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Nonlinear Effects of Corruption Control on Growth: A Threshold Model

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ABSTRACT

This paper aims to analyze the nonlinear impact of control of corruption on economic growth in ASEAN countries – the emerging, frontier, and developping fastest-growing economies in Asia. The authors used a combination of threshold effects and system - GMM (Generalized Method of Moments) method for panel data in the period 2002 to 2019 to achieve reliable estimation results. The estimation results show that there is a threshold value of control of corruption of 48.08. This indicates that economic growth is impacted nonlinearly by control of corruption, and this impact is mainly positive in the regions before and after the threshold value. However, when control of corruption surpasses 48.08, the positive impact of control of corruption on economic growth decreases significantly. Accordingly, excessive control of corruption can reduce the effectiveness of economic growth in ASEAN countries. Therefore, ASEAN countries need to combine control of corruption with many other policies, especially policies on improving the effectiveness of resource allocation in the economy to boost economic growth sustainably.

INTRODUCTION

Emerging markets that play an important role in the global economy are now the main drivers of global growth. Besides emerging markets, a new group of fast-growing low-income countries, also known as frontier economies, is receiving more and more attention. Asia has a strong presence in this group of countries. Among them, with a land area of 4.46 million km², accounting for 3% of the total land area of the Earth, and a population of over 600 million people, accounting for nearly 9% of the world's population, countries of the Association of Southeast Asian Nations (ASEAN) are emerging, frontier, and developing fastest-

growing economies in Asia. Although heterogeneous, these countries share some common macroeconomic and institutional challenges such as corruption and growth.

Corruption is generally defined as the abuse of public office for private gain and is considered to be the practice of bribes and 'kickbacks' in public procurement, the sale of public assets by government officials and the misuse of government funds (Reinikka and Svensson, 2005). The World Bank describes corruption as ‘‘the biggest and the only obstacle to economic and social development. It undermines development by distorting the rule of law and weakens the institutional foundations on which economic growth depends.” This is confirmed both theoretically and empirically. Various studies provided solid theoretical foundations (Krusell and Ríos-Rull, 1996) as well as the evidence from valuable empirical pa-pers that corruption reduces investment and growth (Mauro, 1995; Tanzi and Davoodi, 1998). Accordingly, control of corruption to root out corruption is an important part of one nation's development strategy although absolute control of corruption remains an impractical goal. However, some studies also argued that besides the negative effects, corruption can help run the economy more smoothly; thus, corruption stimulates growth (Méon and Weill, 2010; Kato and Sato, 2015). This poses the question: Does control of corruption always make a positive or negative impact on growth? Is there an extent to which control of corruption changes the impact direction or has a more obvious impact on growth once surpassing the threshold? These are the questions that we answer in this paper to provide useful policy implications for ASEAN countries. Various studies have been conducted to analyze the effects of corruption on economic growth or development in countries around the world by using cross-country data on corruption measures from Transparency International, World Bank and International Country Risk Guide (ICRG).

However, very few studies focus on ASEAN (Association of Southeast Asian Nations). ASEAN is a regional intergovernmental organization comprising ten countries in Southeast Asia - Singapore, Malaysia, Indonesia, Brunei Darussalam, Vietnam, Thailand, the Philippines, Lao PDR, Myanmar, and Cambodia. The purpose of this organization is to promote intergovernmental cooperation and to facilitate economic, political, security, military, educational, and socio-cultural integration among its members and other countries in Asia. Their economic welfare seems to be involved at the middle-income level and corruption has been a serious problem for most of the ASEAN countries. According to the 2020 Corruption Perceptions Index (CPI), most countries in the region only score around 30/100 on average, except for Singapore, Brunei and Malaysia with a 2020 CPI score of greater than 50. Pervasive corruption in ASEAN countries is believed to be able to prevent sustainable economic growth and development at the national or regional level. Several survey reports in ASEAN countries have shown that corruption is widely recognized in the public environment, public administration and business environment (Haw, Kueh and Ling, 2020). ASEAN countries jointly established the ASEAN Parties against Corruption (ASEAN-PAC) to coordinate the implementation of the solutions to control corruption and to mote soundness and transparency in the economy. This indicates that control of corruption is a hotly debated issue on the agenda of ASEAN countries. However, the economic effects of corruption and control of corruption in ASEAN countries are rarely analyzed critically. Studies on the impact of control of corruption (or corruption) in ASEAN countries have mainly focused on assessing the linear impact on growth or reporting an indirect impact of corruption on FDI or tourism which implies to be being for growth (Karim, Karim and Nasharuddin, 2018), without assessing the nonlinear impact of control of corruption or reporting the threshold of control of corruption.

