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A Study on the Informal Economy Size of Emerging Southeast Asian Nations

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Abstract

In many countries, the size of the informal business sector including small-scaled stores, street vendors, private tailor shops, self-employed craftsmen, or scrap collectors, etc. even dominates the economy compared to the formal one. However, informal businesses are usually not easy to be managed and fairly assessed by the government. This could lead to an issue for the government in terms of developing, exploiting, and regulating the informal sector. Recognizing the significance of the informal economy, this paper aims to examine the size of the informal economies of some emerging countries in the Southeast Asian region, namely Indonesia, Malaysia, Philippines, Thailand, and Vietnam. By the quantitative method using the FEM analysis, this paper finds that the existence of informal economies in these countries is not small and there are large disparities between countries. In which, Thailand exists the largest informal economy size, while Vietnam is the smallest one. Additionally, the study identifies that the tax burden is the main factor leading to the informal economy among other variables, namely money supply, tax, saving interest rate, personal consumption, and GDP per capita. In general, the study aid policy-makers in Southeast Asian countries to have a better understanding of the factors leading to the informal economy, thereby they can effectively manage the economy.

Keywords*: Informal Economy, FEM Analysis, Tax Burden, The Southeast Asian region.*

1. INTRODUCTION

Small-scale stores, sidewalk trading, private tailoring shops, scrap collection, and so on are jobs in the informal economic sector (also called shadow economy) that appear quite popularly all over the world. The informal sector has long been a part of the economy, parallel existing with the formal sector and also influenced by economic laws and socio-economic policies at different levels across countries. In some nations, the size of the informal economy even dominates that of the formal one (World Economic Forum, 2017). According to Keith (1985), newcomers to the urban labor market often lack technical skills, qualifications, and opportunities. Therefore, they will prefer to choose jobs in unorganized areas. It is said that the informal sector is playing a significant role in some countries' economic growth, contributing to minimize the negative effects of the global economic crisis in 2008.

Meanwhile, some scholars argue that the existence of the hidden economy is the signal of underdevelopment in the long term, which distorts the distribution of resources and income, and reduces the government's tax revenues. Hence, there is a need to remove this sector from one country's economy. When its size is from 17.6% of GDP to 35.7% of GDP, the amount of tax losses will go around 3.5% of GDP to 6.1% of GDP (Gangadha et al., 2011). Therefore, governments have enacted some policies and educated people in order to change their consciousness and thoughts to reduce the size of the informal economy.

Recognizing the significance of the informal economy, the author's aim is to identify the size of informal economies and factors affecting the scale of this. In doing so, the study contributes certain ideas for policy-makers to have a better view on the nature of the informal economy in some Southeast Asian nations, thereby they can bring more suitable policies for sustainable economic development such as using human resources effectively and better controlling the size of the informal economy.

2. LITURATURE REVIEW

2.1. *The concept of non-official economy*

The informal economy is a term used to refer to activities and jobs that create value-added based on the market without tax (or registered by the government). According to Edgar (1989), these activities

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were observed formally into the Gross National Product (GNI) but were not registered. According to Smith (1994), the informal economy including activities in the market for goods and services, whether legal or illegal, are not formally observed or estimated by GDP. In other words, the shadow economy can be interpreted as economic activities and non-regulated income from the government and the tax system (Feige, 1989; Dell 'Anno & Schneider, 2003).

The informal economy includes the informal sector and informal employment. The informal sector consists of all non-agricultural private businesses and businesses, without business registration and providing products on the market. Informal employment refers to employment in the informal sector or full-time jobs but without social insurance and benefits. From a legal perspective, the choice to participate in the formal or informal sector is voluntary. Workers choose to join this sector to avoid restrictive procedures from government, the costs of business registration, taxes and insurance (Hernando, 1989).

On the economic side, the emergence of a hidden economy is seen as a response of individuals or organizations to the overload of the tax burden, contribution to social costs, rigidity and cumbersome of the legal system. Instead of reflecting, speaking up and demanding changes to suit their needs, they choose to join the hidden economy in order to escape these constraints. From this, it can be seen that the size of the informal economy reflects the institution, policy and management capacity of that country (Hirschman, 1970).

