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The Role of ASEAN's Rice Commodity Market Integration in Economic Stability and Food Security

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Abstract

Food security is a crucial issue in economics, particularly for ASEAN countries that heavily rely on rice commodities. Climate change impacts rice production, leading to production declines and price spikes, threatening economic stability and social welfare. ASEAN has committed to strategic cooperation to protect rice supplies and prevent food crises, while increasing production and stabilizing supply through collaborative initiatives. This study employs qualitative methods and descriptive analysis in literature review to explore the implementation of ASEAN regional cooperation on rice commodities. Secondary data is utilized to understand the impact of rice commodities on food security in the ASEAN region. Through a descriptive analytical approach, this research aims to provide an accurate picture of the relationship between regional cooperation and rice commodity management in ASEAN. The results indicate that ASEAN rice market integration is vital to reduce price risks for farmers and improve food security. The establishment of a rice futures market can help manage risks and ensure stable prices, which are crucial for maintaining economic stability. Regional cooperation and harmonization of rice standards are necessary, along with improved infrastructure and financial support for farmers to sustain the agricultural sector and the economic well-being of the ASEAN region.

Introduction

Food security remains a paramount issue within the ASEAN region, with rice being a staple commodity integral to the socioeconomic fabric of its member countries. The stability of rice production and supply significantly influences the economic stability and overall development of these nations. As rice is a major staple food consumed across Southeast Asia, any disruption in its production can have far-reaching economic implications, including

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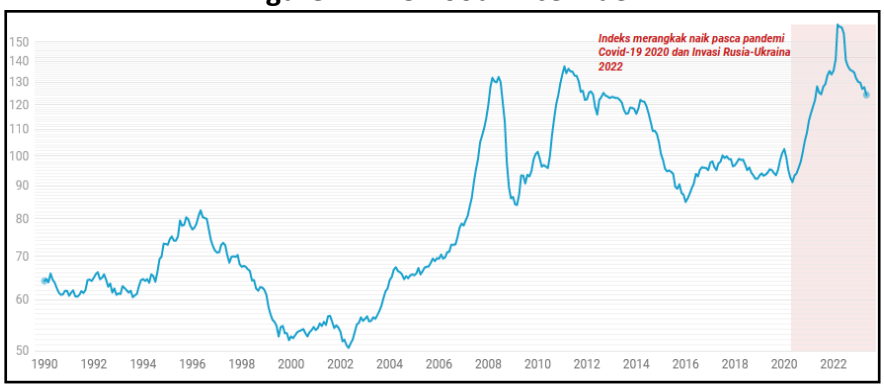
price volatility, inflation, and food scarcity, which directly affect both urban and rural populations.

The economic framework surrounding rice production and trade within ASEAN is multifaceted, involving factors such as climate change, market integration, and regional cooperation. Climate change, in particular, poses a significant threat to rice production, leading to fluctuations in yield and price spikes that can destabilize markets and economies. The vulnerability of rice production to extreme weather events necessitates robust regional cooperation to mitigate risks and ensure a stable supply.

