Factors that affecting the export values Thailand's agricultural products to China

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Received 3 January 2025; **Revised** 24 January 2025; **Accepted** 28 January 2025

Abstract

Thailand has long been recognized as an agricultural country, with the export of agricultural products playing a crucial role in the nation's economy. China, as Thailand's largest trading partner, significantly influences the export value of Thai agricultural products. This study aims to analyze the factors affecting the export value of Thai agricultural products to China by employing an econometric model with time series data from 2007 to 2016. Using multiple linear regression analysis, the study examines the impact of three key variables: the exchange rate (Yuan per Thai Baht), the price index of Thai agricultural products, and China's Gross Domestic Product (GDP). The results indicate that GDP in China and the exchange rate significantly affect the export value, while the price index of Thai agricultural products does not show a significant impact. The findings highlight the importance of macroeconomic factors in shaping Thailand's agricultural exports and provide insights into policy measures that could enhance Thailand's competitiveness in the Chinese market. Future research should explore additional variables that may influence agricultural trade dynamics between the two countries.

Keywords: Agricultural Exports; Exchange Rate; China-Thailand Trad

1. Introduction

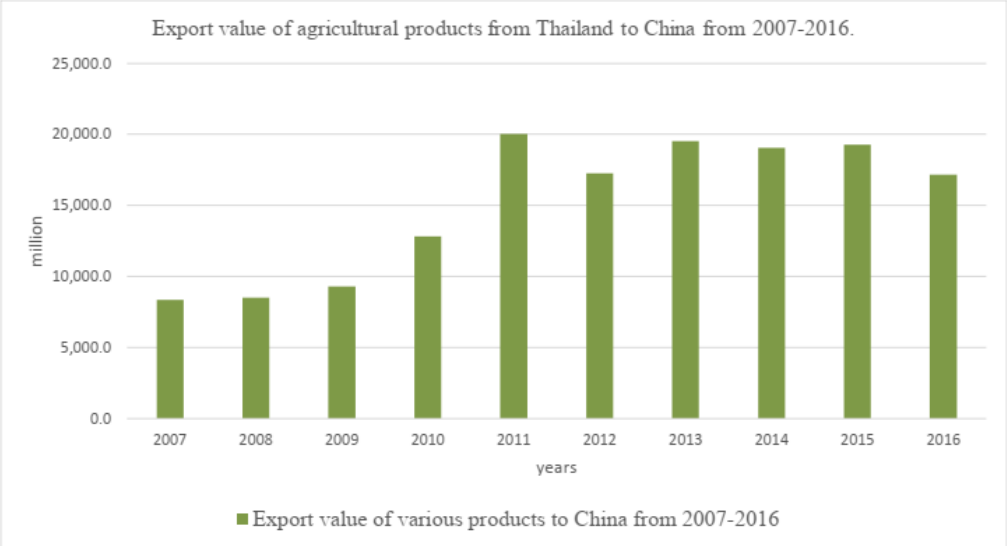
Thailand has long been recognized as an agricultural nation, with agricultural exports playing a pivotal role in sustaining the country's economy. The agricultural sector not only contributes significantly to national income but also serves as a primary source of employment for a substantial portion of the population, particularly in rural areas. Despite

technological advancements and increasing integration into global markets, the sector remains highly sensitive to both domestic challenges and external market fluctuations. Climate change, shifts in global demand, and trade policies continue to influence Thailand's agricultural trade performance. Moreover, political and economic instability, as highlighted by Naripthaphant (2017), has repeatedly affected the country's overall economic structure, leading to uncertainty in agricultural production and export volumes.

Thailand's economic reliance on exports becomes particularly evident when considering its trading relationship with China—a key partner that accounts for a significant share of the nation's export volume (Thai Biz China, 2013; Kiatnakin Bank, 2015). As China is Thailand's largest trading partner, any macroeconomic changes in China, including fluctuations in its GDP growth, shifts in domestic consumption patterns, and policy adjustments, can have immediate and far-reaching implications for Thailand's export sector. Trade agreements, tariff impositions, and logistical constraints further add to the complexity of the trade relationship between the two countries.