2.2. *Impacts of the informal economy*

It is undeniable that there are millions of people in the world today, especially in developing countries in the Southeast Asian region, who depend on informal sector jobs. Since the 2000s, the demand for jobs has increased, but the formal job sector has not been able to meet the demand, and workers' entry into the informal economy is inevitable. According to The IMF (2018), on average, this figure is equivalent to 31.9% of GDP globally (Medina & Schneider, 2017). In the Southeast Asian region, this sector accounts for 70% of the country's workers. In addition, the hidden economic sector also provides cheap labor, raw materials and input products, especially in the production and export of handicraft products (textiles, ceramics, wooden products...) in developing countries. The growth rate of countries in Southeast Asia tends to increase, in which the informal sector fully participates in the development process of the economy through outsourcing activities of export enterprises. From that points, it can be seen that the informal sector still showed no sign of shrinking when the economy grew. Some argue that it is possible that the growth of the countries on these continents is still not enough to influence the size of the informal economy.

However, according to the International Labor Organization - ILO (2002), it is estimated that only about 20% of the global unofficial labor force is sponsored by the national safety net, more than half of workers and dependents are excluded from this system. Moreover, jobs in this sector are often low paid and are unlikely to increase. This explains why the proportion of people who quit their jobs in this economic sector is quite large. Because the "informal" nature is not governed by the state and the coordination of the tax system, the informal economy causes a significant amount of state budget revenue loss, affecting the growth of the economy. Cristina Terra (2017) concluded that when a country has a high proportion of the informal economy, the economy is also under control. In addition, the business performance of the informal sector is difficult to measure because data collection often encounters many obstacles. Therefore, the informal economy is not reflected in the official figures, which makes GDP and other indicators inaccurate. This will affect the planning and effectiveness of the state's macroeconomic management policies, limiting the effectiveness of the law, sometimes deflecting or neutralizing it (Scott Hacker & HHRi, 2008). In addition, the emergence of this area has created an unfair competition market when enterprises in the formal sector has to carry out regulatory procedures for state business management and contribute partly to government budget profits (Schneider, 2005; Teobaldelli, 2011; Torgler & Schneider, 2009). Some other opinions also say that this area is a place to create negative space for social problems such as corrupt officials, bribes, harassment, abuse of rights to serve personal interests, etc. (Choi & Thum, 2005).

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2.3. *Factors affecting the informal economy*

There are many reasons for the formation and expansion of the informal economy. The paper will focus on some main macro factors of the economy as follows:

The tax burden and social security contribution

Tax contribution and social security expenses are one of the main reasons for the existence of an informal economy (Schneider, 2005); Johnson et al, 1998; Tanzi, 1999; Giles, 1999; Giles & Tedds, 2002; Feld & Schneider, 2010). Tax policy and social welfare policies have a significant effect on income before and after-tax. It is an incentive for individuals and organizations to withdraw from the formal economic sector to join the hidden economy. Each country will have a different social security system and tax policy.

Institutions, governments and the legal system

A cumbersome system of policies, regulations and bureaucratic procedures… tends to be more and more burdening, restraining the freedom of individuals and organizations in the formal economy. The official labor market regulations can be mentioned as the minimum wage regime, unemployment insurance, trade barriers such as import quotas and labor market restrictions for foreigners... The cumbersome and rigid provisions of the general intangible legal system have increased the transaction costs of individuals and businesses in the formal economy. These costs are often passed on to employees by employers, thus giving them an incentive to avoid costs by joining the hidden economy (Schneider & Enste, 2000; Johnson et al.,199; Dreher & Schneider, 2006; Buehn & Schneider, 2012).

The weakening of the formal economy

Several studies have shown that the situation of the formal economy is also one of the reasons leading to workers' decision to join or not join the informal economy. (Enste & Schneider, 2006; Feld & Schneider, 2010). When the economic crisis occurred in countries, following by high unemployment, inflation, increasing public debt and bad debt, individuals and organizations in many cases could lead to bankruptcy, job loss. In order to escape from this situation, they will choose to participate in the informal economic sector.