Using a threshold model and the system - GMM method for panel data in the period 2002 - 2019, we focus on the nonlinear relationship to determine the threshold of the impact of control of corruption on economic growth in ASEAN member countries and to analyze the impact of control of corruption on economic growth in different regions where corruption is controlled. The results of the study reported the existence of a threshold of control of corruption of 48.08 at a statistical significance of 10%. This shows that economic growth is impacted nonlinearly by control of corruption, and this impact direction is mainly positive in the regions before and after the threshold value. However, when control of corruption surpasses 48.08, the positive impact of control of corruption on economic growth decreases considerably. Therefore, excessive control of corruption can reduce the effectiveness of economic growth in ASEAN countries. Accordingly, several policy implications are suggested that ASEAN countries need to combine control of corruption with many other policies, especially those aiming at the improvement in the effectiveness of resource allocation in the economy. Accordingly, economic growth can be improved sustainably.

1. LITERATURE REVIEW

Studies on the impact of control of corruption on economic growth have received little attention; instead, most of the studies focus on the relationship between corruption and growth. Theoretically, corruption could positively affect economic growth by reducing costs speeding up bureaucratic activities, and making economic activities run more smoothly. This is known as the “greasing the wheels” hypothesis (Méon and Weill, 2010; Kato and Sato, 2015). In contrast, the 'sand the wheel' hypothesis states that corruption can be harmful to growth because resources will be diverted to inefficient activities, wasting resources, reducing production and hindering growth (Tanzi and Davoodi, 1998).

Based on these theories, empirical studies have found the answers to the relationship between corruption and economic growth, and they have reported various results. In the first place, several studies provide evidence for *the negative impact of corruption on economic growth*, implying that *control of corruption helps stimulate growth* (Mauro, 1995; Blackburn, Bose and Haque, 2006). Corruption is believed to have negative impacts on various aspects of economic growth. Mauro (1995) is a pioneer study assessing the impact of corruption on economic growth and finds evidence for the negative impact of corruption on investment and growth in 69 countries. The author demonstrated that a one-standard-deviation increase in corruption enhances the GDP growth and the investment rate by 1.3% and 2.9%, respectively. Tanzi and Davoodi (1998); Blackburn, Bose and Haque (2006) provided evidence that corruption increases economic instability, and decreases growth and investment. Guriev (2004) revealed that corruptions create uncertainty for investors and investment risk in the cities with high corruption. Using data from ASEAN-7 countries over the period 2000-2009, Aziz and Sundarasen (2015) demonstrate the negative impact of corruption on growth. Similar findings were found by Awdeh and Hamadi (2019) in the Middle East and North Africa (MENA). Dissou and Yakautsava (2012) stated that corruption hinders economic growth, leading to increased taxes and decreased private investment. Corruption can result in a reduction in government revenue; thereby, there is a decrease in expanding health and education, reducing resources for growth (Ben Ali et al., 2016; Tanzi & Davoodi, 1998). d'Agostino et al. (2016) found that economic growth is negatively affected by corruption through indirect effects on military and consumer spending.

In contrast, some researchers have reported that *corruption has a positive impact on economic growth, implying that control of corruption reduces growth*. This view is based on the argument that in a corrupt economy, smoother and faster activities contribute to boosting economic growth more rapidly, and it supports the “greasing the wheels” hypothesis (Méon and Weill, 2010; Kato and Sato, 2015). Méon and Weill (2010) reported on the positive effect of corruption on economic growth, especially in the case of the countries with poor quality of governance. However, we also noted that although the aggregate impact is positive, corruption is harmful to the accumulation of factors of production. Huang (2016) reported results showing that Korea and China achieved impressive economic growth despite high levels of corruption. Similar results were also reported in the study by Ondo (2017) on the significant positive impact of corruption on growth in EMCCA countries. Examining the determinants of corruption on corporate behavior, Kato and Sato (2015) found evidence for the “greasing the wheels” impact of corruption at the corporate level in India.

