger, and financial instability due to issues including land tenure, market accessibility, environmental concerns and social dynamics. The study delves into the intricate problems afflicting Filipino rice farmers, offering a comprehensive examination of their socio-economic challenges. The critical issue of land tenure emerges as a central concern, with uncertainties impacting farmers' ability to make long-term investments and impeding sustainable agricultural practices. The exploration of market accessibility sheds light on economic uncertainties, as farmers navigate volatile markets, affecting their livelihoods and financial stability. Environmental concerns, encompassing the vulnerability of rice farming to climate change and environmental degradation, present formidable challenges, with erratic weather patterns and sustainability issues affecting crop yields. Moreover, the study considers social dynamics, including gender disparities and community intricacies, as integral factors shaping farmers' struggles.

The primary objective of this study on Filipino rice farmers is to conduct a comprehensive examination that aims in identifying, analyzing, and proposing effective solutions to address the complex and multifaceted challenges encountered by these farmers. The respondents will generally answer on how to navigate the challenges in Land Tenure, Market Dynamics, Environmental Factors and Social Issues within the realm of Agricultural Economics. Specifically, the study will unravel these in the view of pre-identified individuals (Filipino rice farmers) as respondents by answering the following questions:

1. What is the demographic profile of the respondents in terms of:
   1.1. Age
   1.2. Gender
   1.3. Education Level
   1.4. Land Ownership
   1.5. Farm Size
   1.6. Location/Region
   1.7. Income Level
   1.8. Access to Technology
   1.9. Membership in Cooperatives or Associations
   1.10. Cultural or Ethnic Background
2. What are the main challenges faced by farmers in asserting ownership rights over agricultural land?
3. What barriers do farmers encounter in accessing and navigating volatile agricultural markets?
4. How do environmental factors, such as irregular weather patterns, impact crop yields and sustainability?
5. How do community dynamics influence the overall well-being and challenges faced by rice farming communities?
6. How do existing agricultural policies address or exacerbate the socio-economic challenges faced by Filipino rice farmers?
7. What policy recommendations can be made to improve the conditions for rice farmers?
   7.1 Condonation or Remission of Debts
   7.2 Improved Agricultural Insurance Policies
   7.3 Improved Credit Facilities
   7.4 Promotion of Cooperatives

In the same way, the study seeks to delve into key areas such as land tenure, aiming to understand the uncertainties that impede long-term investments and sustainable agricultural practices. Another focal point is market accessibility, with a goal of analyzing the economic uncertainties faced by farmers in navigating volatile markets. The study also addresses pressing environmental concerns, investigating the impacts of climate change and environmental degradation on rice farming. Additionally, it examines the intricacies of social dynamics, including gender disparities and community factors, shaping the farmers' struggles. The overarching aim is to contribute valuable insights that can inform the development of more effective policies and interventions, fostering sustainable agricultural practices and advocating for the well-being of Filipino rice farmers who play a pivotal role in the nation's food security.
METHODOLOGY

The research administers a comprehensive analysis of the issues facing the Philippine economy specifically on the **Fields of Struggle: An In-depth Study on the Socio-Economic Issues Encountered by Filipino Rice Farmers** by searching for various research and studies from news articles, online journals, Google Scholar and other sources. Several related literatures were reviewed to uncover these issues. A total of 34 search results were reviewed as necessary references for the study, hence, taken into consideration. Keywords used in the search were Agricultural Economics, Cooperatives, Credit Facilities, Environmental Factors, Filipino Rice Farmers, Government Policies, Land Tenure, Market Dynamics, Remission of Debts, Rice Farming, Socio-Economic Issues, Social Issues.

The study used Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) in conducting the research.

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RESULTS AND DISCUSSION

Demographic Profile

The demographic profile of Filipino rice farmers holds significant importance in this study. Different demographic groups may require distinct adaptation strategies and understanding the demographic profile allows for targeted interventions. Tailoring interventions based on these demographics can be more effective and helps in efficient resource allocation.

