

## Factors Affecting Thailand's Trade: Does ASEAN Integration Help?

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**ABSTRACT:** The main purpose of this study is to find determining factors that affect the bilateral trade flows between Thailand and partner countries around the world, and further to check the ASEAN integration effect on Thailand. The study analyzes the effect by applying the gravity model with a panel fixed effect approach. The findings of the study indicate that bilateral trade flows between Thailand and partners are mainly affected by the economic size, geographical distance, exchange rate, and joining the ASEAN whereas land endowments and difference between the per capita income has no significant impact. The ASEAN FTA dummy variable has a statistically significant positive influence on bilateral trade between Thailand and other ASEAN countries.

**Keywords:** ASEAN, Trade, Thailand, Gravity model, Panel fixed effect

### 1. Introduction

The objective of this study is two-fold; to assess the determining factors which affect the bilateral trade flows between Thailand and other 10 partner countries (Bangladesh, Brunei Darussalam, China, India, Indonesia, Malaysia, Philippines, Singapore, Sri Lanka, Vietnam) by using the gravity model; and to understand the influence of the establishment of ASEAN on Thailand's economy and trade. To the best of our knowledge, only [3] used the gravity model to study Thailand's trade patterns and ASEAN integration effects. Our study will aid in this field. The ASEAN trade area, being the world's biggest free trade area formed by a developing country, has had a significant impact on the global economic and political culture in the first part of the twenty-first century as a result, investigation of ASEAN's effect in emerging countries is required. The formation of ASEAN has been a significant component in Thailand's economic and commercial development. The gravity model allows researchers to look at the impact of Thailand's commerce with other countries with higher incomes, as well as the impact of costs on trade and the impact of ASEAN integration. The information used here is secondary data from the International Monetary Fund (IMF) and the World Development Indicator (WDI). We estimate using panel data and the fixed effects model (FEM) using the R software in this study. The gravity model tells us there should be a positive effect of economic size on bilateral trade and a negative effect on distance between the countries.

We utilize an extended version of the gravity model that takes ASEAN integration into account. It is likely to benefit Thailand since the integration facilitates commerce between the participating nations. We acknowledge the shortcomings of this study. In the future, the study might be expanded to include other countries. The remainder of the paper is organized as follows. The second section discusses relevant literature. The paper's methodology is discussed in the third section. The results are discussed in section four. The final section brings the paper to a close.

## LITERATURE REVIEW

According to the gravity model, nations with higher incomes will have a favorable impact on Bangladesh's trade, while trade expenses would have the reverse effect. Above all, the gravity model results accurately reflect the impact of trade costs on Bangladesh's trade [2-3-7]. According to the gravity model's findings, the nation's economic aggregate, distance from Thailand, and whether it is an ASEAN country all have a substantial impact on the volume of trade between Thailand and each country [3]. [7] investigate the impact of national incomes and trade costs on Bangladesh's foreign trade in three main Asian sub-regions: South Asia, East Asia, and South-East Asia. Bangladesh's trade with the three major Asian sub-regions was shown to be inversely connected to trade costs and positively related to GDP. The expansion of Vietnam's economy and that of its international partners has a favorable influence on bilateral trade flows between Vietnam and the other 60 nations [7]. Foreign economic size, in particular, has a stronger influence. Furthermore, growth in the size of the foreign market has a beneficial impact on overall trade value. Exports have a significant impact on Mongolian and Chinese GDP, according to [5]. Other research shows that as exports rise, GDP rises as well, as proven by various studies for other nations.

The calculated results of [2] study confirm the association between bilateral trade flows and economic size, market size, geographical distance, and culture. The findings show that Vietnam's economic size, foreign partners' economic size, and market size, as well as distance and culture, have a significant impact on bilateral trade flows between Vietnam and the other 60 nations. Exports and imports of China-Mongolia, GDP, population, geographic distance, cultural distance, trade agreements, tariffs, trade facilitation index, and trade cost are among the variables impacting China-Mongolia trade, according to [5]. In order to boost Mongolia's GDP, they propose a free trade agreement and the liberalization of export/import regulations.

Thailand's trade flow is mostly determined by the country's economic aggregate, level of economic growth, and membership in the Free Trade Area. Proximity, lower transportation costs, and increased economic growth are all factors that contribute to large trade flows [3]. According to [8], the importing country's GDP, the exporting country's GDP, distance, international rice prices, output, and the real exchange rate all impact rice exports in Thailand.

## DATA & METHODOLOGY

Panel data on imports, exports, and factors influencing trade flows between Thailand and its trading partners were obtained from the International Monetary Fund (IMF) and the World Bank (WB) over 30 years from 1990 to 2020. In the instance of Thailand, we use Krugman and Obstfeld's variation of gravity model (2005). In the original model, (Krugman & Obstfeld, 2006) give a common model as follow: In this model,  $T_{ij} = A \frac{Y_i Y_j}{D_{ij}^2}$ , only two independent variables are introduced: GDP and distances.