Some studies have focused on the nonlinear impact of corruption on economic growth and they have shown that the impact turns from positive to negative. If the level of corruption is higher than the threshold, the negative impact will slow economic growth. Conversely, when the level of corruption is below the threshold, it may support the “greasing the wheels” hypothesis. Méndez and Sepúlveda (2006) discovered that a low level of corruption contributes to economic growth while high corruption reduces economic growth after controlling some economic variables and limiting the sample to free countries. Bose, Capasso and Murshid (2008) demonstrated that the impact of corruption on growth depends on the regime of corruption. In highly corrupt regimes, corruption jeopardizes growth. In contrast, in low corruption regimes, corruption stimulates growth. Mallik and Saha (2016) found an “inverted N”-shaped relationship between corruption and growth because corruption slows the growth rate in the countries with the least corruption and those with high corruption, but corruption promotes growth in the countries with a moderate level of corruption. Alfada (2019) studied the impact of corruption on economic growth in Indonesia in the context of increased corruption in this country. He reports that the corruption threshold is 1.765 points. Overall,

corruption reduces growth, however, the effect is stronger in provinces with above-threshold levels of corruption.

2. METHODOLOGY

2.1. Model

In this study, the panel data of 10 ASEAN countries in the period 2002–2019 are used to estimate the threshold of control of corruption following the threshold model proposed by Hansen (2000). The endogeneity problem is properly solved by using instrumental variable estimation together with the System GMM regression model developed by Arellano and Bond (1991); Blundell and Bond (1998).

The existing literature indicates that control of corruption (COR) can have a nonlinear impact on economic growth (Y). In other words, there may be one or several threshold values of control of corruption in this model. If there is a threshold value (γ) of COR, the threshold model of the impact of COR on Y will have the following form:

$$Y_{it} = \mu_i + \beta_1 COR_{it} I(COR_{it} \leq \gamma) + \beta_2 COR_{it} I(COR_{it} > \gamma) + \delta X_{it} + \varepsilon_{it} \quad (1)$$

Where indexes i = 1,..., N represents nation and T = 1,..., T represents time. μ_i is the nation-specific impact and ε_{it} follows the iid distribution, $\varepsilon_{it} \sim (0, \sigma)$. COR_{it} is both a threshold variable and a regression variable depending on the regime in our model. γ is the threshold value of COR. I(.) is an indicator function of the threshold variable of COR. X_{it} is an m-dimensional vector of explanatory regression variables that can include lagged values of Y and other control variables including domestic credit (DC), government expenditure (GOV), foreign direct investment (FDI), inflation (INF), and labor force (LF). In addition to the structural equation (1), the model requires a set of k ≥ m instrumental variables for the endogenous variables in X.

To examine whether there is a threshold effect of control of corruption on economic growth or not, we test the following statistical hypothesis:

$$H_0: \beta_1 = \beta_2$$

$$H_1: \beta_1 \neq \beta_2$$

Linear regression ($\beta_1 = \beta_2$) cannot reject the null hypothesis that there is no threshold of control of corruption; therefore, there is no threshold in the estimation. When the null hypothesis is rejected, the alternative hypothesis ($\beta_1 \neq \beta_2$) will appear and we can conclude the presence of a threshold (γ) in the estimation.

The next step is to determine the threshold value (γ). To get the confidence interval for (γ), the model builds confidence regions based on the likelihood ratio statistic (LR(γ)) following Hansen (2000).

In the case that there is more than one threshold (j > 1) of control of corruption on economic growth, the research model will have the following form:

$$Y_{it} = \mu_i + \beta_1 COR_{it} I(COR_{it} \leq \gamma_1) + \sum_{j=2}^{j-1} \beta_j COR_{it} I(\gamma_{j-1} < COR_{it} \leq \gamma_j) + \beta_{j+1} COR_{it} I(COR_{it} > \gamma_j) + \delta X_{it} + \varepsilon_{it} \quad (2)$$

Where γ_j are the threshold values of COR. Other variables and steps of testing as well as determining threshold values are performed sequentially as in model (1).