Age

Age affects technology adoption, with younger farmers more likely to adopt modern practices and this is why the age demographic profile of Filipino rice farmers is significant in the study. Focusing on rice farmers, Moya et al. (2015) found that the average age of Filipino rice farmers was 46 years old in 1966, increasing to 59 years in 2012. According to the study of Palis (2020), around 65% of the farmers wanted their children to stay away from rice farming, while only more than a third of them (35%) wanted their children to be rice farmers. This also emphasizes the necessity of passing down traditional knowledge and plays a part in succession planning. Age-group differences in educational backgrounds have an impact on how new farming techniques are embraced. Divergent perspectives on risk and change have an impact on resilience and innovation. The distribution of ages affects community dynamics, labor availability, and credit availability. Understanding these subtleties enables customized interventions, ensuring that policies meet the various needs of farmers at various stages of their lives, and promoting inclusive and sustainable agricultural development. Furthermore, age affects risk tolerance, which in turn affects the inclination toward adaptation and innovation. It's essential for sustainable agricultural practices to comprehend the differences in physical capabilities and labor dynamics between various age groups. The study aims to inform policies that address the diverse needs of Filipino rice farmers at different stages of their lives, promoting resilience, innovation, and a sustainable future for the agricultural sector by taking into account these age-related intricacies.

Gender

A study of M.S. Swaminathan (1988), states that it is widely known that women farmers and labor play a pivotal role in improving the productivity, profitability, stability, and sustainability of rice farming systems. It is therefore a matter for regret that inadequate attention is being paid to involving women actively in technology development and transfer and to designing improved technologies for women-specific occupations. A thorough understanding of the challenges faced by male and female rice farmers requires acknowledging their disparate roles and experiences. From planting to post-harvest operations, women—who are frequently underrepresented in traditional farming narratives—play crucial roles in the cultivation of rice. Comprehending gender dynamics illuminates differences in resource accessibility, land ownership, and involvement in decision-making procedures. Special difficulties pertaining to social expectations, restricted mobility, and access to extension services may be encountered by female farmers. Furthermore, encouraging gender-inclusive policies, empowering women in agriculture, and promoting sustainable development depend on acknowledging the contribution that women make to the farming industry. Through an exploration of the gender aspects of rice farming, the project hopes to further agricultural policies and empower all those involved in the vital work of ensuring food security for the country.

Education Level

According to the article of Roque (2015), the new Filipino farmer is educated and younger, age between 40 and 59. While the results of three PhilRice surveys (1996-1997, 2001-2002 and 2006-2007) showed that more than half of the 2,000 farmers covered by the study had elementary education (from 57 percent in 1996-1997 down to 54 percent in 2006-2007), between 13 and 15 percent (260 to 300) had college education. The diverse educational backgrounds of Filipino rice farmers have a
substantial impact on their capacity to comprehend contemporary farming techniques, adjust to technological breakthroughs, and participate in developing agricultural approaches. In order to solve issues with social dynamics, environmental sustainability, and market access, education becomes essential. Higher educated farmers might be better at implementing novel strategies, taking part in instructional initiatives, and gaining access to knowledge that strengthens their resilience. On the other hand, people with little formal education may find it difficult to use new technologies and get access to essential agricultural resources. In order to create targeted interventions, create educational programs that address the unique needs of a variety of educational backgrounds, and guarantee inclusivity in policies aimed at sustainable agricultural development, it is essential to comprehend this educational diversity. Essentially, the education level is a significant factor in addressing the socio-economic challenges faced by Filipino rice farmers and promoting a more inclusive and adaptable agricultural sector.

**Land Ownership**

A study by Krishna Koirala (2014) used the simulated maximum likelihood (SML) approach and the Institute of Rice Research Institute's 2007–2012 Loop Survey to examine the factors influencing rice production and the technical efficiency of rice farmers in the Philippines. The results indicate that land ownership has a significant impact on rice production. In particular, farmers who lease land are less productive than those who own the land. The allocation of land among rice farmers in the Philippines has significant effects on their long-term investments, overall sustainability, and financial stability. The difficulties farmers encounter in claiming ownership rights over agricultural land can be better understood by looking at differences in land tenure. This problem not only affects their capacity to decide strategically what crops to grow and how to allocate resources, but it also has a big impact on how rural communities are socioeconomically constructed. The dynamics of land ownership have an impact on a number of areas, including the ability to adopt sustainable agricultural practices, participate in government programs, and obtain credit. The study also acknowledges the wider socio-economic ramifications, which might have an effect on community development, wealth distribution, and poverty alleviation. The study intends to offer insights essential for creating policies and interventions that address the complexities of land tenure, promoting fair agricultural practices and sustainable development within the domain of Filipino rice farming, by thoroughly examining the subtleties of land ownership within the demographic profile.