The development of a hidden economy is not only driven by the skills of workers but also by the formal economy which does not meet the employment needs of the citizens (Gutiérrez-Romero, 2010). This situation occurs mostly in emerging and developing countries in which the trend of rapid industrialization along with the rapid growth of the working-age population makes the demand for a job search in the economy officially become harsher. At that time, the labor selection would offer the incompetent workers the opportunity to find the informal sector. Once they have joined and enjoyed a stable income, it is unlikely that they will return to the formal economy (Schneider & Klinglmair, 2004).

The Currency demand

Due to tax pressure as one cause of the shadow economy, Cagan (1958) firstly found out the correlation between it and currency demand. That result was developed later in Gutmann's research in 1977 in which an increase in the size of the hidden economy leading to currency demand through the development of income, payment habits, interest rates, debit or credit cards to replace cash and so on. That suggested the correlation between the informal economy and money supply including the base money (M1) or narrow money (NM) and broad money (BM or M2). Hence, these all possible conventional factors recommended the cash to money supply ratio as a variable to measure hidden economics activities in Tanzi's model (1980, 1983). Especially, interest rate and income were considered as variables that effected directly and indirectly from tax burdens, government regulation, state institutions, tax morale. These major factors are assumed to encourage people to work in the shadow economy.

2.4. *The selection method measuring informal economic activities*

There are some different approaches to measure the shadow economy from both monetary transactions and non-monetary transactions as presented in Table 1.

Table 1. Measurements of different perspectives

Approach	How to measure	References

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perspective		
Accounted incomes and expenses	The difference must consist of undeclared income constituting a means obtained through the underground economy	Thomas (1992)
Labor as an input factor	An aging population, illegal migrants and other social groups might reflect a lower share of workers to distribute the hidden economy. Hence the labor cost of different workers might have a significant impact on measurements.	Schneider & Enste (2002)
Electricity consumption	The model showed electricity consumption as mainly an indicator of the underground economy and used electricity/GDP to estimate the size of the shadow economy	Kaliberda & Kaufmann (1996); Lackó (1996), Schneider & Enste (2002)
MIMIC model	The model brought the expected causes and effects of the underground sector. However, this model's weakness is measurement only the change in the size underground economy, not the actual size of the underground economy.	Dell'Anno & Schneider, 2003), Breusch (2005), Schneider & Enste (2002)
Payments and transactions	The aggregate money supply in Tanzi's research was a good indicator of the size of the real economy based on the constructed aggregate money demand of Feige. The overall excess of money supply was unrecorded money used in the hidden economy	Feige (1989); Tanzi (1983)
Currency demand approach	The research found that the shadow economy varies significantly by country income group among OECD countries, the highest percentage come from low-income countries.	Alm & Embaye (2013)
Two-sector dynamic general equilibrium model	A new methodology to construct a novel shadow economy dataset to match various reported macroeconomic variables and then back out the size of the shadow economy of 161 countries over the period 1950 and 2009.	Elgin & Oztunali (2012)
Burden of tax combined with labor market regulations and the quality of public goods and services	The paper found that an increased burden of taxation, labor market regulations, quality of goods and services, state of the official economy are the driving forces of the shadow economy. This paper estimated the shadow economies of 162 countries including Eastern European, Central Asia, and high-income OECD countries over 1999 to 2006/2007	Schneider et al. (2010)

Although many papers had different approaches viewpoint, most of the researches used Tanzi's model to estimate the size of the shadow economy in developing countries. Moreover, the Multiple Indicator Multiple Causes (MIMIC) model's weakness suggests that adding the relationship between year t and year t-1 can improve the estimation of the actual size of the hidden economy better than previous models. Therefore, this paper aims to estimate the shadow economy of some developing countries in the Southeast Asian region using Tanzi's model as this is a common method, applied to research for many countries of the Organization for Economic Cooperation and Development (Schneider, 1997; Johnson et al., 1998). Therefore, in terms of the contribution meaning, this method still has certain values in the measure of the size of the informal economy.