We use the lag of endogenous variables as a tool. There is a trade-off in efficiency when choosing the quantity (p) of instrumental variables. On the one hand, the use of all available lags of the instrumental variable (p = t) can increase efficiency. On the other hand, the reduction in the number of tools to 1 (p = 1) can avoid having too many instrumental variables that can lead to biased coefficient estimation. However, as demonstrated in Kremer, Bick and Nautz (2013), the selection of tools had no significant impact on their results. Therefore, we limit our analysis to one lag of the instrumental variable. However, the appropriateness of the GMM estimation depends on the validity of instrumental variables. To solve this

problem, we check the appropriateness of instrumental variables through the Sargan test to examine over-identifying restrictions and to check the overall validity of the tools by analyzing a similar sample of the moment conditions used in the estimation process. At the same time, we test the hypothesis that the error, ε_{it}, does not reveal autocorrelation.

The estimation procedure includes determining and choosing the threshold values γ with the sum of the least squares of residuals as proposed by Hansen (2000). When the threshold values γ are determined, the System GMM method is used to estimate the impact of COR in the regions before and after the threshold value on Y.

2.2 Data

Data is collected from the World Bank for the 10 ASEAN countries[1] in the period 2002 to 2019. The description of the variables is shown in Table 1.

Because most of the previous studies focused on the impact of corruption, they used different measures of corruption. Several studies highlighted transnationality by using widely available corruption perception indexes (CPIs) from Transparency International, International Country Risk Guide, and World Bank (d'Agostino, Dunne and Pieroni, 2016; Huang, 2016). Some studies focused on the specific case of a country and used a different measure of corruption, such as corruption convictions, and most of these studies concentrated on the United States (Goel and Nelson, 2010). In this study, we focus on control of corruption and use the measure of control of corruption, which is calculated and published by the World Bank. The Index of control of corruption (COR) captures perceptions of the extent to which public power is implemented for private gain, including both minor and major forms of corruption, as well as "expropriation" by the government for private gain. This index has a value in the range of -2.5 to 2.5, and it is ranked from 0 to 100, corresponding to the level of control of corruption from the lowest to the highest. If this index is equal to 100, a country is free of corruption. The measure of control of corruption was also used in some previous studies such as Cieślik and Goczek (2018); Pham (2020).

Table 1. Variable Description

Variable name	*Code*	*Measurement*
Economic growth	Y	The logarithm of GDP per capita at the fixed price of 2010
Control of Corruption	COR	The level of control of corruption in each nation. The variable of COR is used in accordance with the rank value between 0 (the lowest) to 100 (the highest).
Domestic credit	DC	Domestic credit to the private sector (% of GDP)
Government expenditure	GOV	General government final consumption expenditure (% of GDP)
Foreign direct investment	FDI	Foreign direct investment, net inflows (% of GDP)
Inflation	INF	Consumer prices (annual %)
Labor force	LF	The logarithm of the total labor force. The total labor force consists of people aged 15 years and more, who are able to supply the labor power for manufacturing goods and services in a specified period.

Source: own

[1] Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Myanmar, Malaysia, Philippines, Singapore, Thailand, and Vietnam

3. EMPIRICAL RESULTS AND DISCUSSIONS

To understand the related attributes of the data, the descriptive statistics of the variables are analyzed and presented in Table 2.

Table 2. Descriptive statistics

Variable	*Mean*	*Standard Deviation*	*Min*	*Max*
Y	8.12	1.49	4.96	11.10
COR	40.41	28.31	0.47	99.52
DC	61.82	45.49	3.12	149.37
GOV	11.85	5.15	3.46	27.17
FDI	5.51	6.00	-1.32	28.60
INF	4.79	6.76	-2.31	57.07
LF	16.25	1.78	12.01	18.73

Source: own

Table 2 shows that COR reached the average value of 40.41; the lowest value (0.47) belonged to Myanmar in 2011; the highest value (99.52) belonged to Singapore in 2019. Singapore also reached the highest value of Y (11.10, equivalent to 66,188.78 USD) in 2018, while Myanmar had the lowest value of Y (4.96, equivalent to 142.08 USD) in 2002. Next, we tested the stationarity of the variables in the research model. As proposed by Hansen (2000), the regression variables must ensure stationarity to avoid spurious regression. However, to choose the right method of testing stationarity (and then the cointegration test) for panel data, it is necessary to investigate the cross-sectional dependence of variables. If there is cross-sectional dependence, one of the second-generation panel unit root tests must be used. We performed the Breusch-Pagan test, scaled LM test and CD-Test, and bias-corrected scaled LM to test the cross-sectional dependence of variables and the results reported in Table 3.

