

FACTORS INFLUENCING THE IMPORTS OF LUXURY GOODS IN THAILAND: A PANEL ARDL APPROACH

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Abstract: The objective of this research is to examine the factors that affect the importation of luxury goods in Thailand both in the short and long runs. It is considered in regard to nine imported products. This study employs panel data as quarterly data from 2006 - 2015. Data analysis employs (1) Panel Unit root test, (2) Cross Section Dependence in the Panel Test: CD test (3) Heterogeneous panel cointegration test as proposed by Pedroni (1999, 2000) (3) Estimation of the short-run and long-run by ARDL Panel with Pool Mean Group estimation. The examination of all variables is conducted to examine the stationarity at I (1) for the panel unit root test. The results show that the imported models are panel cointegrated as well as the Gross Domestic Product (GDP), which affect the import of luxury goods in the short-run. For the long-run, GDP and exchange rates affect the import of luxury goods. Therefore, the government or the relevant authorities should slow down the inflow of capital from foreign countries, implement intensive financial policy with financial tools and determine a suitable import tax rate for luxury goods in Thailand.

Keywords: Luxury Goods, Import, Panel ARDL

JEL Classification: E2, F1, F4

1. INTRODUCTION

Thailand imports various categories of goods such as consumable products, capital goods and luxury goods. In Thailand, importing luxury goods is significant because it involves international trade. The tendency to import goods and luxury goods has increased constantly during 2007-2015 as shown in Figure 1. It shows that the value of luxury goods imported into Thailand has increased constantly during 2007-2015. It is interesting that the continual increasing import value of luxury goods each year shows that there is an increase in domestic consumer demand for luxury goods consumption.

When considering the import ratio of luxury goods value to total import value, it can be seen that the import value of luxury goods from foreign countries has increased significantly. Moreover, Thabphan (2006) explained that the import ratio of luxury goods affected

the imports of the country. This suggests that luxury goods are related to the importation of products to Thailand.

The import value of luxury goods in Thailand, according to the Office of Information Technology at the Customs Department (2016) showed that the import value of luxury goods was a key factor in increasing the total import value for Thailand in 2103, 2014 and 2015. This indicates that the import of luxury goods in Thailand is still growing and is also significant in Thailand's economy. However, the study of the factors affecting the import of each type of luxury good in Thailand is limited in terms of research. Therefore, the study on the factors affecting the increase in the total import quantity of luxury goods for Thailand is required.

As mentioned above, this paper proposes policy recommendations such as financial policy and fiscal policy,

