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Examining the Relationship between Electricity Consumption, Financial Development and Economic Growth in ASEAN Countries: Evidence from a Bayesian Analysis

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ABSTRACT

The literature has suggested that financial development and electricity consumption are key determinants of economic growth. However, existing studies usually was applied the frequentist inference, which is an outdated estimator. By applying the Bayesian approach via the Metropolis-Hasting and Gibbs samplers as the MCMC methods, the study aims to re-examine the impact of financial development and electricity consumption on economic growth in ASEAN+6 countries from 1980 to 2016. The obtained outcome shows that the impact of both financial development and electricity consumption is strong and positive on economic growth. There is a uni-directional causality running from economic growth to energy consumption, supported the Conversation hypothesis. Based on the empirical result, several policy implications are suggested for emerging countries, ASEAN+6 nations, in particular.

Keywords: Financial Development, Energy Consumption, Economic Growth, Bayesian, ASEAN Countries
JEL Classifications: F43, O13, O47, Q42, Q43

1. INTRODUCTION

Physical capital accumulation is a crucial factor contributing to economic growth (Romer, 1990; Stiglitz, 2000). Following the pioneering of Schumpeter (1912), majority of the economic researcher is persuaded that financial development allows foreign direct investment flows, encourages the investment of enterprises, reduces costs of loans, boost household consumption, and increase banking activities, less financial risks. The pressure of improving income per capita leads to pumping more money into the financial system by Government. The consequence of more money is a high-inflation situation, and the financial crisis of 2008 provided practical evidence to re-examine the benefit of financial development to growth. Now, the notion "*more money, more oversight*" has been supported by many governments worldwide. However, a financial reduction is not good for economic growth. McKinnon (1974), Shaw (1974) argues that financial reduction

leads to a fixed interest rate, decreasing banking activities, increasing the real exchange rate, reducing export, discourage the development of capital markets, and hurts economic growth.

Understanding and quantifying the relationship between energy consumption and economic growth is one of the hot topics for economics researchers and administrators. Energy is used as an input in the production, transportation, and consumption of nearly all goods or services (Ha and Ngoc, 2020; Long et al., 2018; Stern, 2000). The linkage between energy consumption and economic growth has been well-studied by several researchers. Nevertheless, the conclusion of existing studies has failed to provide a consistent answer. For example, Tang (2009) investigates the connection between electricity consumption, income, foreign direct investment, and population in Malaysia from 1970 to 2005. The obtained results by the ARDL approach shows that economic growth has a positive impact on electricity consumption,

supported the Conversation hypothesis. However, Yoo (2005) used the cointegration and vector error correction model to analyzes the short- and long-run causality between electricity consumption and economic growth in Korea from 1970 to 2002. The empirical outcome reveals that there is bi-directional causality between economic growth and electricity, supported the Feedback hypothesis. Even using the panel data, the results of Chen et al. (2007) are mixed in ten newly industrializing and developing ASIAN countries. Accordingly, there is a uni-directional short-run causality running from economic growth to electricity consumption and a bi-directional long-run causality between electricity consumption and economic growth if the panel data procedure is implemented.

The above mentioned previous studies indicate that the linkage between financial development, electricity consumption, and economic growth is an interesting topic, which is still the subject of an ongoing debate (Omri, 2014; Tiba and Omri, 2017). The main aim of this work is to inspect the impact of financial development, electricity consumption, and economic growth in ASEAN+6, including Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam during the period 1980-2016. Our study is different from several previous studies in multiple points, as follows: First, to the best of our knowledge, the available studies analyzed in the case of ASEAN countries have drawn little attention. Second, most previous studies have been conducted in a linear framework and used the frequentist inference. In the study, we employed the Bayesian inference approach through the integrated Markov chain Monte-Carlo sampler to provide probabilistic interpretations of model uncertainty and varying effects of financial development and electricity consumption on economic growth. The advantage of Bayesian inference compared to frequentist inference is presented in Section 3. To our knowledge, the obtained result could be enrichment in existing economic literature and for the ASEAN+6 countries in particular.