**Farm Size**

The distribution and variation in farm sizes among Filipino rice farmers serve as key determinants influencing the complex socio-economic challenges within the agricultural landscape. Small-scale farmers might struggle to obtain economies of scale, which would limit their access to contemporary technologies and their ability to make a living. On the other hand, larger farms may experience difficulties with sustainability and efficient management. Assessing the various vulnerabilities and resilience levels within the farming community requires an understanding of this range of farm sizes. It has a major effect on farmers' overall economic prosperity, their ability to obtain credit, and their involvement in government assistance programs. Furthermore, the social structure of rural communities is greatly shaped by the dynamics of farm size, which has an impact on cooperative projects and community-based resilience techniques. The study aims to produce nuanced insights that inform policies and interventions tailored to the diverse needs of Filipino rice farmers by analyzing the nuances of farm sizes within the demographic profile. The objective of this approach is to promote sustainable farming methods and enhance the overall resilience and prosperity of the Philippine agricultural industry.
Location/Region

The geographical location or region of Filipino rice farmers stands out as a pivotal dimension in the demographic profile analyzed in this study. A deeper level of understanding is provided by the regional context, which acknowledges the various climatic conditions, resource accessibility, and regional economic disparities that impact the difficulties faced by rice farmers. It may be necessary to implement interventions that are specific to a given region in order to address differences in land tenure systems, market dynamics, and environmental vulnerabilities. While inland regions may face different challenges, coastal regions may struggle with issues related to saline intrusion and climate change. Furthermore, the availability of support infrastructure, community dynamics, and cultural practices are all significantly influenced by the regional dimension. In order to create policies and interventions that are contextually relevant and ensure that solutions are customized to the particular challenges faced by rice farmers in each region, it is essential to acknowledge the impact of location on the socio-economic landscape. The study aims to offer a thorough understanding of the various opportunities and challenges within the diverse agricultural landscapes of the Philippines by looking at the demographic profile through a regional lens. This will ultimately help to create more effective and focused strategies for sustainable development in each region. This dimension acknowledges the various agricultural environments found in the various Philippine regions, each with particular opportunities and challenges that have a big impact on rice farming. For instance, in the Cordillera Administrative Region (CAR), hilly topography may provide difficulties for rice farmers with regard to land use, terracing techniques, and water resource management. The country's "Rice Granary," Central Luzon, on the other hand, is renowned for producing rice, so because of this, it may face challenges with intensive farming methods, limited water supplies, and market accessibility. Coastal areas, like those in Mindanao, may encounter unique difficulties like salt intrusion, the effects of climate change, and typhoon susceptibility.

Income Level

The financial stability of rice farmers in the Philippines is directly related to their income and is a major factor in determining their capacity to overcome obstacles and make investments in environmentally friendly farming methods. Differences in the income levels of farmers reveal the different levels of susceptibility and adaptability in the agriculture industry. Lower income groups might find it difficult to obtain resources, credit, and technology, which would make it more difficult for them to use contemporary farming techniques. On the other hand, farmers with higher incomes might encounter difficulties with resource management, market dynamics, and implementing new technologies. Comprehending the intricacies of income dynamics is imperative in customizing interventions that cater to the distinct requirements of farmers across various economic classes, thereby promoting inclusivity in policies that promote sustainable agricultural development. The study intends to offer insights that contribute to the design of targeted strategies, ensuring the well-being and economic prosperity of Filipino rice farmers across diverse income brackets, and ultimately contributing to the overall resilience and sustainability of the agricultural sector by exploring the complexities of income levels within the demographic profile.