The Chinese market's dynamic nature implies that any changes in its economic environment can have a direct and substantial impact on Thailand's export performance (Thai Customs, 2017). Given that shifts in the exchange rate, fluctuations in the price index of agricultural products, and variations in China's GDP can alter trade dynamics, understanding these factors is essential. A depreciating Thai Baht, for instance, may enhance export competitiveness, while a strengthening Chinese Yuan can increase purchasing power in China, potentially boosting demand for Thai agricultural products. However, external shocks such as global recessions, supply chain disruptions, and trade policy shifts can counteract these effects.

Given these complexities, this research seeks to analyze the influence of key economic variables—including the exchange rate, price index of agricultural products, and China's GDP—on the export value of Thai agricultural products to China. The findings will provide valuable insights into how macroeconomic indicators shape Thailand's agricultural export trends. Additionally, the study aims to highlight policy measures that could enhance Thailand's competitiveness in the Chinese market, ensuring long-term sustainability and resilience in the agricultural export sector. By identifying the primary determinants affecting trade flows, policymakers and businesses can develop strategies to mitigate risks and capitalize on emerging opportunities in Thailand-China agricultural trade.



Source: Thai Customs, 2007-2016

Figure 1 Export value of agricultural products from Thailand to China from 2007-2016.

To study factors affecting the value of Thai agricultural product exports to China. The objective is to study the value of the yuan per Thai baht, the price of domestic agricultural products, gross domestic product of China (GDP) using the econometric model. In analyzing long-term relationships of dependent variables, using SPSS programs by analyzing multiple linear regression under the condition that the data used must be time series data. To know the relationship of variables affecting the exports value of Thai agricultural product, that show the barrier and advantages of exports for develop the export of Thai agricultural products. The economy and trade balance of the country, respectively.

2. Research Objectives

2.1 To analyze the impact of China's GDP and the exchange rate (Yuan per Thai Baht) on the export value of Thai agricultural products to China.

2.2 To identify the key economic factors that significantly influence Thailand's agricultural export performance and provide insights for improving trade policies.

3. Research Methodology

3.1 Research Design

This study employs a quantitative research approach to analyze the key factors influencing the export value of Thai agricultural products to China. The research framework is based on an econometric model using time series data from 2007 to 2016. The study applies multiple linear regression analysis to examine the relationship between the dependent

variable (export value of Thai agricultural products) and three independent variables: Exchange Rate (Yuan per Thai Baht) – Represents fluctuations in currency value, which can affect trade competitiveness. Thai Agricultural Product Price Index – Measures changes in the price level of agricultural products in Thailand, impacting export dynamics. China's Gross Domestic Product (GDP) – Serves as an indicator of China's economic growth and purchasing power, influencing demand for imports from Thailand. The econometric model is designed to determine the statistical significance and strength of the relationship between these variables.

3.2 Data Collection

This study relies on secondary data collected from official government agencies and international organizations. The dataset includes: Export Value of Thai Agricultural Products to China – Obtained from Thai Customs (2007-2016). Exchange Rate (Yuan per Thai Baht) – Collected from the Bank of Thailand (2018). Thai Agricultural Product Price Index – Extracted from the Office of Agricultural Economics (2018). China's Gross Domestic Product (GDP in Yuan) – Sourced from Trading Economics (2018).

3.3 Econometric Model and Data Analysis

To analyze the long-term relationship between the dependent and independent variables, this study applies multiple linear regression analysis using the SPSS statistical software package. The general model specification is:

$$Y_i = \beta_0 + \beta_1 VoY + \beta_2 Pa + \beta_3 GDPChina + \varepsilon_i$$

Where:

Y = Export value of Thai agricultural products to China (million Baht)

VoY = Exchange rate (Yuan per Thai Baht)

Pa = Thai agricultural product price index

GDP_China = Gross Domestic Product of China (Yuan)

ε_i = Error term

3.4 Assumptions and Model Validity

The regression model is tested for validity through various econometric diagnostic tests, including: Multicollinearity Test: Uses the Variance Inflation Factor (VIF) to ensure independent variables are not highly correlated. Autocorrelation Test: Applies the Durbin-Watson statistic to detect the presence of serial correlation in residuals. Heteroscedasticity Test: Conducts the Breusch-Pagan test to check for variance inconsistency in error terms. Stationarity Test: Employs the Augmented Dickey-Fuller (ADF) test to confirm the time series data is stationary before running regression analysis.