The rest of the study is organized as follows: Section 2 focuses on present the literature and the existing studies. Section 3 describes the model, data, and methodology. The obtained outputs are shown in section 4, while section 5 provides a conclusion and policy implication.

2. LITERATURE REVIEW

2.1. Financial Development and Economic Growth
The role of the financial development and financial system is a vital one for any economy. The pioneering of Schumpeter (1912) found that a developed financial system boost investment activities, increase transparency between lenders and borrowers, reduces costs of credits, and leads to beneficial for economic growth. Schumpeter (1912) stated that most of the enterprises need credit in order to buy material, machinery, and paying salaries. In simple capital markets, the bank becomes the producer of this commodity. Thus, the banking system plays the most critical channel, where intermediating financial activities are supported and enhance growth. Consistent with this view, McKinnon (1974) and Shaw (1974) devote to financial liberalization. They pointed out that the Government should not strictly control interest rates

because it will reduce the return rate of financial assets. Besides, it encourages people/enterprises to invest in non-financial assets (e.g., gold, real estate) and generates back financial markets. Indeed, Bretschger and Steger (2004) showed two channels that financial development affects on economic growth, including (i) the scale-effect channel; (ii) the factor-reallocation effect channel. Accordingly, they confirmed that the efficiency banking system is the vital factor for economic development due to its role in mobilizing and allocating saving and the funding of economic activity investment.

Regarding empirical studies, King and Levine (1993) found that the development of the financial sector is robustly related to per capita GDP growth, and it positively enhances the accumulation of physical capital. Likewise, Ben Jedidia et al. (2014) used the ARDL approach to analyze the connection between financial development and economic growth in Tunisia from 1973 to 2008. The obtained result shows that domestic credit to the private sector positively affects economic growth, and financial development is a driver of long term economic growth. The positive impact of financial development on economic growth is supported by the study of Liang and Teng (2006), Komal and Abbas (2015), Salahuddin and Gow (2016). Another study by Alsamara et al. (2018) examines the impact of financial development and trade openness on the real GDP per capita in Turkey during the period 1960-2014. The empirical result from the ARDL approach with structural break reveals that both the trade openness and financial development have a positive impact on per capita real GDP. Accordingly, a 1% increase in money supply to GDP ratio leads to a 0.36% increase in real GDP per capita. Using the non-linear framework, Masten et al. (2008), Law and Singh (2014) found that the impact of financial development was depended on the critical threshold, exceed this critical threshold, the more money is not good for economic growth.

Goldsmith (1969) was the first to work a positive correlation between economic growth and financial development in his 35 countries sample. Abid et al. (2016) used a multivariate vector autoregressive model to inspect the linkage between financial development (measured by the stock market return) and economic growth in ten MENA (the Middle East and North Africa) countries. The result provides evidence that the GDP growth response to Qatar GDP growth shock is statistically significant for all countries, while the stock market response to Morocco stock market shock is insignificant in Qatar, Saudi Arabia, and UAE. The positive impact of financial development on economic growth is confirmed by the study of Ibrahim and Alagidede (2018). Applying the system GMM method, Ibrahim and Alagidede (2018) found that financial development supports economic growth. The extent of finance helps growth depends crucially on the simultaneous growth of real and financial sectors in 29 sub-Saharan African countries over the period 1980-2014. Greenwood and Jovanovic (1990) explained that individuals or enterprises have many opportunities to invest in several projects. The developed financial system, as mentioned by Schumpeter (1912) must mobilize and allocate saving capital flows into projects, which have high productivity or output. That means stock market allocates these capital flows into priority sectors, which have the highest return rate, and generates several optimal stock lists. Greenwood and Jovanovic (1990) pointed out

that if individual or enterprises select an optimal stock list, which leads to beneficial for economic growth.

However, some administrators and economics researchers are not advocating for financial development. Edwards (2001), Okada (2013) argues that the overload of financial development leads to an increase in inflation, which harms economic growth in the long-run. Emerging markets have a low financial institution, and should be highly susceptible to the volatility of the global financial market, which is especially severe for countries with an open capital account. Demetriades and Hussein (1996) used the VAR model to examines the influence of financial development on economic growth in 16 countries. The obtained result reveals that the money supply is the danger of economic growth. Likewise, Rousseau and Vuthipadadorn (2005) found that financial development has a dampening effect on investment and growth in ten ASIAN countries. Similarly, Ono (2017) found that there is no causality from money supply to economic growth in the case of Russia during the period of 2009-2014.

