



The Impact of Agricultural Export Product on Income and Employment in the Thai Economy

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Received 26 December 2018 Accepted 20 October 2019 (*Corresponding Author)

Abstract From past to present, the Thai economy has been heavily export-dependent, with exports accounting for more than two-thirds of its gross domestic product (GDP). Agricultural export product is one of the main export products but its tendency is declining. The research objectives were to study the impact of agricultural export products on the income and employment of the Thai economy. In this research, the data applied were collected as the yearly time series for a period of 27 years from 1990 to 2016 by the Bank of Thailand. The primary data were collected from the stakeholders of the agricultural product export policy of Thailand. Data analysis was based on descriptive statistics by the arithmetic mean and standard deviation. The Monte Carlo Simulation technique and time trend analysis was applied to the forecasting of agricultural product export value. In addition, the impact of agricultural export product on income and employment measured by the econometric model and the estimated parameters were calculated by the ordinary least square technique. The research results revealed that: agricultural export product value of Thailand from 1990 to 2016 was \$10.270 billion with its yearly growth rate of 4.984 percent, in addition, the forecasting of agricultural product export value of Thailand has increased but its growth rate has declined. The impact of agricultural export products has a positive impact on income in the Thai economy; agricultural product export value of Thailand increased 1 percent which, in turn, led to the income increase by 0.0051 percent. In addition, the impact of agricultural export product value has a positive impact on employment in the Thai economy; agricultural export product value of Thailand increased 1 percent which, in turn, led to the employment increase by 0.079 percent. The Thai agricultural export product policy should be focused on finished or semi-finished agricultural products instead of raw materials by applying technology and innovation to make value-added agricultural product export.

Keywords agricultural export product, income, employment, Thai economy

INTRODUCTION

Thailand is a newly industrialized country. Its economy is heavily export-dependent, with exports accounting for more than two-thirds of its gross domestic product (GDP). In 2014, according to the Office of the National Economic and Social Development Board, Thailand had a GDP of 92.11 trillion baht (US\$366 billion). The Thai economy grew by 8.5 percent, (the Office of National Economic and Social Development Board, 2016) with a headline inflation rate of 3.02 percent and an account surplus of 0.7 percent of the country's GDP. In 2016, the Thai economy is expected to grow in the range of 3.8 to 4.3 percent (Bank of Thailand, 2016).

The industrial and service sectors are the main sectors in the Thai gross domestic product, with the former accounting for 39.2 percent of GDP. Thailand's agricultural sector produces 8.4 percent of GDP—lower than the trade and logistics and communication sectors, which account for 13.4 percent and 9.8 percent of GDP, respectively. The construction and mining sector adds 4.3 percent to the country's gross domestic product. Other service sectors, including the financial, education and hotel and restaurant sectors, account for 24.9 percent of the country's GDP. (Bank of Thailand, 2016).

In addition, telecommunications and trade in services are emerging as centers of industrial expansion and economic competitiveness (World Bank, 2016). Thailand is the second-largest economy in Southeast Asia with a GDP per Capita of \$ 5,490 (The Office of National Economic and Social Development, 2016). Thailand ranks second in Southeast Asia in external trade volume, after Singapore (World Trade Organization, 2016). Thailand has been the largest rice exporter in the world. Forty-nine percent of Thailand's labor force is employed in agriculture (Henri et al., 2010). Developments in agriculture since the 1960s have supported Thailand's transition to an industrialized economy (Henri et al., 2010).

As recently as 1980, agriculture supplied 70 percent of employment (Henri et al., 2010). In 2008, agriculture, forestry, and fishing contributed 8.4 percent to GDP; in rural areas, farm jobs supply half of employment (Henri et al., 2010). Rice is the most important crop in the country and Thailand had long been the world's number one exporter of rice, until recently falling behind both India and Vietnam (International Grain Council, 2014). It is a major exporter of shrimp. Other crops include coconuts, corn, rubber, soybeans, sugarcane, and tapioca (New York Times, 2010).