Unit: Million Baht

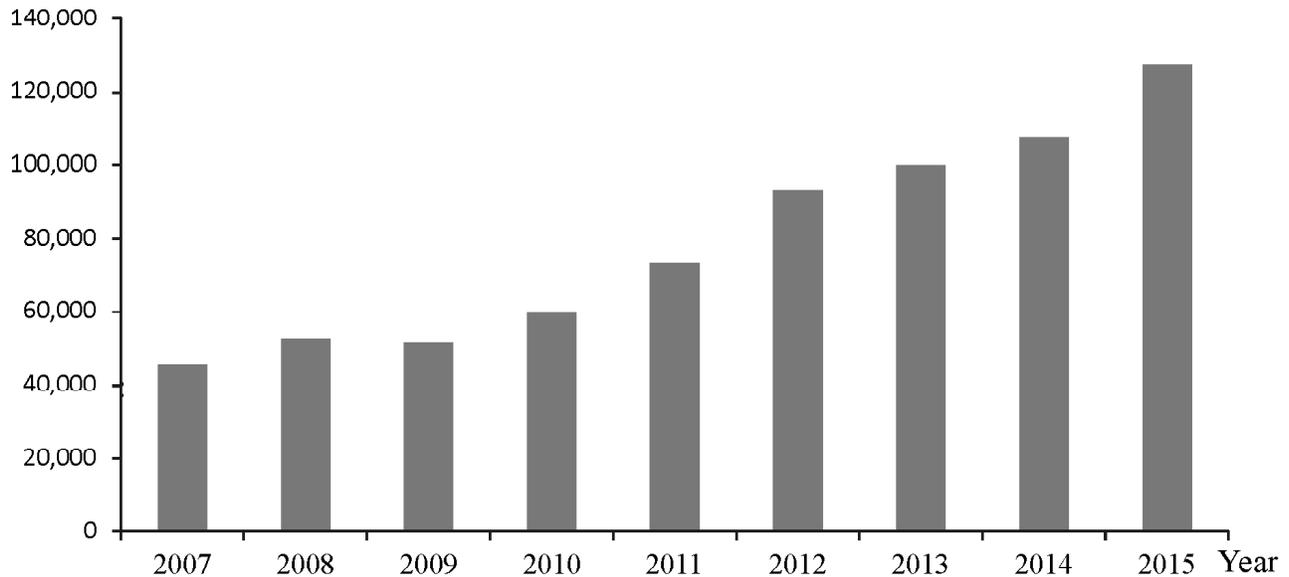


Figure 1: Import of luxury goods

Source: Office of Information Technology, The Customs Department (2016)

and presents information to set appropriate policy for the rate of exchange and tax rate regarding the import of luxury goods. Hence the objective is to determine the factors affecting the import of luxury goods in Thailand in the short-term and long-term.

2. LITERATURE REVIEW

According to import theory, in regard to imports, the cost of imports refers to the expenditure the country pays for products and services. The money spent is income for the manufacturers or foreign companies, which draws the money out from the circular flow of income and national expenditure and thus reduces national income. Therefore, if the cost of imports rises, national income will decrease (Thabphan, 2006).

Many studies have been carried out to analyze the issue of import analysis in Thailand in which researchers conducted studies on the factors affecting the import of products. The main factor affecting imports was the rate of exchange (Rittisan and Nilbai, 2013). They also stated that another significant factor was income in Thailand.

Thangkum (2001); Rittisan and Nilbai, 2013) stated that price and Gross Domestic Product (GDP) are the factors affecting the imports of Thailand. Therefore, price policy is the most effective policy variable to control imports into Thailand.

Most studies indicated that the factors affecting imports to Thailand were the rate of exchange, actual income, price, Gross Domestic Product (GDP), the Consumer Price Index (CPI) and the tax rate. A conceptual research framework is shown in Figure 3. However, since there was no change in the tax rate in the year of research, it was not included.

As mentioned above from import theory and the review of literature, the factors affecting that import of luxury products into Thailand is presented in Figure 3, which presents the framework in which the dependent variables are (1) actual income value, (2) rate of exchange and (3) Consumer Price Index (CPI). These three variables are the main factors affecting imports. There will be analysis to verify that if other factors are held constant, whether these three variables would affect the import of luxury goods into Thailand or not.

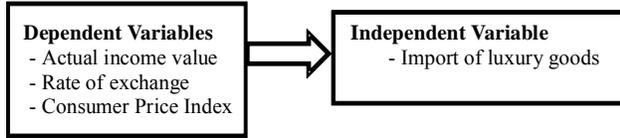


Figure 3: Research Framework

3. RESEARCH METHODOLOGY

3.1. Data and Data collection

The data used in this research were Time Series data. Secondary data which were the quarterly data of 2006 - 2015 were collected from the following agencies.

1. The import value of 9 luxury goods (M) at 2007 prices consisted of Perfume and Cosmetics, Watches and Accessories, Leather Bags and Belts, Suits, Shirts, Skirts, Trousers and Ties, Liquor, Leather Shoes and Sneakers, Lenses, Eye glasses and Pens and Accessories.
The 9 items of data had the highest import value obtained from the Office of Information Technology at the Customs Department of Thailand.
2. Gross Domestic Product (GDP) data (Y) was collected from the Annual Statistics Report, Bank of Thailand.
3. Rate of exchange data (E) (Baht per Dollar) is at 2007 prices. This was the year that the economy was stable and the world trade conditions were constant before the crisis. Data were collected from the Bank of Thailand.
4. Consumer Price Index (CPI) data was collected from the Bureau of Trade and Economic Indices.