2.2. Energy Consumption and Economic Growth

In developing countries, administrators and economic researchers have advocated analysis of the linkage between energy consumption and economic growth with the expectation that energy production and energy consumption are key determinants of economic growth. In fact, energy is a necessary input of economic activities, such as transportation, production (Abosedra et al., 2009; Chandran et al., 2010; Golam and Nazrul, 2011; Ngoc, 2019; Zhang et al., 2017). The energy-growth nexus has been well-studied in the energy economics literature. However, the available studies have failed to provide a consistent answer (Ha and Ngoc, 2020; Tiba and Omri, 2017), and it is still the subject of an ongoing policy debate. There are four hypotheses found by existing works about the relationship between energy consumption and economic growth, including the "Conversation," the "Growth," the "Feedback" and the "Neutrality" hypothesis.

Supporting the Feedback hypothesis, based on the Cobb-Douglas production function, Hamdi et al. (2014) inspect the linkages between electricity consumption, foreign direct investment, capital, and economic growth from 1980Q1 to 2010Q4 for the Kingdom of Bahrain. The empirical result from the ARDL bounds testing and VECM causality shows that there exist a positive impact and bi-directional causality between electricity consumption and economic growth. Likewise, Ibrahiem (2015) analyzes the relationship between renewable electricity consumption, foreign direct investment, and economic growth in Egypt from 1980 to 2011. The existence of cointegration among the examined variable is found by the ARDL bounds testing, and the Granger causal test identifies the bi-directional causality between economic growth and renewable electricity consumption. The positive influence of electricity consumption on economic growth is confirmed by the study of Tang (2009) for Malaysia, Long et al. (2018) for Vietnam, or Zhang et al. (2017) for China's economy.

About the growth hypothesis, Golam and Nazrul (2011) discover the connection between per capita electricity consumption and per capita GDP in the case of Bangladesh from 1971 to 2008. The obtained outcome reveals mixed results. Accordingly, there is a

uni-directional causality in the short-run, a bi-directional causality between per capita electricity consumption and per capita GDP in the long-run. Another study by Acaravci (2010) explores the short- and long-run causality between electricity consumption and economic growth in Turkey from 1968 to 2005. The VECM Granger causality shows that there is a uni-directional causality running from electricity consumption to economic growth.

The conversation hypothesis was found by the pioneering study of Kraft and Kraft (1978). They examine the impact of economic growth on electricity consumption in the United States over the period 1947-1974. The Granger causality provides that there is a uni-directional causality running from economic growth to electricity consumption. Likewise, Balcilar et al. (2019) used the Maki cointegration to inspect the linkage between electricity consumption, real gross domestic product, and carbon dioxide emissions in Pakistan. A uni-directional causality running from economic growth to electricity consumption was found by the Toda-Yamamoto causality test, which supported the Conversation hypothesis.

Some studies found the neutrality hypothesis. Ghosh (2009) does not found the interaction between electricity supply, employment, and real GDP for India. Similarly, Payne (2009) applied the Toda-Yamamoto causality tests. The obtained result shows that the absence of Granger-causality between renewable or non-renewable energy consumption and real GDP in the case of the United States from 1949 to 2006, which supports the neutrality hypothesis.

The impact of financial development and energy consumption on economic growth has been studied by several previous works, such as Kahouli (2017), Rafindadi and Ozturk (2016), Burakov Burakov and Freidin (2017), and Mahi et al. (2019). However, the conclusion of these studies is not consistent, even ambiguous. To explain the different above-mentioned conclusion, Apergis and Payne (2010) point out that the interaction between energy consumption and economic growth nexus is depended on the level of national development. In poor countries, economic activities based on natural extraction (e.g., planting, fishing). Thus, the demand for energy is low, and the energy consumption does not enhance economic growth. However, it is not true in developing or developed countries. The pressure improving income per capita leads to many projects or policies were issued by the Government, which requires more energy as a driving force of production of goods or services. So, energy production and energy consumption is an essential factor for development.