Thailand is the world's third-largest seafood exporter. Overall, fish exports were worth around US\$3 billion in 2014, according to the Thai Frozen Foods Association. Thailand's fishing industry employs more than 300,000 people (Lefevre et al., 2015). In 1985, Thailand designated 25 percent of its land area for forest protection and 15 percent for timber production. Forests have been set aside for conservation and recreation, and timber forests are available for the forestry industry. Between 1992 and 2001, exports of logs and sawn timber increased from 50,000 to 2,000,000 cubic meters per year. In 2014, industry contributed 50.3 percent of GDP, employing 16 percent of the workforce. The industry expanded at an average annual rate of 4.4 percent. The most important sub-sector of the industry is manufacturing, which accounted for 38.5 percent of GDP in 2014 (Bank of Thailand, 2016).

Thailand's strategic location makes it an investors' gateway to Asia. It is at the center of most ASEAN countries, including Myanmar to the west, Cambodia and Lao PDR to the east, and Malaysia, Indonesia, and Singapore to the south. Being at the crossroads of ASEAN and other dynamic markets in Asia, such as China and India, allows Thailand access to a burgeoning consumer population overseas aside from its equally huge population of almost 68 million people. Thailand offers investors a world-class infrastructure. Trade and business transactions are made easier through Thailand's extensive highway system, modern city-wide mass transit, international airports, deep seaports, and international river ports. As the hub of ASEAN, Thailand advocates for free and fair trade. It is instrumental in the formulation of the ASEAN Free Trade Area and a signatory to a number of other free trade agreements. Business opportunities in Thailand are abundant across several industries which include automotive, alternative energy, food, electrical & electronics, logistics, printing, yacht building, rubber industry, etc. (Thailand Board of Investment, 2016).

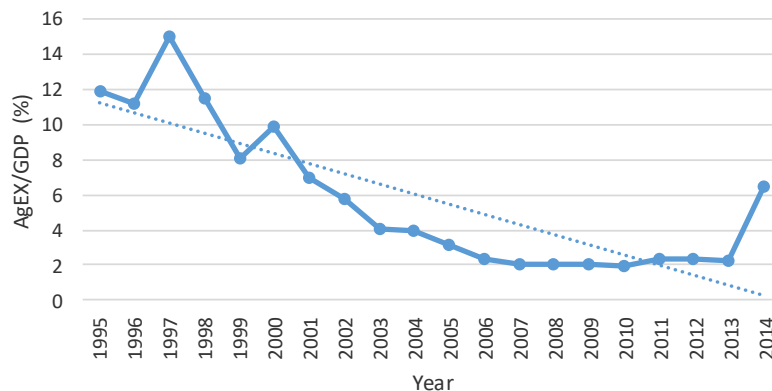


Fig. 1 The value of agricultural export per gross domestic product (GDP)
 Source: Calculation

From past to present, the basis of the Thai economy has been heavily dependent on the agricultural sector. The agricultural sector is still part of food production, clothes, raw materials, and labor to serve other sectors in the economy. Obviously, the Thai economy mainly relies upon the export sector. About 80 percent of Gross Domestic Product (GDP) stems from the export sector. This means that the Thai economy has been and still depends on the export sector which generated the National Income and GDP growth rate. According to the Thai economy, there were 2-main sectors which are Agricultural and Non-agricultural sectors Industrial sub-sector, financial sub-sector, and service sub-sector. The non-agricultural sector generated about 95 percent of GDP while the agricultural sector generated about 5 percent of GDP. Statistically, from the last 20 years, the agricultural sector has been smaller than it was. The ratio of Agricultural export per GDP has been declined (Fig. 1).

In this research, the researcher tries to examine the impact of agricultural product export on income and employment in order to determine the future shape of the agricultural sector as a part of the Thai economy.

OBJECTIVE

The research objectives are as follows:

- 1) to find out the impact of agricultural export product on the income of the Thai economy
- 2) to find out the impact of agricultural export product on the employment of the Thai economy

METHODOLOGY

Data Collection

The secondary data time-series data from 1998 to 2017 accounted for 20 years were collected from the database of Bank of Thailand, the Office of National Economic and Social Development and the Office of Agricultural Economics (OAE), the Ministry of Agriculture and Cooperatives, the Royal Thai Government.

Data Analysis

The impact of agricultural export products on income and employment was calculated by the econometric model applied T-test, F-test, Determinant of Coefficient (R^2) and Durbin-Watson (DW).