3.2. Methodology

The research on the factors affecting the import of luxury goods into Thailand, from the literature review in section 2, and topic 3.1 was employed to determine the relevant variables to create a model based on the relevant concepts, theories and research. The model of factors affecting the import of luxury goods is presented in a natural logarithm functional form as follows:

$$\ln Q_{it} = \alpha_0 + \beta_1 \ln E_{it} + \beta_2 \ln CPI_{it} + \beta_3 \ln GDP_{it} + V_{it} \quad (2)$$

Where:

β_1, β_2 and β_3 = coefficient of independent variables

α_0 = intercept

M = import value of luxury goods at i at the time t

E = rate of exchange (Baht per Dollar) at the price of 2007

CPI = Consumer Price Index

Y = Gross Domestic Product

i = goods type j where

i = 1 is Perfume and Cosmetics

i = 2 is Watches and Accessories

i = 3 is Leather Bags and Belts

i = 4 is Suits, Shirts, Skirts, Trousers and

Ties

i = 5 is Liquor

i = 6 is Leather Shoes and Sneakers

i = 7 is Lenses

i = 8 is Eye glasses

i = 9 is Pens and Accessories

t = quarter 1 of 2006 to quarter 4 of 2015 (40 quarters)

U = error term

Equation (1) is the macro-panel model because $T = 40, N = 9$ (Eberhardt, 2011). The existence of individual effects is potentially correlated with the right-hand side of the regression, such that $v_{it} | \lambda_t + u_i + \varepsilon_{it}$ is the fixed effects decomposition of the error term in which λ_t is the time effect, u_i is the import of luxury good items (specific effects that vary between products) whereas, ε_{it} is the disturbance term.

As the Equation 1, the expected signs of the coefficients of explanatory variables are $\beta_1 < 0$ and $\beta_2, \beta_3 > 0$.

In the next section, a panel unit root test is the first step with a Cross Section Dependence in the Panel Test or CD test. The heterogeneous panel co-integration test proposed by Pedroni (1999 and 2000) is then conducted. The panel cointegration test confirms the long-run relationships of Equation 1. Finally, when we found that the model is panel co-integrated, we estimated the model by using the Pool Mean Group (PMG) procedure which was proposed by Pesaran *et al.* (1999). The PMG estimator is presented by dynamic panel analysis, which is the Autoregressive distributed lag: ARDL (p, q) model. The PMG method is suitable for a sufficiently large time-series

dimension of the panel data with consistency and validity approaches. This procedure also presents the long and short run coefficients. On the other hand, the advantage of the PMG estimator is that it can show the possible heterogeneous dynamic issues across countries.

4. EMPIRICAL RESULTS

In section 4, we show the research findings and empirical results. In Table 1, the summary of basic statistics for all variables that are used in the first step is presented. The calculation of statistics is the basis of the next stage.

Table 1
Summary of Basic Statistics

Measure	LnQ_{it}	$LnCPI_{it}$	LnE_{it}	LnY_{it}
Mean	1621.195	98.19875	33.09650	2676.337
Median	1300.520	97.58000	32.65525	2571.660
Maximum	6524.910	107.7200	39.33430	3496.000
Minimum	39.49000	85.53000	29.80430	1900.240
Std. Dev.	1237.904	6.925519	2.332057	507.3317
Skewness	1.357745	-0.174137	0.718351	0.117169
Kurtosis	5.012853	1.656529	2.987395	1.502110

Source: From the calculation

4.1. Panel Unit Root Tests

The results of IPS panel unit root test of the variables from W-stat indicates that the import value of luxury goods, the Consumer Price Index, the Gross Domestic Product and the rate of exchange factors exhibit stationarity at I(1) whereas the rate of exchange is

stationary at I(1). Hence, the respective variables integrated in order one, and the heterogeneous panel cointegration test from Pedroni's (1999, 2000) procedure can be employed to implement the heterogeneous panel co-integration test (Table 2).