Of course, the above-mentioned studies do not adequately represent all previous studies on financial development-energy consumption-growth nexus. Nevertheless, this review showed that most of the available studies use frequentist inference. No studies apply Bayesian inference. It is a methodology gap, which this work want to address.

3. RESEARCH MODEL AND METHODOLOGY

The main aim of this study is to investigate the impact of financial development and electricity consumption on economic growth

in ASEAN+6 countries from 1980 to 2016, so the model is preliminarily set as follows:

$$LnGDP_{i,t} = \beta_0 + \upsilon_i + \beta_1.LnEC_{i,t} + \beta_2.LnFI_{i,t}$$
$$+\beta_3.Ln(EC.FI)_{i,t} + \beta_4.UB_{i,t} + e_{i,t} \tag{1}$$

where, i is the country (1,…, N: including Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam, respectively), t is time (1,…, T: from 1980 to 2016). υ_i are random intercepts, $e_{(i,t)}$ is an error. In Eq.1, LnFI variables is the logarithm of financial development (measured by M2 money supply, units: million U.S. dollar), LnEC variable is the logarithm of the electricity consumption per capita, unit: kWh/year), Ln(EC.FI) is the interaction variable (= LnEC*LnFI), and UB is the rate of urbanization (unit: percentage), which plays as the control variable in the model. Annual data is collected from the IMF and the World Bank. The dependent variable is LnGDP per capita (at the fixed price 2010, unit: U.S. dollar). This work used the Bayesian inference, which has several advantages outperforms the Frequentist inference, as follows:

First, Bayesian analysis is based on the Bayes rule and the posterior distribution results from updating the prior knowledge about model parameters with evidence from the observed data. The Bayesian analysis rests on Bayes' theorem of probability theory:

$$p(\theta|y) = \frac{p(y|\theta).p(\theta)}{p(y)} \tag{2}$$

where, θ stands for a set of unknown parameters, y represents a marginal distribution of data, p(θ) denotes the prior distribution of the parameters θ (pre-existing information such as expert opinion, theory, or other external resources), $p(y|\theta)$ is a likelihood distribution, $p(y)$ is the marginal distribution of y, and $p(y|\theta)$ denotes the posterior distribution, which is the probability of the parameters θ conditional on the data x. Equation (2) may be expressed as:

$$p(\theta|y) \propto p(y|\theta)p(\theta) \tag{3}$$

where, ∝ implies "proportional to." The posterior is proportional to the prior multiplied by the likelihood.

Second, the frequentist inference assumes that all parameters are considered unknown but fixed quantities, while Bayesian inference allows all parameters are random quantities and thus can incorporate prior knowledge. Hence, Bayesian analysis yields an entire probability distribution of a parameter, while frequentist results are point estimates. Also, the Bayesian paradigm allows for probability statements, such as a variable is likely or unlikely to impact on another, or the true value of a parameter falls into a certain interval with a pre-specified probability (Bernardo and Smith, 1994; Thompson, 2012).

Because our data sample size is sufficiently large, noninformative priors are enough for our model specification. For comparison purposes, we also specify informative priors for the model parameters. Accordingly, we conduct five posterior simulations. A sensitivity analysis to prior choice will be performed through a Bayes factor test and a model test. We assume to have models M_j parameterized by vectors $\sqcap_j$,j=1,2,…r. By applying Bayes's theorem, we calculate the posterior model probabilities:

$$p(M_j|y) = \frac{p(y|M_j)p(M_j)}{p(y)} \tag{4}$$

Since it is challenging to calculate $p(y)$, a popular practice is to compare two models, for example, M_j and M_k via posterior odds ratio:

$$PO_{j,k} = \frac{p(M_j|y)}{p(M_k|y)} = \frac{p(y|M_j)p(M_j)}{p(y|M_k)p(M_k)} \tag{5}$$

If all models are equally plausible, that is $p(M_j)$=1/r, the posterior odds ratio is transformed into the Bayes factor, which is simply ratios of marginal likelihoods (Jeffreys, 1962).

$$BF_{j,k} = \frac{p(y|M_j)}{p(y|M_k)} \tag{6}$$

The detailed process of estimation is acted through three steps, as follows:
First, we use the fixed-effect model (FEM) and the random-effect model (REM) to provide a general view of the influence of financial development and electricity consumption on economic growth.