3. METHODOLOGY

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3.1. *The research model*

This study inherited Tanzi's econometric model (1983) in which used factors about tax burden, household expenditure, interest rate, and income per capita in order to measure the effects of these factors on the informal economic scale through the money supply ratio $\frac{NM}{BM}$. When researching the informal economy, it is difficult for researchers to estimate the data because this type of data is unanticipated parameters. Especially, the subjects operating in the informal sector are individuals and businesses who try to hide their activities. Hence, recent measurement studies were applied in this research such as papers of Schneider et al. (2010), Elgin & Oztunali (2012), Alm & Embaye (2013) which developed informal economy estimation methods, since then, it could reinforce the high reliability of this study. According to Elgin & Oztunali (2012), data of the informal economy was measured by using two general equilibrium areas adjusted by macro variables. The estimation model of Elgin & Oztunali (2012) was used in the method presented earlier by Schneider and coworkers (2010) in which showed the correlation of these estimation methods was up to 0.99 and it was stated to be the same with the estimation result.

The measuring variables used in the analysis model include: (1) The money supply ratio $\frac{NM}{BM}$; (2) The tax burden TB; (3) Personal Consumption $\frac{PC}{GNI}$; (4) Interest rate R ; (5) GDP per capita Y. Specifically:

The Money Supply Ratio $\frac{NM}{BM}$: The amount of money in circulation NM is not the amount of money stored in commercial banks, financial institutions or central banks yet the amount of cash used directly in transactions between the seller and the buyer. The amount of money in this circulation is a part of the money supply BM and accounts for a large proportion of the money stored in savings and current accounts. The money supply is indicated by the symbol BM.

The Tax Burden TB: The variable of the tax burden is determined by the total tax revenue over the gross national income GNI. The government income from taxes includes all of the mandatory tax payments paid to the government for public purposes except fines and social insurance contributions.

Personal Consumption $\frac{PC}{GNI}$: This ratio is measured by the level of personal consumption PC on gross national income GNI. The index measuring personal consumption includes actual consumption and personal estimates of goods and services that are continuous and discontinuous.

Interest Rate R: Annual real interest rates on time deposits are considered opportunity costs for holding cash.

GDP Per Capita Y: GDP per capita is calculated by the purchasing power parity method.

In order to estimate the equation, this study used the FEM technique to look at country-specific characteristics in the model. However, it came with a very strict assumption that particular characteristics must be updated and fixed over time. Compared to the previous Pooled ordinary least squares (OLS) method, the FEM method is better because it is assumed that the error variance must be uniform and there is no autocorrelation phenomenon for estimation. Hence, the number of parameters would be stable and not be biased (Wooldridge, 2002), and it would overcome data constraints by providing a variety of degrees of freedom in estimating the monetary demand equation. This allows the implementation of informal economic scale measurement studies of some countries that have been missed due to a lack of data. Before the regression, the defects of the model such as multi-collinear phenomena and the stationarity of errors would be tested. After that, the research would perform regression model below to test the research hypotheses:

$$\boldsymbol{Ln\left(\frac{NM}{BM}\right)_t = \gamma_0 + \gamma_1 Ln\left(\frac{NM}{BM}\right)_{t-1} + \gamma_2 Ln(1+TB)_t + \gamma_3 Ln\left(\frac{PC}{GNI}\right)_t + \gamma_4 lnR_t + \gamma_5 lnY_t + \varepsilon_{i,i}} \quad \textbf{(1)}$$

The variables were defined as follows

- The money supply ratio $\frac{NM}{BM}$: the ratio of the amount of money circulating NM (Narrow Money=M1) over the money supply BM (Broad Money = M2)

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- Tax burden TB: total tax revenue over gross national income GNI.
- Personal consuming $\frac{PC}{GNI}$: including actual consumption and personal estimates of goods and services on a continuous and discontinuous basis.
- Interest rate R: opportunity cost for holding cash.
- GDP per capita Y: GDP per capita was calculated by purchasing power parity method.

Assuming tax T = 0 and the coefficient of other independent variables remain constant, the amount of money held in the absence of an informal economy (when the tax is zero) and the amount of informal money due to the tax effect (tax other than zero) were calculated. The rotation of the legal amount of money was determined by the ratio of gross national income (GNI) to the number of legal proceeds. Agreeing with Duc et al., (2015), we assumed that the flows of formal and informal cash are similar. From there, the size of the informal economy could be determined by multiplying the amount of informal money multiplied by the money circulation.

