

Introduction

Farming industry in Thailand has played a vital role in improving the quality of Thai people's lives for the last period of time. Development in farming resulted in reduction in national hunger and child undernutrition. Agriculture is one of the most important economic sectors that Thailand's growth relies on as a main driver, it employs around 30 percent of the total country's labour force and becomes a major comparative advantage in international trade. In consequence, agriculture in Thailand is extremely competitive, diverse, and specialised and its exports are highly successful on a global scale.

Asia is the main rice production resource in the world by reason of Asian is highly dependent on rice for consumption and economics. The Asia-Pacific region takes more than 90 percent of rice production and consumption in the world. Rice production represents a significant portion of the Thai economy, with almost 60 percent of 13 million Thai farmers growing it. Thailand has the fifth-largest area under rice production and the world's second largest exporter of rice. In 2017, the total amount of Thai rice traded was 174.5 billion baht, or about 12.9 percent of all farm production. However, as the years passed, the country developed toward industrialization, the agricultural sector including rice sector became less to the GDP, then industry and service stepped up to the frontier instead.

The objective of the paper is to study the Thai rice export situation, factors that affect the export value, existing problems in production, the impact of Covid-19 pandemic to the export, and to suggest policies recommendation to effectively solve the problems and support Thai rice production.

Literature Reviews

1. Literature related to Thai rice export situation.

Ma Jiacheng (2018) studied the rice export competitiveness of Thailand. According to statistics, Thailand has always been the world's largest rice exporter and its rice is very popular in the world market. The main importers of Thai rice are the United States, China, Singapore, and Malaysia. Since the economic globalisation, Thailand faces several strong rice export competitors. The reason that Vietnam becomes a major competitor of Thailand's rice exportation is that Vietnamese rice is quite similar to Thai rice and has a lower price, leading many international buyers to shift their buying decision to Vietnam rice instead. However, countries that have high rice consumption demand, high income, or considering the quality of rice, they still choose to import Thai rice as a main consumption.

Orachos (2019) considered the key issues and challenges in Thai rice export. Thai rice competitiveness is degrading. The average export price of white rice is around 10-15 percent higher than those of Vietnam, India, and Pakistan. Even though approximately half of rice production is for export, Thailand does not have the market power to control the world rice prices. So, it still has to compete with other rice exporters. Comparing rice exporters countries, Thailand has the highest production cost and its yield is the lowest. As a result, it is difficult to compete with other countries that gain the benefits from lower cost of production.

Bach and Hempattarasuwan (2011) thoroughly studied the Thai rice production situation and comparison with Vietnam, main competitor, rice production. They used some analysis for additional findings related to spatiotemporal analyses and identified associated explanatory soft factors. From Temporal Tendency Analysis, it shows that the rice production growth in Vietnam is almost tripled when it is only doubled in Thailand's growth (growth for both countries is based on rice yield per hectare per year and planted area). Another distinguishing finding is population: the population size in Vietnam is much higher than in Thailand but the rice growing area is lower in Vietnam. Spatial Analysis is a process of creating new information from a geographical variation which this paper also uses this method to analyze since geography of country is the significant factor of rice production. Irrigation

coverage is very high in every rice growing area while in Thailand it is high in only the Central area which it quite affects the yields. Some soft factors are human skills.

2. Literature related methodology

Chuaykerd (2020) study is about the factors that affect Thai Jasmine rice export. From the empirical result of this research, it can be conclude that the result in relationship between export price and export value, which the increase in export price decrease export value, is the factor that affect Thai Jasmine export value. Thailand confront the high competition in rice export since some countries have very low cost of production. Furthermore, exchange rate has a negative impact on Thai rice export value, exchange rate impacted the movement of Thai Jasmine rice export value with high confidence interval statistic testing.

Somyos (2020) studies Thai rice exporting to the United State of America. The study uses a Time series model and component separation method to forecast the trend of Thai rice export to the United State of America. There was an overall rise in rice export but the value will fall if it is in the planting period and in some unforeseen circumstance, for example, rainy weather, the demand for rice from the United State, or the epidemic.

3. Literature related to Covid-19 and exportation

Monetary policy report (2020) the report shows that the recovery of Thai rice exports from the Covid-19 was slower than other countries in the same region because of the structure of Thai exports. Moreover, Thailand's competitiveness lagged behind our competitors so it reflected in the decrease of Thailand's participation in the supply chain.