Access to Technology

Technology has a revolutionary impact on rice farming, impacting economic results, sustainability, and productivity. It is crucial to comprehend the disparities in agricultural technology accessibility among Filipino rice farmers, as this has a significant impact on their capacity to handle contemporary farming techniques. Inequalities in access can result from a variety of factors, including education, wealth, and location. These factors can also have an impact on how widely new methods and equipment are adopted. Farmers who have restricted access may find it difficult to participate in digital agricultural markets, optimize yields, and adjust to climate change. However, those with more
access can use technology for sustainable practices, market intelligence, and precision farming. Understanding these subtleties is essential to designing digital divide-bridging interventions that make technology an inclusive tool that empowers all rice farmers. An example is the study of breeding strategy implemented by the Philippine Rice Research Institute (PhilRice) aims to address the challenges faced by the rice industry in the present and future, including sustainable agriculture and global warming (Manangkil et al., 2020). It advocates for a stronger and more cohesive variety development structure to keep up with the changing times and climate change. The study intends to provide insights necessary for developing policies and initiatives that foster equitable and sustainable technological adoption, ultimately boosting the resilience and development of the Filipino rice farming sector by analyzing the complexities of technology access within the demographic profile.

Membership in Cooperatives or Associations

The socioeconomic makeup of agricultural communities is shaped by the involvement of rice farmers in these formal groups, which also has a big impact on their capacity to overcome obstacles. According to the Department of Budget and Management (2023), the programs of the Department of Agriculture (DA), which include the National Rice Program, National Corn Program, National Livestock Program, National High-Value Crops Development Program, Promotion and Development of Organic Agriculture Program, and National Urban and Peri-Urban Agriculture Program, aim to address food security, poverty alleviation, and sustainable growth through increased farm income and productivity. Members of associations or cooperatives frequently benefit from group power, which enables them to more successfully access government assistance programs, pool resources for shared infrastructure, and negotiate better prices for their produce. Their ability to withstand market volatility, environmental uncertainties, and socio-economic fluctuations is improved by this collaborative approach. The research acknowledges the value of cooperative or association membership in promoting a feeling of community, allowing for the exchange of knowledge, and offering a forum for group decision-making. Farmers who are not part of these networks might encounter more difficulties getting information and resources, which could affect their socioeconomic status as a whole. Through an examination of the prevalence, dynamics and effects of memberships in cooperatives or associations within the demographic profile, this study aims to present the complex relationship between collective action and the welfare of rice farmers in the Philippines. The investigation's findings are intended to provide guidance for policies that support and strengthen these kinds of group affiliations, promote inclusive development, sustainable farming methods, and give communities that grow rice more power through cooperative projects. The study's focus on the function of cooperative structures is in line with a larger objective of improving social cohesion, guaranteeing fair access to resources, and strengthening Filipino rice farmers' resilience against the variety of complex difficulties present in the agricultural environment.

Cultural or Ethnic Background

Understanding the socioeconomic difficulties faced by Filipino rice farmers requires an appreciation of their rich cultural and ethnic diversity. Traditional farming methods, indigenous knowledge, and community dynamics are examples of cultural factors that have a significant impact on resilience strategies and agricultural approaches. Within farming communities, communication and cooperative efforts are impacted by the differences in language, customs, and social structures that arise from different ethnic backgrounds. Furthermore, land tenure systems and cultural identity frequently interact, forming farmers' ties to their ancestral lands and affecting their ideas of sustainable farming. It is essential to comprehend how cultural or ethnic backgrounds interact with socioeconomic difficulties because it reveals specific coping strategies, resource management techniques, and social support networks. By shedding light on these subtleties, the study hopes to promote a comprehensive understanding that extends beyond just economic considerations.
research aims to provide information for policies that are inclusive, culturally sensitive, and supportive of sustainable agricultural development by acknowledging and appreciating the diversity of cultural and ethnic backgrounds. This strategy contributes to the resilience and prosperity of farming communities while guaranteeing that interventions resonate with the diverse identities and customs of the people who are the backbone of the country's agricultural sector. It is in line with the larger goal of protecting and promoting the rich cultural heritage ingrained within the Filipino rice farming landscape. One example according to the Journal Article entitled *Indigenous Knowledge in Traditional Production of Rice: Impact on Food Security in the Upland Households in Ifugao, Philippines* by Eva Marie Codamon-Dugyon (2023), that Indigenous knowledge plays a crucial role in the traditional production of rice among the Ifugao indigenous people in the Philippines, as their practices are intertwined with their cultural identity and the Ifugao Rice Terraces (IRT) and despite facing food security challenges, the Ifugao people continue to grow native rice using their traditional methods, indicating the resilience of their indigenous knowledge in sustaining their food production. The study essentially emphasizes the value of accepting cultural diversity as a fundamental component of the demographic profile, enhancing the investigation of the socioeconomic difficulties encountered by Filipino rice farmers and laying the groundwork for agricultural development strategies that are both sustainable and culturally appropriate.