Applying the above calculation in turn for each country, we get the results of the informal economic scale of the countries in the sample. Basically, the authors used a research model which is similar to Tanzi's model of the demand-for-money method (1983). The differences of this research model are:

- Using the variable NM instead of variable C (Cash in circulation) or M1
- Replacing the variable M2 to the symbol BM (Broad Money)
- Using the PC variable (personal consuming) instead of the WS variable (people's wages and salary)
- Using the GNI notation instead of the NI notation
- Adding the relationship between NM and BM of year t and year (t-1) to test the correlation of two adjacent years.

3.2. *Data collection*

The sample was formed from data collection of the Southeast Asian countries with average income from USD 1,046 / person to USD 12,745 / person in the period of 2000 to 2017. However, because some countries are missing data or falling into a group of countries with higher income levels, they have been excluded. The data collected is panel data. The reason for choosing this format is because there are many fluctuations in the data during this period, so the criteria set out are that the research only considers the countries that appear continuously in the research period order to achieve the most accurate estimates possible, the criteria set forth are that each country's data must be continuous as much as possible, so as not to seriously gravitate the table data (strongly unbalance data). To make the measurement more meaningful, the study's sample was formed from the data collection of five Southeast Asian countries as mentioned. The sources of data were drawn from the database of the IMF and the World Bank. As mentioned earlier, we have collected macroeconomic data including the money supply, tax burden, personal consumption, interest rate, GDP.

4. RESULT AND DISCUSSION

4.1. *The descriptive statistics*

Table 2 presents the descriptive statistics for the variables used in this study. In particular, GDP variables per capita, deposit interest rates, GNI, tax burden, amount of money in circulation, money supply, and personal spending are used to estimate the size of the non-economic economy. officially according to the method of money demand.

Table 2. The summary of descriptive statistics

Variables	Mean	Standard deviation	Max	Min
GDP/person	$1.02x\mathbf{10^7}$	$1.19x\mathbf{10^7}$	$3.75x\mathbf{10^7}$	22204.12
Interest rate	0.0526	0.033	0.155	0.0102
GNI	$1.35x\mathbf{10^{15}}$	$2.77x\mathbf{10^{15}}$	$1.32x\mathbf{10^{16}}$	$3.27x\mathbf{10^{11}}$

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Tax burden	0.2923	0.1103	0.4961	0.1227
NM	$2.64x10^{14}$	$4.54x10^{14}$	$2.17x10^{15}$	$7.58x10^{10}$
BM	$8.98x10^{14}$	$1.69x10^{15}$	$7.77x10^{15}$	$4.37x10^{11}$
Personal consumption	$9.67x10^{14}$	$1.93x10^{15}$	$9.02x10^{15}$	$1.92x10^{11}$

4.2. *Multicollinearity and stationary test*

4.2.1. Multicollinearity test through Correlation matrix

The correlation coefficient between the independent variables summarized in Table 3 shows that the correlation coefficient between the explanatory variables is quite high (but still less than 0.8) so it is impossible to conclude the model exists multicollinearity. However, when we do the regression analysis with time-series data, the multicollinearity problem is not a big issue as the explanatory variables can correlate with each other, excepting perfect correlation cases (Wooldridge, 2002).

Table 3. The Correlation matrix

Variables	TB	RATE	Y	PC_GNI
TB	1.0000	-0.6024	-0.7835	-0.1640
RATE	-0.6024	1.0000	0.7061	-0.7835
Y	-0.7835	0.7061	1.0000	0.4518
PC_GNI	-0.1640	0.4402	0.4518	1.0000

4.2.2. Stationary test

When conducting a regression analysis of time series data, there is a mandatory that the time series must be stationary. If this condition does not meet, the F and T-tests to estimate the regression coefficients become unreliable. Therefore, the authors performed unit root tests for variables as summarized in Table 4 to increase the confirmatory evidence that the time series is stationary.