Table 2
Results of Panel Unit Root test

Variables	<i>Im, Pesaran and Shin W-stat (Level)</i>	<i>Im, Pesaran and Shin W-stat (First Difference)</i>
LnQ_{it}	3.32 [1]	16.49*** [3]
$LnCPI_{it}$	0.03 [2]	-3.47** [3]
LnE_{it}	-1.49 [1]	-8.60*** [0]
LnY_{it}	3.07 [1]	15.53*** [1]

Note: ** at the 95% confidence level
*** at the 99% confidence level

4.2. Cross Section Dependence in the Panel Test

Prior to examination of the dependence of the cross sectional panel data, the simple test for error cross section with the CD test was conducted as in Pesaran (2004). The CD statistics are shown in Table 3 which presents all series for the 9 luxury imported product items. The results show that all variables have cross-section dependence at the 1 percent level of significance. This means the variables are homogenous factors loaded from CD test. Thus, the PMG procedure is employed to obtain the short and long run estimation results.

Table 3
CD Test Results

Variables	CD-test	P-value	Correlation
$\ln Q_{it}$	37.95	0.00	1.00
$\ln CPI_{it}$	37.95	0.00	1.00
$\ln E_{it}$	26.52	0.00	0.70
$\ln Y_{it}$	37.95	0.00	1.00

Note: Under the null hypothesis of cross-section independence $CD \sim N(0,1)$

4.3. Panel Co-integration Test

Table 4 summarizes the heterogeneous panel co-integration test (Pedroni, 1999 and 2000). The results are divided into two parts. The first part presents panel co-integration test statistics within the dimensions. The second part presents panel co-integration test statistics between dimensions. The results of seven tests accept the alternative hypothesis that all variables are heterogeneous panel co-integrated at the 1 percent level of significance except Panel v - statistics which accepts the null hypothesis. Hence, it can be concluded that the four variables have heterogeneous panel co-integration. This allows estimation of the short and long runs in the next stage.

4.4. Short Run and Long Run Estimations

The estimation results of the dynamic models are shown in Table 3 and are estimated by the ARDL panel model with a PMG approach. For the short-run, the results show that the Gross Domestic Product ($\ln Y_{it}$) is positively related to factors affecting the import of luxury goods

Table 4
Results of Heterogeneous Panel Co-integration Test

Panel co-integration test statistics	Statistics	P-value
Within-Dimension		
Panel v-Statistic	0.03	0.49
Panel rho-Statistic	-2.62	0.00
Panel PP-Statistic	-4.99	0.00
Panel ADF-Statistic	-5.31	0.00
Between-Dimension		
Group rho - statistics	-5.05	0.00
Group PP - statistic	-2.62	0.00
Group ADF - statistic	-5.31	0.00

Note: 1. The number of lag length was selected automatically based on SIC with maximum lags of 9
2. *** at the 99% confidence level

from foreign countries to Thailand at the one percent significance level. As expected, the result follows the expected sign of the model whereas the Consumer Price Index ($\ln CPI_{it}$) and the rate of exchange factors ($\ln E_{it}$)

Table 3
ARDL Panel with Pool Mean Group Estimation Results

Variables	Short run coefficients
Constant	-2.52** (-2.53)
$\Delta \ln CPI_{it}$	11.28 (1.51)
$\Delta \ln E_{it}$	0.02 (2.03)
$\Delta \ln Y$	2.67*** (2.62)
ECM_{it}	-0.31*** (-2.63)
Variables	Long run coefficient
$\ln CPI_{it}$	30.75 (1.38)
$\ln E_{it}$	87.95*** (5.22)
$\ln Y_{it}$	1.12*** (4.12)

Note: 1. t-statistics are in the parentheses. The asterisk *** and ** denote significance at the 1% and 5% levels of significance respectively.
2. The lag structure is ARDL (1, 1, 1, 1), and the order of variables is, $\ln Q_{it}$, $\ln CPI_{it}$, $\ln E_{it}$ and $\ln Y_{it}$.

are insignificant. However, the f factor affecting the import of luxury goods from foreign countries to Thailand that deviates from the short-run equilibrium to the long-run equilibrium is approximately 31 percent at the one percent level of significance ($ECM = -0.31$).

For the long-run, the rate of exchange factors ($\ln E_{it}$) and Gross Domestic Product ($\ln Y_{it}$) affect the import value of luxury goods in Thailand because they are positively related to the import value of luxury goods in Thailand at the one percent significance level. From the results, both the short and long-runs estimation results confirm that Gross Domestic Product affects the import value of luxury goods in Thailand.