Limitations

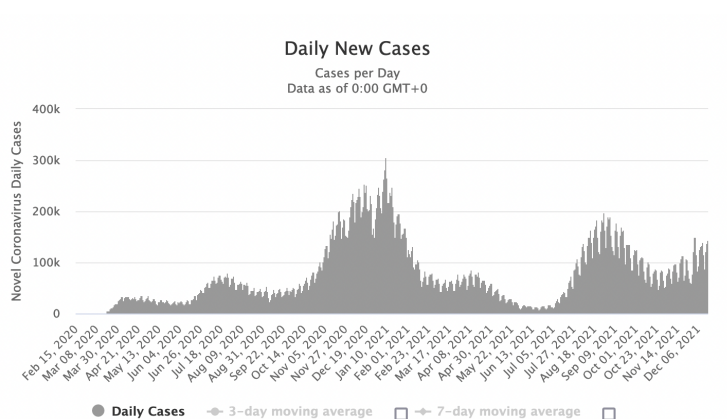
There is a lack of research that includes other factors that also influence rice export. The results are reliable, but in some way it might be only in theory. There is also a lack of precise and insufficient Covid-19 data since it is a recent pandemic and type of data make it difficult to collect.

Data & Research methods

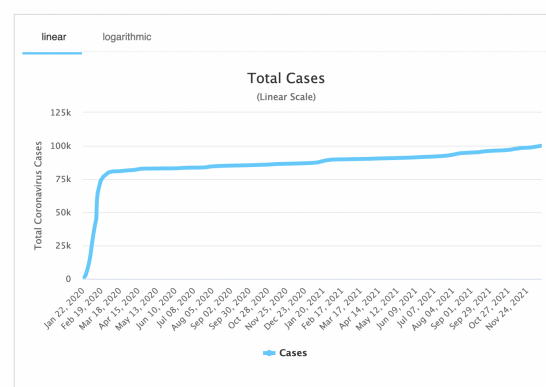
Data

This study focuses on the rice export in specific countries so the data used are from the FAP statistical yearbook 2013: World food and agriculture.

Using the Covid-19 data from the www.worldometers.com and the exportation data from www.radereport.moc.go.th



Total Coronavirus Cases in China



Methodologies

i.) Analysis related to Thai rice export situation in China market

Sonthaya (2016)'s study had involved analysis to calculate the Thai rice production situation. Using China as one of the main Thai rice importers and including Vietnam as the main competitor in the analysis to reflect the Thai rice situation.

- Revealed comparative advantage (RCA) index

This index is derived by Balassa (1989). The method in this paper use to compare the advantages of Thailand and Vietnam in exporting rice. The RCA considers that there are differences in factor ownership and allocation so factors and export outcome should be standardised between countries and compared to average level of production to be able to define which countries are advantaged or disadvantaged. Since this study aims to examine comparative advantage in a

specific commodity (rice) and in a specific market (China). The RCA index has been modified in order to reflect outcome from given conditions.

The form of modified RCA:

$$RCA_{jkf} = \left(\frac{m_{jkf}}{M_{jf}} \right) / \left(\frac{m_{wkf}}{M_{wf}} \right)$$

where

RCA_{jkf} = Revealed comparative advantage for commodity k of country j in country f

m_{jkf} = Import values of commodity k by country f from country j

M_{jf} = Total import values by country f from country j

m_{wkf} = Import values of commodity k by country f from the world

M_{wf} = Total import values by country f from the world

which commodity k is rice, target country f is China, country j is Thailand, and country w is Vietnam.

- Brand-switching analysis

The key focus in this analysis is to identify trends in the market share in order to define the competitive position of competitors within a market and to expose the brand preferences and consumer brand-switching behaviour for a particular commodity.

ii.) Regression

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. reg usaexport usacase
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Source	SS	df	MS	Number of obs	=	2
Model	4.6872e+19	1	4.6872e+19	F(1, 0)	=	.
Residual	0	0	.	Prob > F	=	.
				R-squared	=	1.0000
				Adj R-squared	=	.
Total	4.6872e+19	1	4.6872e+19	Root MSE	=	0

usaexport	Coefficient	Std. err.	t	P> t	[95% conf. interval]
usacase	335.8116
_cons	5.28e+09

Figure 1: Thai rice export to USA and Covid case in USA

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. reg chinaexport chinacase
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Source	SS	df	MS	Number of obs	=	2
Model	1.2367e+18	1	1.2367e+18	F(1, 0)	=	.
Residual	0	0	.	Prob > F	=	.
Total	1.2367e+18	1	1.2367e+18	R-squared	=	1.0000
				Adj R-squared	=	.
				Root MSE	=	0

chinaexport	Coefficient	Std. err.	t	P> t	[95% conf. interval]
chinacase	134891.5
_cons	-4.89e+09

Figure 2: Thai rice export to China and Covid case in China

The regression above displays the relationship between the new daily Covid-19 case in the United State of America. and Thai rice export to USA (Figure 1) and the new daily Covid-19 case in China and Thai rice export to China (Figure 2).