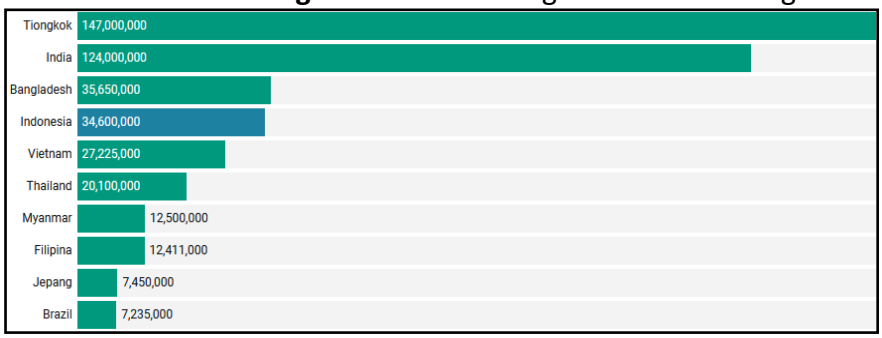
Figure 1. FAO Food Price Index



Source : FAO, 2023

Figure 1 explains that the FAO (Food and Agriculture Organization) food price index fell to the level of 124.3 points in May 2023. Compared to April which was recorded at 127.7 points, this figure decreased significantly, indicating an increase in prices for rice commodities in almost all over the world. To meet food needs, Southeast Asia is present as a region producing food commodities, especially rice. Rice is a staple food for most of the Southeast Asian population, so the sustainability of this commodity must be maintained (Mudji & Ramadhani, 2020). At the 23rd meeting of the ASEAN Economic Community Council (AECC), all ASEAN countries agreed to establish strategic cooperation in the field of food security, especially in the commodity of rice. This collaboration is carried out to ensure the availability of rice supplies and prevent a food crisis in the ASEAN region. In addition, ASEAN countries are working together to become the largest rice producers in the world (Utami, 2023).

Figure 2. World's Largest Rice Producing



Source : USDA, 2023

Based on data from the United States Department of Agriculture (USDA), in 2023 Indonesia will succeed in becoming the largest rice producer in ASEAN countries with production reaching 34.6 million tons of rice. Indonesia's rice production is estimated to

mostly come from cities in West Java (17%), East Java (17%), Central Java (14%), South Sulawesi (6%), and North Sumatra (5%). Below Indonesia, there are other ASEAN countries such as Vietnam with an estimated rice production of 27.22 million tons, followed by Thailand with 20.1 million tons, Myanmar with 12.5 million tons, and the Philippines with 12.41 million tons. This condition makes ASEAN countries realize the importance of maintaining food supply stability for rice commodities (Kusnandar, 2023).

With the importance of maintaining food security in rice commodities, ASEAN countries always strive to maintain stability and even increase the supply of rice commodities. Various collaborations have been carried out with ASEAN member countries in an effort to maintain food security. This collaboration is carried out solely to overcome problems that could disrupt the stability of rice commodities in each country. Apart from that, every country must be able to balance aspects of supply and demand to create strong food security in the face of all threats. Therefore, regional cooperation between ASEAN member countries is the right step to take.

Regional cooperation among ASEAN countries in rice production and trade involves harmonizing standards, improving infrastructure, and providing financial support to farmers. Such cooperation can lead to more efficient resource allocation, better risk management, and ultimately, greater food security. The establishment of a rice futures market, for example, can serve as a tool for managing price risks, thereby providing farmers with a more predictable income and encouraging investment in rice production.

The intersection of economic policies and agricultural practices within the ASEAN framework is crucial for ensuring a stable and secure food supply. The strategic cooperation among member countries not only addresses immediate challenges related to rice production and supply but also lays the groundwork for long-term economic stability and growth. Through this lens, the study contributes to the broader discourse on how regional economic cooperation can serve as a cornerstone for achieving food security in the face of global uncertainties.

Literature Review

Rice is not only a dietary staple in ASEAN countries but also a crucial economic commodity. It significantly influences national income and employment within the agricultural sector. Studies indicate that the stability of rice prices is essential for maintaining economic stability, as fluctuations can lead to inflation and social unrest. The agricultural sector, particularly rice production, is highly susceptible to climate variations. Extreme weather conditions, such as droughts and floods, adversely affect crop yields, leading to supply shortages and price spikes. The United States Department of Agriculture (USDA) forecasts a global decline in rice supplies, emphasizing the need for strategic measures to mitigate these risks.