3.5 Limitations of the Study

While this research provides insights into key factors affecting Thai agricultural

exports to China, certain limitations exist: Limited Time Series Data: The study only covers a 10-year period (2007-2016), which may not fully capture long-term structural changes in trade patterns.

Exclusion of Other Influencing Factors: The study does not account for qualitative factors such as trade policies, tariffs, and supply chain disruptions, which could also impact agricultural exports.

Macroeconomic Variability: External shocks such as global financial crises, climate-related disruptions, and pandemics are not explicitly modeled but may influence the results.

Despite these limitations, the research methodology is designed to provide a robust quantitative analysis of the primary economic determinants affecting Thailand's agricultural exports to China.

4. Result and Discussion

In the research, the researcher use the data for 10 years because the time limit is limited in data collection since 2007-2016 because during this year the value of agricultural exports from Thailand to China is fluctuate. Therefore, would like to know which factors affect the value of Thai agricultural exports to China by testing the correlation of the value of yuan per baht (VoY), the price index (Pa) and Gross Domestic Product of China (GDP: Yuan) that affects the value of Thai agricultural exports to China by using the SPSS program by multiple linear regression analysis, that show result in table 1.

Variable	Coefficient
GDP	0.002**
Pa	0.471
VoY	0.069**

Note: ** 0.05 level of significant

Table 1 Result analysed by multiple regression method

The results of the multiple regression analysis reveal critical insights into the macroeconomic factors influencing the export value of Thai agricultural products to China. Among the three independent variables analyzed—China's GDP, the Thai agricultural product price index, and the exchange rate (Yuan per Thai Baht)—only China's GDP and the exchange rate were found to have a statistically significant impact on Thailand's agricultural exports.

The findings indicate that China's GDP growth has a positive and significant effect on the value of Thai agricultural exports, suggesting that as China's economy expands, its

demand for imported agricultural goods, including those from Thailand, increases. This result is consistent with economic theories that highlight the role of rising income levels in driving consumption growth. As Chinese households experience higher disposable income, they tend to demand more diverse and higher-quality food products, many of which are sourced from international markets. The positive relationship between China's GDP and Thai agricultural exports implies that Thailand stands to benefit from China's continued economic expansion. Therefore, policymakers should focus on strengthening trade relations, reducing trade barriers, and ensuring smooth market access to capitalize on China's growing demand for agricultural products.

The exchange rate (Yuan per Thai Baht) also exhibits a significant impact on Thailand's agricultural exports, indicating that currency fluctuations play a crucial role in shaping trade dynamics. A depreciation of the Thai Baht relative to the Chinese Yuan makes Thai agricultural products more affordable for Chinese importers, thereby boosting export volumes. Conversely, an appreciation of the Baht could reduce Thailand's competitiveness in the Chinese market by making its exports more expensive. This result underscores the importance of exchange rate policies and monetary stability in supporting the agricultural export sector. The Thai government and central bank should closely monitor currency movements and implement policies to prevent excessive volatility, ensuring that Thai agricultural exporters remain competitive in the global market.

In contrast, the Thai agricultural product price index does not have a statistically significant impact on export values, suggesting that domestic price fluctuations do not directly determine Thailand's agricultural export performance. This finding may be attributed to the fact that export prices are largely driven by external factors such as global demand, international trade policies, and currency exchange rates, rather than domestic agricultural price changes. Additionally, long-term trade agreements and supply chain structures may stabilize export prices, reducing the effect of short-term domestic price variations. The insignificance of the price index implies that policies aimed at controlling domestic prices may have little impact on export performance. Instead, policymakers should prioritize trade facilitation measures, logistics improvements, and investment in agricultural productivity to enhance Thailand's competitiveness in the international market.

Overall, the findings emphasize the critical role of external economic conditions—particularly China's economic growth and exchange rate movements—in shaping Thailand's agricultural export trends. While domestic price fluctuations may not directly affect exports, ensuring stable trade policies, enhancing supply chain efficiency, and managing exchange rate volatility are key strategies to sustain and expand Thailand's agricultural exports to China.