Second, we apply the Bayesian approach via the Metropolis-Hasting and Gibbs samplers as the MCMC methods to estimate the impact of financial development and electricity consumption on economic growth.

Finally, we use Dumitrescu and Hurlin (2012) test to check the causality between energy consumption and economic growth.

4. EMPIRICAL RESULTS

4.1. Descriptive Statistic
In two past decades, the ASEAN+6 countries, including Indonesia, Malaysia, Philippine, Singapore, Thailand, and Vietnam, have changed rapidly in most socio-economic fields. Rapid growth leads to a change in the structure of the economy. The industry sector is focused on investing by the Government. Also, urbanization leads to a great demand for energy. Acknowledge that financial development and energy consumption are actively contributing to growth in these countries. The descriptive statistic of all variables is shown in Table 1.

4.2. Model Comparison
This subsection compares five posterior regression models, where the respective Gaussian prior distributions specified are N(0,1), N(0,10), N(0,100), N(0,1000), and N(0,10000).

The results of the model comparison are presented in Tables 2 and 3. In general, the less the DIC value, the more the log(ML) and log(BF) estimate, the better a model fits the data. P(My) shows the posterior model probability. Consequently, model 1 is the best.

Table 1: The descriptive statistic of all variables

Variables	Mean	Maximum	Minimum	Std. error
LnGDP	8.128	10.885	5.735	1.234
LnEC	6.763	9.088	3.832	1.358
LnFI	2.573	4.275	-1.472	0.725
LnECFI	17.301	31.028	-11.528	4.734
UB	50.26	100	19.25	25.56

4.3. MCMC Convergence Test

In the application of an MCMC method, a convergence check is needed before proceeding to inference. Once chain convergence is established, the model parameters have converged to equilibrium values. To avoid pseudo convergence, in this study, we simulate three MCMC chains and verify whether the results satisfy the convergence rule. This is because pseudo convergence takes place when the chains have seemingly converged, but indeed, they explored only a portion of the domain of a posterior distribution. As demonstrated in Table 4, the maximum Gelman-Rubin statistic Rc of 1.0001 is close to 1.1, indicating MCMC convergence.

Table 2: Bayesian information criteria

Model	Gaussian distribution	DIC	log(ML)	log(BF)
1	N(0,1)	103.8528	−75.6626	
2	N(0,10)	104.0392	−79.5551	−3.8924
3	N(0,100)	104.0978	−85.1067	−9.4441
4	N(0,1000)	104.1043	−90.8425	−15.1799
5	N(0,10000)	104.1050	−96.5969	−20.9342

Table 3: Bayesian model tests

Model	Gaussian distribution	log(ML)	P(M)	P(My)
1	N(0,1)	−75.6626	0.2000	0.9799
2	N(0,10)	−79.5551	0.2000	0.0200
3	N(0,100)	−85.1067	0.2000	0.0001
4	N(0,1000)	−90.8425	0.2000	0.0000
5	N(0,10000)	−96.5969	0.2000	0.0000

Table 4: Gelman-rubin convergence diagnostic

Max gelman-rubin Rc=1.000142 <Convergence rule (=1.1)	Rc value
Dependent variable: LnGDP	
LnEC	1.000142
LnFI	1.00009
LnECFI	1.000076
UB	1.00008
Intercept	1.00013
var	0.999963

The model summary reports the rate of acceptance and algorithm efficiency as initial indicators of MCMC convergence. The acceptance rate is the number of proposals accepted in the total proposals, whereas algorithm efficiency is the mixing properties of MCMC sampling. Concerning the chosen model 2, the acceptance rate of 0.84 is larger than the minimum level of 0.1, whereas average efficiency is equivalent to 0.35, which is more than the acceptable level of 0.01. This implies that the obtained results from Bayesian multilevel regression are reliable.