Table 3. Results of the cross-sectional dependence tests

	Y	*COR*	*DC*	*GOV*
Breusch-Pagan LM	702.2669***	163.6633***	319.7227***	173.1934***
Pesaran scaled LM	69.2820***	12.5082***	28.9583***	13.5128***
Bias-corrected scaled LM	68.9879***	12.2141***	28.6642***	13.2187***
Pesaran CD	26.2795***	4.0608***	15.6029***	9.0332***
	FDI	*INF*	*LF*	
Breusch-Pagan LM	91.0443***	194.2468***	697.5909***	
Pesaran scaled LM	4.8535***	15.7320***	68.7891***	
Bias-corrected scaled LM	4.5594***	15.4379***	68.4950***	
Pesaran CD	4.3142***	11.4608***	26.2598***	

Note: *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

The results show that the null hypothesis of no cross-sectional dependence is rejected in most of the tests at the significance level of 1%, pointing out that all variables have cross-sectional dependence among countries. This confirms the appropriateness of the second-generation panel unit root tests for this study. We performed the CIPS test, the results presented in Table 4 show that the variables Y, COR, GOV, FDI, and INF are stationary at the level, while DC and LF are stationary at the first difference[2].

[2] In addition, we performed the Westerlund panel cointegration tests. The null hypothesis of no cointegration cannot be rejected at 10% level of significance. Results will be provided by the authors upon request.

Table 4. Results of CIPS unit root test

Variable	*Level*	*First Difference*	*Conclusion*
Y	-1.723**	-2.927***	I(0)
COR	-1.607*	-4.370***	I(0)
DC	-1.099	-2.516***	I(1)
GOV	-1.646*	-3.400***	I(0)
FDI	-2.758***	-4.485***	I(0)
INF	-2.985***	-3.813***	I(0)
LF	-0.711	-2.821***	I(1)

Note: *, ** and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

We next carried out regression and analysis on the level for the I(0) variables and the first-difference for the I(1) variables. To examine whether there is a nonlinear impact and the threshold value of control of corruption on economic growth, we used the threshold effect test proposed by Hansen (2000). The results in Table 5 report the threshold level of COR at the 90% confidence interval.

Table 5. Threshold effect test

Model	*Threshold*	*Lower*	*Upper*
γ	48.08	46.68	50.73
Prob	0.08*		

Note: * indicates significance at the 10% level.

Table 6. Results of System-GMM

Y		*Coef.*	*P>|z|*
_cons		9.53***	0.00
COR (COR ≤ 48.08)		0.03***	0.00
COR (COR > 48.08)		0.02***	0.00
DC		0.01*	0.07
GOV		0.05*	0.06
FDI		0.03*	0.09
INF		-0.10***	0.00
LF		-0.19*	0.09
Significance level		1905.64*** (0.00)	
Arellano-Bond test	AR(1)	-3.48*** (0.00)	
	AR(2)	-1.49 (0.14)	
Sargan test		13.14 (0.52)	

Note: * and *** indicate significance at the 10% and 1% levels, respectively.

The threshold value of control of corruption is estimated to be $\gamma = 48.08$ and belongs to the confidence interval. This means that there are two regimes of control of corruption whose impacts on economic growth are different. Therefore, the low regime corresponds to the value of the transition variable, COR, below the threshold value (48.08) and the high regime corresponds to the value of the transition variable above the threshold parameter. In other words, the nonlinear impact of control of corruption on economic growth can be shown through model (1). As noted earlier, we estimate model (1) by the system - GMM method to solve the potential endogeneity problem, the results are presented in Table 6. The Sargan test and the Arellano-Bond test both report that the estimation model is appropriate.

The results in Table 6 report that in both regimes, control of corruption has a positive impact on economic growth. However, the level of this impact is different in the regions before and after the threshold value γ. Specifically, before the threshold value γ (COR $\leq$ 48.08), COR has a positive impact (0.03) on Y. When surpassing the threshold value γ (COR > 48.08), the impact level of COR on Y decreases significantly, reaching the value of 0.02. This result is consistent with the findings reported by Mauro (1995); Blackburn, Bose and Haque (2006).