ASEAN's strategic cooperation aims to enhance food security through integrated market mechanisms and policy harmonization. Regional cooperation facilitates the sharing of resources, technology, and best practices among member countries, thereby stabilizing rice production and supply. The establishment of a regional rice futures market is proposed as a means to manage price risks and ensure market stability. ASEAN's policy frameworks,

including the ASEAN Economic Community (AEC) and the ASEAN Integrated Food Security Framework (AIFS), guide the regional cooperation on food security. These policies advocate for reduced trade barriers, improved infrastructure, and financial support for farmers. Empirical evidence suggests that integrated markets can mitigate price disparities and enhance food security across the region.

Despite the benefits, establishing a unified rice market faces challenges such as differing national policies, infrastructure deficits, and varying levels of market readiness among member countries. Recommendations for overcoming these challenges include increased private sector participation, enhanced regional policy cooperation, and the development of comprehensive market infrastructure.

Hypotheses

The increasing concern over the stability of food security regarding rice commodities stems from the crisis of unpredictable weather patterns experienced annually. This issue leads producers to prioritize exporting rice to other nations, resulting in various problems such as price hikes and scarcity of rice commodities. This reluctance of ASEAN member countries to advocate for the liberalization of rice trade further underscores the severity of the situation. Consequently, upon assessing the situation, it is proposed that regional cooperation be enhanced through the establishment of a shared rice futures market. This initiative aims to enhance farmers' understanding of pricing and risk management, thereby facilitating the implementation of collaborative efforts among ASEAN members to bolster the availability of rice as a key commodity in Southeast Asia.

Research Methods

This article uses Library Study research. (Pitoria, 2022) states that in library research, data collection is carried out by examining and studying various literature or reading materials such as books, journals, and so on. And used as a reference based on the subject matter being studied. And in this study approach, the author uses two methods, namely qualitative methods by collecting some data and descriptive analysis through literature studies on the implementation of ASEAN regional cooperation on rice commodities. In this research study approach, the author uses two methods, namely qualitative methods and descriptive analysis methods. The qualitative method is a method that collects some data that provides a description of the circumstances that occur and the descriptive analysis method is to collect data by explaining the data in the form of words to answer research objectives, descriptive analysis methods can be collected through literature studies on the implementation of regional cooperation, ASEAN regional food security in rice commodities, and everything related to the theories that will be used in the research.

Results and Discussion

The high demand for rice commodities in the international market has led to the increasing dependence of the international rice market on the rice industry of ASEAN member countries. Simply put, rice-importing countries may have to import rice to deal with domestic problems, as long as international rice prices always experience uncertain changes in response to the policies of other member countries that make imports less effective. Similarly, rice-exporting countries may have to import rice to deal with domestic problems due to the impact of perceived producers preferring to export rice to other countries,

resulting in several problems such as price increases and scarcity of rice commodities. Moreover, the climate change crisis has caused a real impact on every farmer in ASEAN countries. ASEAN member nations have engaged in cooperative trading of commodities, including rice, cocoa, wheat, and sugar, in the commodity market. ASEAN member nations accept a prearranged price through a futures or legal agreement to initiate market integration in rice commodities before trading with the importing country.

The unification of rice markets in ASEAN might potentially help farmers reduce the danger of selling their produce at a loss. Farmers may need to spend capital to create a certain commodity, but they also face the possibility of receiving a poor price for the production costs in the next harvest. At times, farmers must capitalize on the price at the time of harvest, particularly if there is a risk of their crops deteriorating over time. Farmers may mitigate risk by selling items at a predetermined price on the same day using a futures agreement that guarantees the current or previously agreed-upon price. ASEAN nations have decided to enhance the well-being of their farmers, ensuring the preservation of food security in rice commodities, regardless of the circumstances.

Agricultural commodity markets The Chicago Mercantile Exchange (CME) in the United States has the title of being the biggest in the world. In the Asian area, notable commodity exchanges include the Thailand Agricultural Futures Exchange (AFET), the Japan Tokyo Commodity Exchange (TOCOM), the China Zhengzhou Commodity Exchange (ZCE), and the Singapore Commodity Exchange (SICOM). TOCOM and SICOM marketplaces do not trade rice. CME operates the rice commodities market via the Chicago Board of Trade, which is a component of the CMO Group. Experts consider the market effective in promoting the future of rice. Ewing outlines the crucial elements for achieving success, such as unrestricted futures markets, minimal government price restrictions, a conducive regulatory framework, and clearinghouses.