Result analysis and Discussion

i.) Analysis related to Thai rice export situation in China market

- Revealed comparative advantage (RCA) index

The result shows that from 1995-2021, Thai rice imported into China had RCA index higher than 1 ($RCA > 1$) so Thailand had a comparative advantage. From 2010-2012, Vietnam had a greater comparative advantage than did Thailand, it might be because of the Thai rice's price increase. Thailand's RCA index is negative while Vietnam is positive. Thailand lost comparative advantage in the Chinese market while Vietnam gained it. Moreover in the index, market share is a major factor to determine competitive position and also the customer loyalty.

- Retention and switching rates in 2012

There are three result interpretation:

1. Diagonal values (retention rates, indicating the retained sales)
 - In 2012, Thai rice had a retention rate at 97 percent and 100 percent for Vietnamese rice.
2. Row values (switch-to rates, indicating outgoing sales)
 - In 2012, Thai rice lost 3 percent of total sales to Vietnam whereas Vietnam rice lost no sales to Thailand.

3. Column values (switch-from rates, indicating incoming sales)

- In 2012, Thai rice received no sales from Vietnam whereas Vietnam rice gained 3 percent of sales from Thailand.

Looking at the retention and switching rates, Vietnam had a higher retention rate than Thailand, and it concluded that Vietnamese rice has more customer loyalty in the Chinese market than Thai rice does.

ii.) Regression

From the regression result, it seems that even if the Covid case is higher in both countries, where they are one of the top Thai rice importers, it does not really affect the rice export rate.

Discussion

Thai rice experienced some brand switching and this trend tends to continue in the future. Vietnam will continue to be dominant in the Chinese market. Brand switching happens because of cost and quality issues. There are some reasons why consumers decide to switch to Vietnamese rice, low-quality white rice, and the price difference between Thai and Vietnamese rice. The first assumption of this paper is that Covid-19 affects the reduction in rice export rate since all countries in the world might be concerned about overseas export and all restricted rules from lockdown. However, Jaruwat (2021) mentioned in her study that major effects on logistics of Thai rice export are the shortage of containers to export and increased freight on the ocean. So the Covid-19 pandemic and lockdown definitely affect the export rate, but it affects just only the period of lockdown because people still have demand on consumption. As lockdowns were lifted, trade resumed.

Conclusion and Policy recommendation

Conclusion

This paper aims to study the Thai rice export situation and Thai rice in the world rice market and gain insight into the existing problems that affect the Thai's competitiveness in the market. After that, there are policy suggestions to solve the issues in Thai rice production and further support Thai rice. However, there are still research gaps in the paper, lacking other factors that also influence rice export and information in Covid-19 data. The methodologies used in this paper analyse Thailand's competitiveness in the world rice market to reflect the Thai rice situation and clarify the issues that should be solved as soon as possible. Thailand lost its position in the competition and comparative advantages due to the several problems that existed and they became more serious overtime. Vietnam has significantly lower rice production cost which makes the rice selling price cheaper than Thai rice and it causes the customer that normally buys rice from Thailand to shift their decision to Vietnam's rice. Although Thailand still gains more sales from the countries that prefer better rice quality, the rice quality might not be a sufficient factor to maintain this advantage. Policies to help the situation and new innovation to add value to Thai rice are required for a mission to level up Thai rice status and earn back competitive advantages in the world market.

Policy recommendation

- The government should support the factors in rice production such as the irrigation system, domestic and international logistics, and machinery in the production. So it can increase the rice quality, and low cost of rice production which is one of the main problems in Thai rice production.
- The government should set a standard of rice quality and encourage farmers to meet the standard in order to create trust for consumers both in domestic and international markets. The value addition to rice products will generate more income for farmers.
- Promote new technology to rice production. Not only in the production process, but also other processes like marketing and logistics. The technology will help boost the quality of rice and reduce cost.