This finding confirms the neoclassical theory and the “sand the wheel” theory that corruption is a significant impediment to economic growth and thus, control of corruption boosts growth. The economy grows and develops when resources are allocated properly. However, corruption allocates resources inefficiently, capital is focused on sectors and industries with little added value, and more resources are for current consumption than for future investment. Accordingly, control of corruption improves capital allocation and stimulates growth. A country with good control of corruption also sends a safe and positive signal to international and domestic investors about a transparent and open business investment environment, thereby helping to attract investment capital and to promote growth. In addition, good control of corruption helps to increase competition in the market because entrepreneurs can do business by their capabilities, increasing production efficiency, and contributing to the development of the economy.

The economic impact of control of corruption in the second regime shows a lower coefficient than that in the first regime. In the second regime, an increase of one point in control of corruption will increase the GDP per capita of the ASEAN countries by 0.02 percent. While in the first regime, in the countries with control of corruption below 48.08, an increase of one point in control of corruption will enhance the region's growth by 0.03 percent. These empirical findings suggest that although control of corruption shows an increase in growth in both the first and second regimes, the positive impact of control of corruption is lower in the countries with high control of corruption in comparison with those with low control of corruption. Therefore, excessive control of corruption (beyond the threshold value) can reduce the effectiveness of promoting economic growth in ASEAN countries. This can be explained based on the argument of the "greasing the wheels" hypothesis; although corruption does much harm to the economy, it also has a positive role as a lubricant to make economic activities take place faster. Then, excessive or high control of corruption can make previously smooth activities less effective than before. Production, business and investment activities may take longer to achieve the same results as they used to be, thereby consuming more resources and reducing the positive impact on economic growth.

In addition, we also found the positive impact of the control variables DC, GOV and FDI on Y. Meanwhile, Y is negatively affected by the control variables INF and LF. Foreign direct investment has a positive impact on economic growth, supporting the argument of the endogenous growth theory (that FDI can promote economic growth through spillover effects in transferring technology and training high-quality human resources) and the exogenous growth theory (that FDI can affect economic growth through capital accumulation). Consistent with expectations, we also found evidence for the positive impact of government expenditure on economic growth by increasing the aggregate demand, and enhancing the output of the economy, and this result is consistent with Chen and Quang (2014). In fact, in ASEAN countries, when the industrial revolution 4.0 takes place, a strong investment from the government is required to improve the technology platform, paving the way for other products and business activities and contributing to economic growth. This relationship can be demonstrated more clearly in the period when the economy is negatively impacted by the COVID-19 epidemic. The increase in government expenditure through economic support packages is the key solution to help the economies of ASEAN countries to maintain a growth rate when COVID-19 has eroded the investment budget of the private sector. As a result, the role of government

expenditure in maintaining investment and innovation activities is evident. In addition, the research results also indicated that domestic credit has a positive impact on economic growth. These results are consistent with the argument of the endogenous growth theory that confirms the role of capital in stimulating economic growth. Domestic credit promotes growth by mobilizing idle funds and effectively using these funds to finance profitable production, business and investment activities.

In contrast, inflation and the labor force hurt economic growth. Inflation increases costs and consumes resources, thereby reducing production and growth. Inflation is also known as a tax - the "inflation tax", which increases relative prices and hurts manufacturers and the economy as a whole. The evidence for the negative impact of the labor force on economic growth can be explained through the aging of the labor force as well as the lack of highly qualified human resources in ASEAN countries. Although the labor force in these countries is abundant, they lack practical competence and adaptability in a competitive industrial environment. Furthermore, group-work skills, professionalism, and foreign language competence are the limited communication and working tools of human resources, thus the production efficiency of the workforce is still low.

CONCLUSION

The objective of this paper is to analyze the nonlinear impact of control of corruption on economic growth in 10 ASEAN countries from the period 2002-2019. To reach this research objective, we used a combination of the threshold effect method and the system - GMM method, helping us to obtain reliable estimation results. The estimation results show that control of corruption has a nonlinear impact on economic growth, which means that there is a threshold value of control of corruption and this value is 48.08. Accordingly, in the regions before and after this threshold value, control of corruption has a positive impact on economic growth; however, the level of this impact tends to decrease significantly when control of corruption surpasses the threshold value of 48.08. In other words, excessive control of corruption may not be effective for economic growth in ASEAN countries. The corruption threshold can provide a tool for governments to take more serious action on combating corruption, especially in countries with high corruption. This indicates that control of corruption needs to be synchronously combined with many other policies, especially policies to improve the effectiveness of resource allocation in the economy so that economic growth can be improved sustainably.

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