The results in Table 4 indicate that the test of ln (1 + TB): ADF (ln (1 + TB)) = -1.368123> -4.069631 (The value is rejected at the 1% significance level). Thus, unit root test ln (1 + TB) is stationary. The test of ln (NM/BM): ADF (ln (NM/BM)) = -2.316059> -4.069631 (The value is rejected at the 1% significance level), which meet the condition of stationary. The test of of lnR is as: ADF (lnR) = -3.128263> -4.056461 (the value is rejected at the 1% significance level), thus testing the lnR unit variable is stationary. The test of lnY variable is as: ADF (lnY) = -1.038729> - 4.046072 (The value is rejected at significance level of 1%) Thus, the test of lnY is stationary. The test of ln (PC / GNI) is as: ADF (ln (PC / GNI) = -2.859937> -4.046072 (The value is rejected at the 1% significance level). Thus ln (PC / GNI) is stationary. Therefore, it can be concluded that the regression model can be analyzed with high significance when the time series data being stationary.

Table 4: The summary of unit root tests for variables

Variables		LN_1_TB		LN_NM_BM_		LN_R_		LN_Y_		LN_PC_GNI_	
		t-Statistic	Prob.*	t-Statistic	Prob.*	t-Statistic	Prob.*	t-Statistic	Prob.*	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.368	0.863	-2.316	0.421	-3.128	0.106	1.039	0.93	-2.85994	0.1798
Test critical values	1% level	-4.07		-4.07		-4.056		-4.046		-4.04607	
	5% level	-3.464		-3.464		-3.457		-3.452		-3.45236	
	10% level	-3.158		-3.158		-3.155		-3.152		-3.15167	
Null Hypothesis: LN_1_TB_; LN_NM_BM_; LN_R_; LN_Y_; LN_PC_GNI_ has a unit root											
Exogenous: Constant, Linear Trend											
Lag Length: 0 (Automatic - based on SIC, maxlag=11;12)											

4.3. *Results of fixed effects model*

After confirming the time series is stationary, we performed the regression model by the method of the Fixed Effects Model. The results summarized in Table 5 show that the regression model has

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statistical significance (γ = 1.087) with a level of 0.1 (P-value <0.1). Thereby, we can also see that the Tax burden Ln (1 + TB) is related to the need to hold cash and statistically significant at 0.1. From this result, the authors have the evidence to accept the hypothesis "when the Tax burden increases, individuals tend to engage in the informal economy to avoid costs incurred from taxes (γ of the Tax burden is positive)". Therefore, the amount of cash held in the economy also increased.

Moreover, LnR Interest rate is negatively correlated with the amount of money held in the economy (γ = -0.063) and was statistically significant at the level 0.1 (p <0.1). This result indicates that, when interest rates rise, the opposite effect on the amount of money in circulation.

The coefficient of Ln (PC/GNI) is positive (γ = 0.165), but the P-value = 0.117> 0.1 shows that it is not able to accept the hypothesis which states that personal spending is consistent with cash holdings in the economy. Similarly, LnY also has a positive coefficient being 0.063 but P value = 0.136 > 0.1 which means it is impossible to conclude that when average income increases, cashes are using more common if other economic conditions remain constant.

Table 5: The Model Summary

Variables	**Y**	**t**	**P-value** (*Significant level is at 0.1)*
$\mathrm{Ln}(\frac{\mathrm{NM}}{\mathrm{BM}})_{t-1}$	0.8908692	21.84	0.000
$\mathrm{Ln}(1+\mathrm{TB})_t$	1.087348	2.89	0.005
$\mathrm{Ln}R_t$	-0.0630731	-3.70	0.000
$\mathrm{Ln}(\frac{\mathrm{PC}}{\mathrm{GNI}})_t$	0.1651659	1.59	0.117
$\mathrm{Ln}Y_t$	0.0635015	1.51	0.136

Based on the findings, we can form of the regression function (2) as:

$$\boldsymbol{Ln(\frac{NM}{BM})_t = -1.437 + 0.890Ln(\frac{NM}{BM})_{t-1} + 1.087Ln(1+TB)_t + 0.165Ln(\frac{PC}{GNI})_t - 0.063LnR_t + 0.0635LnY_t + \varepsilon_{i,t}}$$

As a result, it can be seen that the supply of cash directly used in transactions between sellers and buyers in the informal economy is primarily affected by tax pressures. This may explain why there are existing informal economic sectors in five mentioned countries in the Southeast Asian region that are not under the states' control or incurred any tax charges. Moreover, these transactions are entire in cash which makes the control on taxes even more difficult.