**Main Challenges Faced by Farmers in Asserting Ownership Rights Over Agricultural Land**

According to the Journal Article entitled *Land Tenure, Tenure Security and Farm Efficiency: Panel Evidence from the Philippines* by Jeffrey Michler and Gerald Shively (2015), the paper examines the relationships between formalized property rights, land tenure contracts, and farm efficiency in the Philippines and measure the effects of land tenure arrangements on farm efficiency using a stochastic production frontier model. The result is that the land tenure arrangements have a significant effect on technical efficiency, indicating allocative inefficiency in the local land rental market. When it comes to claiming ownership rights over agricultural land, a vital aspect of their livelihoods, Filipino rice farmers face numerous obstacles. The complexities of land tenure systems present a significant obstacle, as ambiguous land titles and unofficial agreements frequently give rise to conflicts and prevent farmers from obtaining uncontested ownership. These problems are made worse by the lack of a formal land registration procedure, which leaves farmers open to disputes over their land. A major threat is also posed by the encroachment of urbanization and commercialization, which results in the conversion of agricultural lands for non-agricultural uses and the eviction of farmers. Asserting their ownership rights over agricultural land, a vital aspect of their livelihoods, presents a multitude of challenges for Filipino rice farmers. One major obstacle is the complexity of land tenure systems, where ambiguous land titles and unofficial agreements frequently give rise to conflicts and make it difficult for farmers to obtain uncontested ownership. These problems are made worse by the lack of an organized system for registering land, which leaves farmers open to disputes involving their property. The increasing commercialization and urbanization also present a serious threat since they convert agricultural lands to uses other than farming, which forces farmers to relocate.

**Barriers that Farmers Encounter in Accessing and Navigating Volatile Agricultural Markets**

The access and navigation of volatile agricultural markets presents significant challenges for Filipino rice farmers, thereby impeding their ability to maintain economic stability. The lack of market information that farmers have access to prevents them from making well-informed decisions about when, where, and how to sell their produce. This is one major obstacle. Their ability to strike fair agreements and adjust to shifting market conditions is hampered by their lack of access to real-time market prices and trends. For example, farmers in Northern Luzon frequently struggle to get timely and accurate market information, which makes them vulnerable to middlemen's exploitation. Inadequate transportation infrastructure also makes it harder for people to access markets; for example, farmers in remote areas find it difficult to get their produce to more lucrative markets. The lack of dependable transportation choices in the Visayas region frequently leads to
expensive and delayed deliveries, which reduces farmers' profits. In addition, the dominance of traders and middlemen in the supply chain leads to unfair farmer compensation and price manipulation. This is seen in Mindanao in the Cotabato region, where middlemen control a large portion of the rice trade and thus reduce the bargaining power of farmers. Farmers are further cut off from value chains by the lack of direct market connections, which makes it more difficult for them to obtain a fair portion of the market value for their produce. Furthermore, navigating the market is made more difficult by rice farmers' susceptibility to outside shocks like changes in the price of rice globally and the effects of climate change. Extreme weather events, such as the typhoons that hit the Bicol region, frequently cause disruptions to market access and production, making farmers financially vulnerable. To overcome these obstacles, comprehensive measures must be taken, such as direct market linkages, transportation infrastructure upgrades, and investments in market information systems. These will enable Filipino rice farmers to negotiate unstable agricultural markets and gain a more fair place in the supply chain.