The model in this study is further strengthened by incorporating the variables of population,

currency rate, culture, and strategic partner that impact bilateral trade between Vietnam and the partner nations. The gravity model is calculated as follows in logarithmic form:

$$\log T_{ijt} = \beta_0 + \beta_1 \log(Y_{it}) + \beta_2 \log(R_{ij}) + \beta_3 \log(A_j) + \beta_4 \log(D_{ij}) + \beta_5 \log(N_{it}) + \beta_6 \log(EX_{ijt}) + \beta_7 \log(L_{it}) + e_{ijt}$$

Were,

$i = 1$  (Thailand)

$j = 2, 3, 4, \dots$  (partner countries)

$t = 1990, 1991, \dots, 2020$

$T_{ijt}$ : Thailand's trade with country  $j$  in year  $t$

$Y_{it}$ : GDP product of Thailand and partner countries in year  $t$

$R_{ij}$ : Remoteness between Thailand and country  $j$

$A_j$ : ASEAN FTA dummy variable for the partner countries

$D_{ij}$ : GDP Per Capita Distance between Thailand and country  $j$

$N_{it}$ : Population product of Thailand and partner countries in year  $t$

$EX_{ijt}$ : Real Exchange rate

$L_{it}$ : Land Endowment in year  $t$

$e_{ijt}$ : Error term

In this study, we use panel data and a fixed-effects model for estimation. The dependent variable is the yearly trade volume (exports plus imports) of Vietnam and its partners. The data for this variable comes from the IMF's Direction of Trade figures, which cover the years 1990 to 2020.

As a measure of economic size, we utilize the product of Thailand's Gross Domestic Product (GDP) and the difference in GDP per capita (GDPPC) in real terms. The influence of these variables on trade promotion is projected to be beneficial. The World Bank's database was used to get statistics on each country's GDP and GDPPC. Thailand's and partner countries' population products are used to evaluate the market size, which is a factor impacting international commerce. Because the greater the market, the more it trades, the market size is likely to increase.

Previous research, such as [1] and [4], has shown that including the exchange rate in the gravity model helps to explain trade volatility across participating nations. When the exchange rate rises, the Vietnamese currency devalues, making imports more costly while exports become cheaper. As a result, it is envisaged that the exchange rate variable will have a favorable impact on trade between Vietnam and its partners.

As we utilize FEM for the estimate, we cannot use the variables which do not change over time. These cannot be predicted directly in this model. As a result, factors like distance and cultural differences will not be supported in FEM. As a result, we employ the remoteness variable as a proxy for the distance variable. We take the remoteness of the region variable, which is computed using the following equation

$$\frac{\text{Geographic Distance} * \text{GDP of Partner Country}}{\text{World GDP}}$$

The impact of this variable on trade flows is projected to be negative.

In this model, we additionally incorporate certain control variables. The Land Endowment variable has been used as a production factor, and it is calculated using the land-to-labor ratio for Thailand and the partner nation. FTA, which is a dummy variable, is the other variable. As Thailand is an ASEAN nation, if the partner country is in the ASEAN area or has a strategic deal with the ASEAN FTA contract, a value of 1 is given for that country, and 0 is set for the remainder. The FTA variable should be positive according to the literature.

## RESULT & DISCUSSION

The regression result of the model

$$\log T_{ijt} = -449.37^{***} + 1.227 \log(Y_{it})^{***} - 0.009 \log(R_{ij})^* + 1.312 \log(A_j)^{***} + 0.1318 \log(D_{ij}) \\ - 4.941 \log(N_{it})^{***} + 158.7 \log(EX_{ijt})^{***} + 0.04 \log(L_{it}) + e_{ijt}$$

$$R^2 = 0.9077 \quad \bar{R}^2 = 0.9056 \quad F = 424.4$$

The increase in the GDP of Vietnam and its partners will help to boost overall trade value. The predicted product coefficients of these two variables exhibit statistical significance and demonstrate positive impacts, which is consistent with the model's assumptions. A 1 percent rise in GDP product will boost the value of trade by around 1.23 percent. The combined market size of Thailand and its partner nations is statistically significant and has a positive impact. Thailand and its partner countries have a positive but insignificant GDP per capita distance. If Thailand's and the partner country's population products both rise by 1 percent, the bilateral trade value will fall by 4.94 percent. Therefore, hypothesis 1 - positive influence of economic size is significantly supported on bilateral trade but market size does not support it.

The distance variable is statistically significant at the 1 percent level, and it is estimated to impede bilateral trade between Vietnam and its partners, confirming hypothesis 2. The trade value will decrease by 0.009 percent on average for every 1 percent increase in remoteness. The exchange rate is extremely statistically significant yet the influence of this variable on commerce is very much significant and supports hypothesis 3. In addition, the land endowment also exhibits a favorable link when participating in commerce with nations, although the value is not statistically significant. The ASEAN FTA dummy variable has a statistically significant positive influence on bilateral trade between Thailand and other ASEAN countries, as predicted. A 1 percent rise in ASEAN FTA will boost the value of trade by around 1.312 percent, which reflects that ASEAN integration has a significant positive impact on Thailand's trade.

## CONCLUSION

The main goal of this research is to identify the factors that influence bilateral trade flows between Thailand and its international partners, as well as to assess the impact of ASEAN integration on Thailand. The results of the estimations show that the economic size, geographical distance, exchange rate, and ASEAN membership have the greatest impact on bilateral trade flows between Thailand and its partners. The formation of ASEAN has become a significant component in Thailand's economic and trade development, as it has resulted in a more than 1% rise in Thailand's commerce. GDP product of Thailand and partner nations has a great influence on boosting Thailand's trade while the distance between the trade partners reduces the trade volume, which confirms the gravity model and also the research we have reviewed in section 2. The government of Thailand should focus on more integration-based trade and how to decrease the distance between the partner countries by removing the barriers of trade.

## CONFLICTS OF INTEREST

There are no conflicts to declare.

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