RESULTS AND DISCUSSION

The impact of Thai agricultural export on the income of the Thai economy can be expressed as equation (1) below:

$$\ln (\text{GDP})_t = \hat{\alpha}_0 + \hat{\alpha}_1 \ln (\text{AgExport})_t + \hat{\alpha}_2 \ln (\text{GDP})_{t-1} + \varepsilon \quad (1)$$

Where $(\text{GDP})_t$ = Gross Domestic Product at time t, $(\text{AgExport})_t$ = Agricultural Export Product at time t, $(\text{GDP})_{t-1}$ = Gross Domestic Product at time t-1, and ε = the error term.

The statistical results calculated from equation (1) could be expressed in Table 1. According to Table 1, the impact of Thai agricultural export products on income expressed that increasing in agricultural export by 1 percent led to an increase in income by 0.03 percent while increasing in last year's income by 1 percent led to an increase in income by 0.826 percent.

Table 1 The impact of the agricultural export product on income

Dependent Variable: Gross Domestic Product $\ln(GDP_t)$		
Independent variables	Estimated coefficient	T-value
Constant	2.294	21.32**
$\ln(\text{AgExport})_t$	0.030	9.53**
$\ln(\text{GDP})_{t-1}$	0.826	9.01**
F-statistic = 228.53**		
D.W	1.86**	
\hat{R}^2	0.974	

**Statistical significance at 99 percent

Source: Calculation

The impact of Thai agricultural export product on employment of Thai economy can be expressed as equation (2) below:

$$\ln(\text{Employment})_t = \hat{\alpha}_0 + \hat{\alpha}_1 \ln(\text{AgExport})_t + \hat{\alpha}_2 \ln(\text{AgExport})_{t-1} + \hat{\alpha}_3 \ln(\text{GDP})_{t-1} + \varepsilon \quad (2)$$

Where $(\text{Employment})_t$ = Employment at time t, $(\text{AgExport})_t$ = Agricultural Product Export at time t, $(\text{AgExport})_{t-1}$ = Agricultural Product Export at time t-1, $(\text{GDP})_{t-1}$ = Gross Domestic Product at time t-1, and ε = the error term.

The statistical results calculated from equation (1) could be expressed as Table 2 below:

Table 2 The impact of agricultural export product on employment

Dependent variable: $\ln(\text{Employment}_t)$		
Independent variables	Estimated coefficient	T-value
Constant	20.68	26.65**
$\ln(\text{AgExport})_t$	0.36	18.68**
$\ln(\text{AgExport})_{t-1}$	0.04	13.69**
$\ln(\text{GDP})_{t-1}$	0.14	21.80**
F-statistic = 229.10**		
D.W	1.82**	
\hat{R}^2	0.824	

**Statistical significance at 99 percent

Source: Calculation

According to Table 2, the impact of Thai agricultural export product on employment expressed that increasing in agricultural export product at time t by 1 percent led to an increase in employment at time t by 0.36 percent, the increasing in agricultural export product at time t-1 by 1 percent led to an increasing in employment at time t by 0.04 percent while increasing in Gross Domestic Product at time t-1 led to an increase in employment at time t by 0.14 percent.

CONCLUSION

Agricultural export products of Thailand have been an important sector for the Thai economy as one of the economic drivers. From 1998 to 2017, the value of Thai agricultural export products has significantly increased with an average of \$23,819 Million and an average growth rate of 6.08 percent a year. For Thai Agricultural export product value forecasting, it is found that the average growth rate is 9.16 percent a year. The agricultural export product also has an impact on income and employment for the Thai economy, increasing in 1 percent of agricultural export-led to an increase in income and employment by 0.03 and 0.36 percent, respectively.

Due to the research results, the agricultural sector has been and still is an important economic sector of the Thai economy. Agricultural product export is one of the economic sectors that functioned as an economic driver in the Thai economy, not only being the source of income but also the source of employment for the Thai economy. In addition, the agricultural sector is still the

source of food, clothes, raw materials, and labor to serve other sectors such as industrial, service, and other sectors in the Thai economy

ACKNOWLEDGEMENT

I, personally, thank Sukhothai Thammathirat Open University for research funding. I extended my million thanks to my beloved father and mother for their unconditional love. Special thanks to my family “*Wittayakorn-Puripunpinyoo*” with all my respect, love and heart.

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