Environmental Factors that Impact Crop Yields and Sustainability

The crop yields and sustainability of rice farmers in the Philippines are significantly impacted by environmental factors, especially erratic weather patterns, which pose significant challenges to their agricultural pursuits. The Philippines, which is prone to typhoons, has a high frequency of typhoons and unpredictable rainfall patterns, which have a big impact on rice farming. Typhoon-prone areas like Bicol and Eastern Visayas are susceptible to flooding, lodging, and significant crop damage during the growing season due to heavy rainfall and strong winds. This lowers yields now and raises questions about sustainability in the long run. On the other hand, dry spells, especially in regions like Mindanao and Central Luzon, can negatively impact rice crops, impeding their healthy growth and development. The unpredictable nature of weather events throws off conventional planting and harvesting schedules, making it difficult for farmers to plan their operations in accordance with the best weather.

Climate variability, particularly variations in soil moisture driven by the El Nino-Southern Oscillation (ENSO), strongly impacts rice production in the Philippines. Rainfed upland rice production systems are more sensitive to soil moisture variability than irrigated paddy rice. About 10% of the variance in rice production anomalies on the national level co-varies with soil moisture changes, which are strongly negatively correlated with ENSO variability (Stuecker et al., 2018).

These problems are made worse by climate change, which also causes rising temperatures and changed precipitation patterns. The health and productivity of rice crops may be impacted by changes in pest and disease dynamics in the Cordillera Administrative Region, which is recognized for having a colder climate. Furthermore, variations in rainfall patterns impact the amount of water available for irrigation, which is a vital aspect of rice cultivation. Rice farming depends more and more on sustainable water management, particularly in areas where there is a shortage of water. The variability of meteorological phenomena not only jeopardizes current harvests but also makes it more difficult for farmers to make long-term plans, which undermines their sustainability as a whole.

Filipino rice farmers are investigating sustainable agricultural methods, implementing better water management practices, and implementing climate-resilient rice varieties in an effort to lessen these difficulties. Integrated water management systems are being put into place in areas such as the Visayas to improve water-use efficiency and adjust to shifting precipitation patterns. In the face of increasingly unpredictable environmental conditions, these adaptive measures are essential for maintaining food security, protecting the livelihoods of Filipino rice farmers, and advancing the long-term sustainability of rice farming.

Influence and Challenges of Market Dynamics in the Rice Farming Communities

According to the Journal Article entitled *Is there a Market Power in the Philippine Rice Industry?* by Maria Hazel Bellezas et al. (2020), the study found the presence of market power in the Philippine rice industry, particularly in non-major rice-producing regions and major rice-producing areas. The coefficient of market power indicated a near monopoly behavior in major rice-producing regions for regular-milled rice
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(RMR) compared to non-major producing regions. The inelasticity of demand played a significant role in the presence of market power. The steeper demand curve for RMR in both regions and well-milled rice (WMR) in non-major rice-producing regions contributed to the inefficient market conduct of rice sellers. In conclusion in the study, to address market power, the study suggests introducing a substitute staple for rice, implementing programs/policies to encourage more palay traders, and training farmers to operate like industry clusters.

In the communities of Filipino rice farmers, market dynamics have a big impact and pose a lot of difficulties. Farmers' ability to negotiate is hampered by the dominance of middlemen and traders in the supply chain, which is especially noticeable in provinces like Nueva Ecija and results in price manipulation and lower returns. In places like Ilocos, where there are few direct market connections that separate farmers from higher-value markets and reduce profit margins, geographic remoteness makes this problem worse. Changes in the price of rice globally have an impact on local markets, which impacts the financial stability of farmers in areas like Mindanao. As seen in the Cagayan Valley, government policies—such as the Rice Tariffication Law—have an impact on market dynamics and have consequences for regional farmers. Farmers in areas like CALABARZON are promoting cooperatives as a means of establishing direct connections with customers and minimizing reliance on intermediaries in response to these difficulties. Digital platforms are also becoming more and more popular. Davao farmers are using online channels to get market data and make direct connections with buyers. In order to improve the resilience of Filipino rice farmers in the complex and dynamic market landscape, it is imperative to implement comprehensive strategies that include fostering fair trade practices, bolstering local capacities, and improving post-harvest facilities.