Thailand's region has AFET, the only agricultural futures market in the area. AFET, established in 2001, specializes in trading futures contracts for tapioca, rubber, and rice commodities with funding from the Thai government. AFET categorizes market participants into brokers and sellers. AFET allows up to 20 brokers to participate, while also encouraging new sellers to join. ZCE offers many varieties of rice in China, including early rice, Japonica rice, and late Indica rice. China established ZCE as its first rice futures market, which has been operational since 1993.

Past evaluations of rice market policies in Indonesia, together with comparable assessments in ASEAN nations, indicate advancements in the integration of the controversial rice market. Rice is considered a commodity of high significance by all ASEAN countries. Countries in the area have been compelled to adopt policies favoring local rice production due to certain measures, which may be seen as protectionist, resulting in increased pricing, particularly in Indonesia and the Philippines. The need for all member nations to include the ASEAN Economic Community (AEC), the ASEAN Integrated Food Security Framework (AIFS), and strategic planning for ASEAN cooperation in food, agriculture, and forestry is leading to the development of new policies. Internal rules must comply with regional regulations, which include provisions that impact and safeguard the viability of the local rice sector. The AIFS strategic planning framework is created by policymakers. The OECD has found empirical

evidence indicating rice market integration, since rice price levels often align, indicating the presence of rice market integration. OECD observations confirm that pricing fluctuations across the ASEAN area exhibit similarities, but with delays in adjustments. Market integration may be justified; however, internal regulations in each country might lead to price disparities across nations, diminishing the efficacy of rice market integration. It is sad that completely integrating into the ASEAN rice market might eliminate price discrepancies and decrease malnutrition among ASEAN households by up to 5%, as revealed by certain research.

Establishing a rice futures market might enhance farmers' understanding of price and risk management since ASEAN member nations, including Indonesia, are not now prepared to advocate for rice trade liberalization. This scenario might enhance the sustainability of commerce between ASEAN countries, leading to cheaper rice prices for citizens in all rice-importing nations in Southeast Asia, thereby alleviating concerns about price fluctuations. State-owned firms responsible for managing imported rice have also engaged in the futures market to improve the management of rice supplies. They use accurate domestic supply data to assess the capability of ASEAN member nations to do the same.

Research on creating a rice futures market inside ASEAN has varying viewpoints on its influence on intra-ASEAN rice trade. Convening of a group of experts to deliberate on the Asian rice futures market. Creating a market for various rice varieties is challenging due to the different market treatments required, the politicized nature of rice, and the potential for price increases in the futures market. (Patunru & Ilman, 2019) argue that a spot market with extensive, competitive and clear market information and with minimal government intervention will influence the success of futures contracts. Not only that, the success of the rice futures market depends not only on spot market conditions but also on the following factors:

1. High private sector participation in international rice marketing
2. Enhanced regional cooperation in rice trade policy, as well as harmonization of rice quality and price standards
3. Improved rice industry infrastructure, particularly storage accommodation and funding for market players
4. The establishment of an independent agency can be responsible for rice market prices
5. and production data
6. Full legal framework for monitoring futures monitoring
7. Educational support for aspiring market participants and government trading staff
8. Establishment of a regional forum where futures market stakeholders can discuss policies conducive to developing futures contracts
9. Increased price transparency in the spot market
10. Cash price index for ASEAN region

Establishing a rice futures market requires systematic adjustments across different characteristics of the rice commodity, as shown by the points on these criteria. ASEAN member nations are now facing challenges, including the involvement of the private sector in the international rice sales system. Rice growers in Southeast Asia and Indonesia have

little involvement in international markets. Indonesian rice farmers often own small plots of land, less than 0.5 hectares per person, which is why they do not engage in the rice futures market. Rice futures exchanges like the CME have little involvement from small agricultural enterprises, despite the USDA's extensive attempts to educate them about this financial tool. Large agricultural firms, those with over 800 hectares of land, are the ones using the futures market. Small agricultural businesses are more inclined to use futures contracts instead of forward contracts, as recommended by the commercial sector, namely rice millers. Rice growers often use futures markets as a form of risk management.