From equation (2), TB is assumed to be 0 and the other variables are held constant. Then, the data of the variables in turn are entered into equation (2) to estimate Ln. Similarly, the author estimates NM_tax from the data of BM (NM_tax is the amount of money held when existing the informal economy). The same method has been done to estimate NM_notax over the years (NM_notax is the amount of money held without the informal economy). The gap between NM_tax and NM_notax indicates how much money is held and caused by taxes. Thus, the size of the underground economy may be determined by taking the estimated amount of informal money multiplied by the money conversion cycle.

Applying the mentioned calculation for other countries, we finally have the size of the informal economy of the five Southeast Asian countries within the period 2000-2017. From this, it cannot be denied that there is a significant existence of the informal economy of each country and different countries with different economic conditions, there will be differences in the size of the region.

Table 6. The informal economy size of Southeast Asian countries (% of GDP)

Nations	**The informal economy size (%GDP)**		
	Min	Average	Max
Indonesia	12.94	22.21	24.90
Malaysia	25.63	28.70	31.26

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Philippines	28.14	34.30	40.30
Thailand	40.43	46.23	53.43
Vietnam	13.79	17.19	23.31

Table 6 shows the scale of the informal economy of some Southeast Asian countries in the period of 2004-2017 (% of GDP). The results indicate that Thailand has the largest informal economy in the region, with the size ranges from 40% of GDP to 47% of GDP. Malaysia and the Philippines are similar with the size of underground economies being from 30% of GDP to 40% of GDP, but this level is still considered to be quite high. While, Vietnam has the lowest underground economy with the size being from 15% of GDP to 20% of GDP. Finally, the informal economy of Indonesia has shown signs of an increase in the last few years.

Thus, it can be concluded that although the mentioned emerging countries in Southeast Asia have recently experienced rapid economic growth, this trend does not diminish the size of the informal economy. Therefore, whether they like it or not, they should consider the informal economy to be part of the economy as nature and need to manage it more effectively, instead of rigidly controlling.

5. CONCLUSION AND IMPLICATION

5.1. Conclusion

The study uses Tanzi's demand-side method to estimate the size of the informal sector in The Southeast Asian region. the results of the study once again confirm the existence of the informal economy in the developing countries in The Southeast Asian region. Particularly, the existence of the informal economy has been increasing and become popular throughout these countries regardless of the development of the formal economy. As normal, governments in these countries consider the informal economy negatively and always try to minimize the development of this area. One of the most commonly used approaches are the raid, ban on sales algae, etc. However, reality has proved these are not effective and only results in the short term.

Thus, the government should therefore recognize this as an existing sector. There are many reasons for the formation of this sector, but through the study, the authors found that the tax burden is one of the leading causes affecting the size of the informal economic sector. When taxes increase, the size of this area increases and vice versa. This finding is consistent with the statements of Torgler & Schneider (2009), Schneider et al., (2010), but different from Ummad & Pierre-Guillaume (2017) when these two authors found a negative impact of the tax burden on the shadow economy.

5.2. Implications

All countries want to restrict the development of the sector, but an attempt on removing and all possible restrictions are likely to produce only short-term results (Schneider et al., 2010; Ummad & Pierre-Guillaume, 2017). Therefore, the study would propose some implications for policy-makers to manage the informal economy more effectively. Firstly, governments should continue to improve regulations to support the informal sector while strengthening the capacity to enforce laws, administrative responsibilities, and control of administrative organizations. Secondly, countries need to have policies to encourage informal economic activities to rise up to join the formal economic sector, such as issuing specific action programs to encourage individuals and households business to develop and become enterprise, simplifying the conversion procedures, reducing the burden on the accounting activity, and supporting policies on tax, capital, technology, etc. Thirdly, the government may apply new technology to control the informal economy such as using BlockChain technology. Finally, at present, very few citizens in developing countries are aware of the negative effects of the informal economy. In addition, not many of them realize that their traditional buying habits are indirectly promoting the development of the informal economy. Therefore, educating citizen's thoughts about the informal economy is one of the effective ways that governments should do. At the meantime, policymakers should educate and encourage people to use e-payment method instead of cash as before as cash is one of the main culprits leading to the underground economy.

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