Existing Agricultural Policies of Filipino Rice Farmers

Existing agricultural policies in the Philippines play a crucial role in either addressing or exacerbating the socio-economic challenges faced by Filipino rice farmers. According to Rice Competitiveness Enhancement Fund (2019), the Rice Tariffication Law or Republic Act 11203 is a law that replaces the system of quantitative restriction (QR) on rice importation with a purely tariff system. One policy that has had a big impact on the rice industry is the removal of quantitative import restrictions through the Rice Tariffication Law. Although the law was intended to keep prices stable, it actually made local farmers more vulnerable to competition from cheaper imports, which reduced their earnings. The increase in imported rice, especially from nations with cheaper production costs, has caused volatility in local prices, which has an impact on the profitability of rice farmers in the Philippines. Positively, local rice farmers' competitiveness is being improved through the implementation of various support programs like the Rice Competitiveness Enhancement Fund (RCEF). In an effort to increase output and lower costs of production, RCEF provides funding for training initiatives, seed distribution, and farm mechanization. However, as seen in areas like the Bicol region, there are difficulties in guaranteeing fair distribution and successful implementation at the grassroots level.

In conclusion, there is a fine balance to be struck even though some agricultural policies seek to address issues faced by Filipino rice farmers. While support initiatives like RCEF seek to empower farmers, policies like the Rice Tarification Law have the unintended effect of exacerbating financial difficulties. The socio-economic environment that Filipino rice farmers live in is greatly shaped by the efficiency and fair application of these policies, which in turn affects their resilience and general well-being.

Policy Recommendations to Improve the Conditions for Rice Farmers

Improving the conditions for Filipino rice farmers is essential for ensuring food security. However, rice farmers face numerous challenges and the importance of government support programs will greatly help to improve the conditions of Filipino Rice Farmers. The following policies will help Filipino rice farmers:
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**Condonation or Remission of Debts**

According to the study of Lubang (2019), the government has been highly biased towards chemical agriculture. Increasing farm productivity in the face of fast population growth and land conversion has always been the main goal. However, since the farmers are being left behind rather than protected, it contradicts the government's ideals and principles of inclusive growth. Farmers became indebted decades ago as a result of the government's promotion of chemical agriculture, which led to their reliance on formal or informal credit services. For example, the farmers owe the National Irrigation Authority Php 12 billion in arrears for irrigation services. Some farmers use loans from unofficial lenders to pay off their debts, while others voluntarily default on their loans because they have extremely low ability to repay them. Released from their outstanding debts in official credit markets, they can reenter the agricultural sector and direct their earnings toward growing their farms and enhancing social welfare instead of repaying their debts.

**Improved Agricultural Insurance Policies**

According to the same study of Lubang (2019), Farmers' indebtedness can also be addressed by shifting from a culture of ex-post risk management measures to ex-ante measures. Insurance and credit ought to be handled independently of one another and not closely associated. The government is actively encouraging a culture of credit dependence through the current practice of only offering insurance to borrowers, which is an ex-post risk management strategy. Farmers will be required to adhere to the recommended package of technologies through agricultural insurance, but the financial burden of taking risks will be mitigated. Additionally, by lowering the premium rate that is most affordable for them, adding other agricultural commodities to the lineup, and extending coverage beyond the credit portion of inputs, PCIC's insurance policies can be improved. To do this, the government has to raise capitalization in order to boost penetration and enhance insurance services. It's also important to address the drawn-out claims settlement procedure. In order to make the process of settling claims more convenient for them, the current procedure should be reviewed. To reduce administrative costs, PCIC may investigate the use of a community-based validating system for farmers in nearby areas. The program needs to make sure that assistance is provided to farmers who are claiming indemnities within a 30-day period. This enhancement may result in reduced administrative expenses, effective resolution of indemnity claims, and encouragement of agricultural insurance among farm laborers. It is also possible to conduct pilot testing for the use of novel insurance indices, like the weather index. Better weather-based insurance policies could make agricultural lending less hazardous, which would in turn encourage more private sector involvement in the provision of credit for agriculture (Geron & Casuga, 2012).