Businessmen, millers, sellers, and merchants are more likely to engage in overseas rice markets compared to rice growers, mostly because of the involvement of nations with monopoly rights or other favored governmental positions. Consequently, the lack of involvement from the business sector may hinder the effective development of the rice futures market. It is challenging to coordinate the involvement of entrepreneurs, rice millers, and retailers in the international market due to the lack of reliable data from each country. However, they may still engage and enhance the liquidity of the futures market.

Regional collaboration in the ASEAN region has been defined in various ways. The formation of the APTERR (ASEAN Plus Three Emergency Rice Reserve) was driven by the hope of establishing a physical rice stockpile that could stop rice for ASEAN member states when local production and foreign markets were unable to meet demand (Arianto A. Patunru, 2021). Under the reserve agreement, ASEAN member states had previously accepted a multilateral trade agreement (AFTA) that lowered trade constraints for commodities (although those constraints still exist in various forms in most countries). Despite the fact that these platforms always face challenges to implement, APTERR has adopted a similar system for futures markets (Tier 1 Scheme), but it is rarely used. APTERR is currently only being used to help secure rice warehouses in areas affected by natural disasters.

Southeast Asian nations are now standardising rice quality by adopting unique standards set by the Food and Agriculture Organisation (FAO), the International Organisation for Standardisation (ISO), and other international organisations. Regional norms are crucial in easing transactions and promoting the development of rice futures markets. The East African Community (EAC) has enforced regional standardisation to align rice quality as well as product and service specifications. Indonesia clearly needs enhanced infrastructure in the rice industry, namely in storage and financing initiatives. There is a lack of study on the quality of BULOG preservation in Indonesia and other Asian nations, despite infrastructure being a crucial component influencing rice quality and sustainability. In addition, the current major on-farm storage conditions in Asia are open, such as rice sacks or barns, making them vulnerable to pests. Commercial storage conditions are comparable since items are vulnerable to air exposure and pests. Box 1 examines a proven solution to this issue in Ethiopia by establishing ECX.

Some financial programs and subsidy programs have already been implemented in Indonesia, including Kartu Tani (Farmer Card) and KUR (Kredit Dagang Rakyat). Similar programs can also be found in other Southeast Asian countries in seasonal credit and subsidies to farmers. But the low level of financial literacy in Indonesia (29.7%, according to

OJK, 2018) as well as in Southeast Asia (34%, S&P Global Finlit Survey, 2014) makes it attractive to many. It is almost impossible for related parties to enter the financial market.

Table 1. Government Intervention in Asian Rice Trade and Food Security

Country	Commoditie	Government Policy Intervention
Singapore	Rice	Rice imports are done under 2 categories, namely stockpile and ordinary licenses. Stockpile licenses are for maintaining a rice inventory of twice the amount imported, stored in a warehouse, and the storage budget is borne by the importer. Meanwhile, ordinary licenses are for non-stock rice.
Brunei Darussalam	Rice	There is no constraint on importing rice.
Thailand	Rice, cassava, durian, longan	Exports require registration from the Ministry of Agriculture.
Malaysia	Rice	Providing input subsidies, tariff reductions, and supporting minimum prices.
Indonesia	Rice	Market prices are intervened through Bulog by setting a floor value to protect farmers and a domestic price for rice to protect consumers.
Philippines	Rice	Realize and distribute through buffer stock systems and price support.
Cambodia	Rice	Organize rice seed banks and provide rice seeds, distribute diesel fuel, and purchase farmers' rice.
Vietnam	Rice	Rice and fertilizer export rations are controlled.
Myanmar	Rice	Achieving surplus rice production.
Laos	Rice	No food security strategy described.