5. CONCLUSION AND DISCUSSION

The study of the factors affecting the import of luxury goods from foreign countries to Thailand reveals that Gross Domestic Product (GDP) was the most significant factor, which is consistent with the hypothesis. For the short run, GDP affected the import of all luxury goods. Results were in accordance with theory since the products were luxury goods and customer demand depended mainly on income. Results were consistent with the research of Rittisan and Nilbai (2013) which reported that the main factors affecting imports were income and GDP.

In the long run, the rate of exchange was one of the factors affecting the import of luxury goods from foreign countries to Thailand. It was found that it had a relationship in the same direction, which was inconsistent with the hypothesis. The result was in line of macroeconomics theory. On the other hand, it is clear that the factor affecting the import of luxury goods from foreign countries to Thailand was GDP.

Therefore, income is the key reason to increase the imports of luxury goods while the rate of exchange also influences the import of luxury goods from foreign countries to Thailand because it may be unstable and changeable in the short run. In summary, the import of luxury goods might also depend on other factors but the income factor follows import theory.

6. POLICY IMPLICATIONS

The policy implications emerging from the results are as follows:

1. Consumer income is the key factor affecting the imports of luxury goods from foreign countries to Thailand. When income increases, people have more demand for luxury goods. If the import of luxury goods is excessive, it may lead to a trade deficit. Therefore, the government should designate the relevant authorities to resolve the problem. The Bank of Thailand should implement intensive financial policy with financial tools such as selling bonds to the public in order to take money out of the economic system. People will have less cash and earn less income. Consequently, the import rate of luxury goods will decrease. There would also be no problems with the balance of trade and the balance of payments.
2. The rate of exchange is one of the factors that affects imports. If the rate of exchange increases (depreciation), imports decrease eventually. Recently, the rate of exchange has fluctuated. Thus, the relevant agency, the Bank of Thailand should take action to reduce the fluctuations in the rate of exchange and needs to depreciate the rate of exchange in order to reduce imports. The Bank of Thailand should decrease the interest rate, which will delay capital inflows that result from Baht appreciation. The decrease in capital inflow causes Baht depreciation, which decreases imports because of lower purchasing power.
3. The Customs Department should implement tax measures by increasing excise tax, particularly for luxury goods with a high import value. If there are too many imports, it can lead to a trade deficit and balance of payments problems. Increasing the excise tax is a method of import restriction for luxury goods from foreign countries

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REFERENCES

- Eberhardt, M. (2011). Panel time-series modeling: New tools for analyzing xt data. Retrieved from http://repec.org/usug2011/UK11_Eberhardt.pdf
- Jamornkul, C. and Saikhanit, R. (2004), Intro of Economics. (3rd). Bangkok. Chula Press. [In Thai].
- Office of Information Technology, The customs Department. (2016). *Import Statistics*. Retrieved from <http://dataservices.mof.go.th/Dataservices/IELuxury>
- Pedroni, P. (1999). Critical Values for Co-integration Tests in Heterogeneous Panels with Multiple Regressors. *Oxford Bulletin Economics Statistics*, 61, 653-678.
- Pedroni, P. (2000). Fully-Modified OLS for Heterogeneous Co-integration Panel. *in Nonstationary Panels, Panel Co-integration and Dynamic Panels*, Advances in Econ. 15, 93-130
- Pesaran, M. H. (2004). General diagnostic tests for cross section dependence in panels. University of Cambridge, Faculty of Economics, Cambridge Working Papers in Economics No. 0435.
- Rittisan, S. and Nilbai, T. (2013). The Import of Luxury Products into Thailand. *Journal of Business and Administration*. 1(1). 82-99.
- Thabphan, Y. (2006). International Trade Theory and Policy. Bangkok: Samchaonlada Press. [In Thai].
- Thangkhum, K. (2001). The Comparison of Import and Export Demand of Thailand: Before and After Floating Exchange Rate. Master thesis. Ramkhamheng University. [In Thai].