- Government should help facilitate the rice export of the country and process international matters that farmers individually cannot process like contracts, and foreign corporations to help support the flow of exportation and sales.
- More research on Thai rice to seek for the new innovation of rice to increase sales and advantages in competition and solution to the current and future problems to diminish and prevent the damages.
- Reduce production costs: Production cost is one of the main problems that limit the competitiveness of Thailand's rice market.
- Irrigation system development: Government should invest more on irrigation in the areas that it is underdeveloped in order to decrease the unstable risk of insufficient water for agriculture.
- Government should not intervene too much on the market price.
- Government should accredit representatives to monitor the world rice market in order to be up-to-date to the trends change and adapt Thai rice in the trend.
- Government should launch exportation-related policies to cope with Covid-19 adapt according to the real time state to lesser the impact to the rice market.

Future improvement

For future research that could be further done, economic research into industry structure, and production potential of different sizes of rice farm, understanding the structure could help where improvement should be placed. Expanding the economic study into factors of production allows better vision of how to enhance the Thai rice import and export market.

Appendix

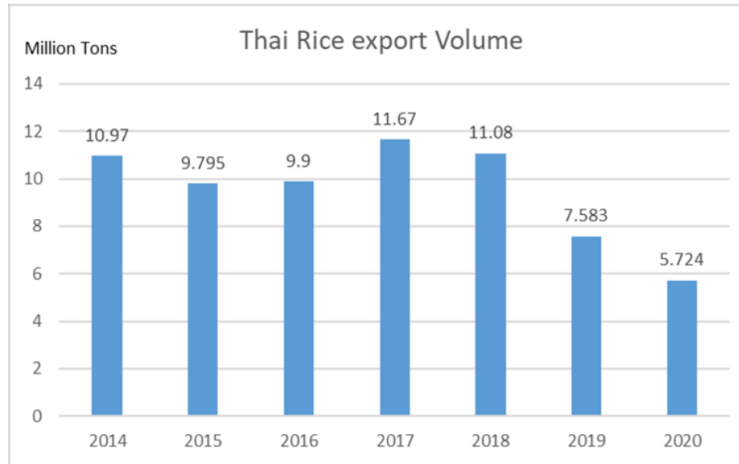
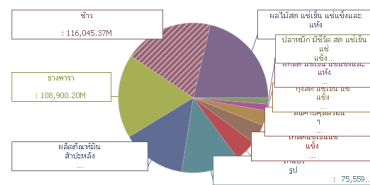


Figure 3: Thai rice export volume
Source: Thai Rice exporter association

หมวดสินค้า
สินค้าเกษตรกรรม

สินค้าสำคัญ



มูลค่าสำคัญของไทย

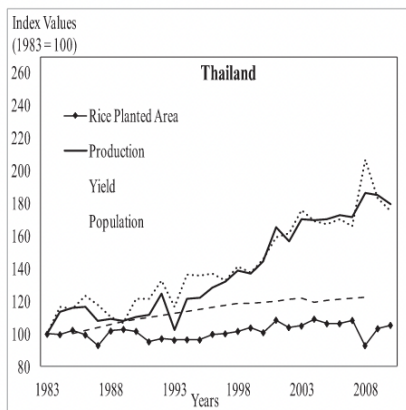
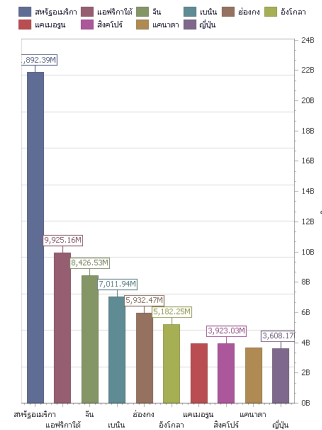


Figure 1 Indices of rice production, rice planted area, rice yield, and population in Thailand (1983-2009/10).

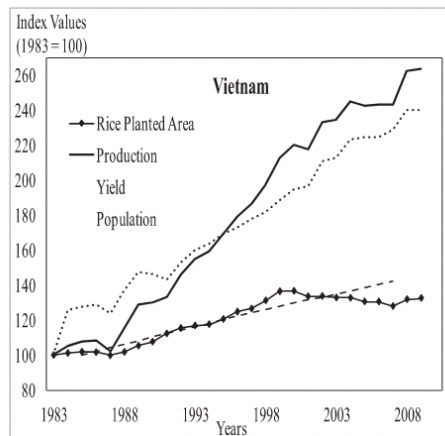


Figure 2 Indices of rice production, rice planted area, rice yield, and population in Vietnam (1983-2009/10).

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