**Improved Credit Facilities**

According to the same study of Lubang (2019), one practical solution to the problem of farmers' lack of capital could be microfinance services. Nonetheless, a review of the current interest rate on agricultural loans is necessary. The microfinance markets in the nation offer interest rates ranging from 16% to 48% annually. In comparison to the 6-7% in Thailand, 2-3% in South Korea, and 1-2% in Japan, this is a noticeably high percentage (Villegas & Mendoza, 2015). The main causes of Filipino farmers' debt are irrigation costs, land amortization for CARP, and their aversion to risk following their experience with heavy chemical dependence during Masagana 99. Because of the extremely high interest rates, farmers are afraid they won't be able to repay the loans, so they don't take out loans equal to their output. As a result, their productivity may be limited by the inadequate inputs. Farmers find it challenging to pay off their whole debt load due to the high current interest rate. Thus, interest rates ought to be lowered for equity-related reasons. According to the Agri-Agra Reform Credit Act, microfinance institutions should likewise be subject to strict regulation and interest rate monitoring. Additionally, more formal credit options are required in rural areas, such as

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a Village Banking System (Villegas & Mendoza, 2015). This will encourage greater inclusivity and make agricultural credit more accessible to the rural poor. More importantly, by offering more direct solutions like bolstering the programs on farm-to-market roads, post-harvest facilities like cold storage transport systems, and greenhouse facilities, among the array of programs stipulated in AFMA, the repayment capacity of small farmers should be improved.

Promotion of Cooperatives

According to the same study of Lubang (2019), another strategy to enhance the nation's credit service is to support cooperatives as a powerful instrument for economic development in rural areas, per the same Lubang (2019) study. It is impossible to overstate the importance of cooperatives in the agriculture industry since they play a crucial role in empowering farmers. In developed nations like South Korea and Japan, where farmland is primarily small, cooperativism is becoming more popular (OECD, 2009). The Philippines has also begun to make progress in putting community-based programs into practice. Therefore, in order to speed up the modernization of Philippine agriculture, it is essential to place greater trust in these cooperatives.

CONCLUSION

In conclusion, this study has provided a comprehensive examination of the socio-economic challenges faced by Filipino rice farmers within the broader context of Agricultural Economics. By delving into critical areas such as land tenure, market dynamics, environmental factors, and social issues, the study has illuminated the intricate web of difficulties that these farmers navigate in their everyday lives. The significance of this research is underscored by the significant role played by Filipino rice farmers in ensuring the nation's food security, as rice stands as a fundamental dietary staple for the Filipino population. The findings of this study highlight the multifaceted nature of challenges faced by rice farmers, ranging from uncertainties in land tenure impacting long-term investments to economic uncertainties in volatile markets affecting financial stability. Environmental concerns, including the vulnerability of rice farming to climate change, and social dynamics, such as gender disparities, further contribute to the complexity of their struggles. Improving the conditions for Filipino rice farmers is paramount for ensuring food security and equitable economic development. Government support programs are pivotal in addressing the challenges faced by these farmers. One crucial policy recommendation is the condonation or remission of debts incurred by farmers due to historical biases towards chemical agriculture. This would enable farmers to reinvest in their farms and livelihoods instead of being burdened by debt. Additionally, improving agricultural insurance policies can help alleviate farmers' indebtedness by shifting towards ex-ante risk management measures. Lowering premium rates and expediting claims settlement processes are essential steps in this regard. Furthermore, enhancing credit facilities, particularly through microfinance services, and lowering interest rates are vital to providing farmers with access to much-needed capital. Strict regulation of interest rates and the promotion of formal credit options in rural areas can foster inclusivity and improve repayment capacities. Lastly, supporting cooperatives can empower farmers and enhance the efficiency of credit services, mirroring successful models in countries like South Korea and Japan. By implementing these policies, the government can significantly improve the conditions of Filipino rice farmers and contribute to sustainable agricultural development.
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