Moving forward, Thai policymakers should focus on strengthening trade agreements, diversifying export markets, and investing in technological advancements in agriculture to maintain a competitive edge in the global market.

5. Conclusion

This study examines the key macroeconomic factors influencing the export value of Thai agricultural products to China, focusing on the effects of China's GDP, the exchange rate (Yuan per Thai Baht), and the Thai agricultural product price index. The findings reveal that China's economic growth and exchange rate fluctuations have a statistically significant impact on Thailand's agricultural exports, while domestic price fluctuations do not play a major role.

The positive relationship between China's GDP and Thailand's agricultural export value highlights the importance of China as a primary export destination. As China's economy expands, its demand for imported agricultural products increases, creating significant opportunities for Thailand's agricultural sector. This finding underscores the need for Thailand to strengthen trade relations, negotiate favorable trade agreements, and enhance supply chain efficiency to capitalize on China's growing market.

The study also finds that exchange rate movements significantly influence Thai agricultural exports, suggesting that a weaker Thai Baht relative to the Chinese Yuan enhances Thailand's export competitiveness by making Thai products more affordable for Chinese importers. Conversely, a stronger Baht can reduce export demand. These results emphasize the importance of exchange rate stability and effective monetary policies in supporting Thailand's agricultural trade performance. The Bank of Thailand should closely monitor currency fluctuations and implement policies to maintain a stable and competitive exchange rate to safeguard the interests of agricultural exporters.

In contrast, the insignificance of the Thai agricultural product price index suggests that domestic price fluctuations do not directly determine export performance. This may be due to the dominant role of international market forces, long-term trade agreements, and supply chain structures in setting export prices. Rather than focusing on price control mechanisms, policymakers should prioritize trade facilitation, agricultural productivity enhancements, and infrastructure development to sustain long-term export growth.

Based on these findings, several policy recommendations can be made to enhance Thailand's agricultural export competitiveness in the Chinese market. First, Thailand should strengthen trade agreements with China to ensure favorable market access and reduce trade barriers. Second, exchange rate management should be prioritized to prevent excessive

currency volatility, which could negatively impact exporters. Third, investments in modernizing agricultural production, logistics, and digital trade platforms will help improve efficiency and maintain Thailand's position as a key agricultural exporter. Finally, market diversification strategies should be explored to reduce over-reliance on China and mitigate risks associated with potential economic slowdowns in the Chinese economy.

In conclusion, this study highlights the critical role of external economic factors—particularly China's economic growth and exchange rate dynamics—in shaping Thailand's agricultural export trends. By adopting proactive trade policies, enhancing competitiveness, and improving market accessibility, Thailand can strengthen its agricultural export sector and ensure long-term sustainability in the global marketplace. Future research should explore additional variables, such as trade policy changes, non-tariff barriers, and the impact of global economic crises, to provide a more comprehensive understanding of Thailand's agricultural trade dynamics.

6. References

Bank of Thailand. (2018). *Exchange rate statistics: Yuan per Thai Baht*. Retrieved from https://www.bot.or.th

Jirasak Ura Sai. (2011). *Fluctuations in Thai agricultural exports: A decadal study*. *International Journal of Trade and Economics,* 5(2), 34–45.

Kiatnakin Bank. (2015). *Thailand export performance report*. Retrieved from http://www.kiatnakinbank.com/export-report

Naripthaphant, P. (2017). *Political instability and its impact on Thailand's agricultural exports*. *Journal of Southeast Asian Economics*, 32(1), 45–60.

Thai Biz China. (2013). *China–Thailand trade relations: An overview*. Retrieved from http://www.thaibizchina.com/trade-relations

Thai Biz China. (2013). *China–Thailand trade relations: An overview*. Retrieved from http://www.thaibizchina.com/trade-relations

Thai Customs. (2017). *Export data of agricultural products (2007–2016)*. Ministry of Finance, Thailand. Retrieved from http://www.customs.go.th

Thai Customs. (2017). Export data of agricultural products (2007–2016). Ministry of Finance, Thailand. Retrieved from http://www.customs.go.th

Trading Economics. (2018). *China gross domestic product*. Retrieved from https://tradingeconomics.com/china/gdp

Trading Economics. (2018). China gross domestic product. Retrieved from https://tradingeconomics.com/china/gdp