Source: WTO Trade Policy Pty Ltd and the University of Asia and the Pacific

Southeast Asian nations are now implementing rice quality standardisation via the acceptance of individual standards by the Food and Agriculture Organisation (FAO), the International Organisation for Standardisation (ISO), and other international organisations. Regional norms are crucial for enabling transactions and promoting the development of rice futures markets. The East African Community (EAC) has enforced regional standardisation to align rice quality with product and service specifications. Indonesia clearly needs enhanced infrastructure in the rice industry, namely in storage and financing initiatives. There is a lack of study on the quality of BULOG preservation in Indonesia and other Asian nations, despite infrastructure being a crucial aspect that impacts rice quality and sustainability. Moreover, the current major on-farm storage conditions in Asia are open, such as rice sacks or barns, making them vulnerable to pests. Items in commercial storage conditions are exposed to air and vermin. Box 1 examines a proven solution to this issue in Ethiopia by establishing ECX.

Domestic rice prices tend to discourage FDI in agriculture, fisheries, and food processing, where local ownership reaches 30%. In Thailand, export products must be registered with the Ministry of Agriculture. In contrast to Malaysia, the government protects the people by subsidizing raw materials, reducing import duties, and supporting the least price. The government guarantees the least value of rice and subsidizes the price of rice for farmers. With the least price guarantee system, Bernas buys rice from farmers at a value not exceeding the minimum price. In addition, through the Rice Value Subsidy Program, the government provides farmers with a fixed fulfillment of the amount of rice sold to the

government. Similarly, the Indonesian government intervenes in the market value through Bulog by setting a floor price to protect farmers and a domestic rice value equal to protect users. Bulog has the exclusive right to import rice.

According to (Saragih, 2017), known as a country with a large agricultural industry, Indonesia does not yet have clear policy goals regarding food self-sufficiency so that the diet in Indonesia is mostly imported products. One of the joint ways that ASEAN countries do is by forming a rice reserve (ASEAN Plus Three Emergency Rice Reserve or APTERR) so that rice reserves remain safe and do not cause unrest in the community. APTERR as a regional framework to tackle the problem of food insecurity after disasters to ensure food security in emergency situations due to natural disasters, through the provision of food assistance programs and improved nutrition for the poor.

Therefore, after analyzing that regional cooperation in the form of the establishment of a rice futures market carried out by ASEAN member countries is able to provide a real reaction to the formation of food security in this rice commodity. aims to increase farmers' knowledge about price and risk management so that the cooperation built by each ASEAN member can be implemented through an agreement to strengthen the availability of rice as a major commodity in Southeast Asia.

Conclusion

Food security, particularly in the context of rice production and supply, is a major concern for ASEAN countries due to its importance in meeting people's food needs. In recent years, the climate crisis and other factors have caused instability in rice production, impacting the availability and price of rice globally. ASEAN countries have responded to this challenge by cooperating in maintaining and improving rice supply through various initiatives, including establishing regional cooperation and integrating rice markets.

Literature shows that regional cooperation, as embodied in the ASEAN Economic Community (AEC) and the ASEAN Integrated Food Security Framework (AIFS), plays a key role in addressing food security challenges. In addition, the establishment of a common rice futures market in the ASEAN region has also been proposed as one of the solutions to improve risk management and stabilize rice prices. However, the implementation of these futures markets faces several obstacles, including the lack of private sector participation and policy differences between countries. Nonetheless, efforts to enhance regional cooperation and develop market instruments such as a rice futures market are important steps in maintaining food security in the ASEAN region. At the same time, it is important for ASEAN member countries to continue to coordinate and overcome obstacles to achieve the common goal of creating a stable and affordable supply of rice for the people.

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