Additionally, it is useful to conduct a graphical inspection. For this, CUSUM plots as an accessible tool are applied. As shown in Figure 1, the CUSUM plots of the parameters corresponding to three chains are jagged, not smooth, running across the X-axis. So MCMC chains for the model parameters are well-mixed, which is a sign of sequence convergence.

4.4. FEM, REM and Bayesian Estimation

The estimation of the Eq.1 by frequentist and Bayesian inference is presented in Table 5. The obtained outcome from FEM and REM model shows that there is a positive impact of electricity consumption on economic growth. Accordingly, a 1% increase in electricity consumption leads to 0.747% increase in economic growth. Besides, financial development is helpful to economic growth (P_value = 0.000). A 1% increase in financial development leads to 0.629% increase in economic growth.

With the Bayesian inference, the result in the lower section of Table 5 reveals that both the influence of electricity consumption and financial development is beneficial for economic growth. With a probability of mean between 0.7 and 1, electricity consumption and financial development exert a powerfully positive effect on economic growth. The 95% credible intervals also point to similar results. Thus, we can confirm that the value of 0.7951 of the coefficient for LnEC belongs to the interval [0.6587, 0.9315] with a 95% probability. Similar interpretations can be made for the remaining parameters of the model. With a probability of mean

Table 5: FEM, REM and Bayesian simulation results

Variables	Coefficient	P_value	Coefficient	P_value
	FEM result		**REM result**	
LnEC	0.8324	0.000	0.7461	0.000
LnFI	0.5715	0.000	0.6298	0.000
LnECFI	−0.0824	0.000	-0.0891	0.000
UB	−0.009	0.000	0.0054	0.021
Intercept	2.916	0.000	2.7009	0.000
F-test	F-statistic=254.24 (P_value = 0.000)			
Hausman test	F-statistic=467.59 (P_value = 0.000)			

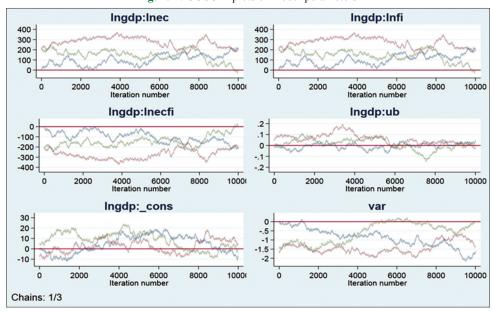| Variables	Mean	Bayesian result		
		Std. Dev.	MCSE	Probability of mean>0	Equal-tailed (95% Cred. Interval)
Dependent variable: LnGDP				
LnEC	0.7951	0.0691	0.0004	1	(0.6587, 0.9315)
LnFI	1.0226	0.1652	0.0009	1	(0.6983, 1.3473)
LnECFI	-0.1469	0.0230	0.0001	1*	(−0.1919, −0.1019)
UB	0.0251	0.0016	0.0000	1	(0.0221, 0.0280)
Intercept	1.3753	0.4849	0.0028	0.99	(0.4216, 2.3275)

* is probability of mean < 0

Figure 1: CUSUM plots of model parameters

Table 6: Results of the causality test

Null hypothesis: No causality	W-bar	Z-bar	P-value
LnEC does not granger cause LnGDP	1.9879	1.711	0.087
LnGDP does not granger cause LnEC	4.6660	6.3549	0.000

is one, we can state that urbanization is a good contribution to economic growth in examined countries.

4.5. The Causality Test

Finally, the study used Dumitrescu and Hurlin (2012) test to examine the causality relationship between energy consumption and economic growth. Both the W-bar and Z-bar statistic test presented in Table 6 provides evidence in favor of the rejection of the null hypothesis (P_value < 0.05). This result implies that there is a uni-directional causality running from economic growth to energy consumption in examined countries, which supported the Conversation hypothesis.

5. DISCUSSION

The empirical result shows that the impact of financial development and electricity consumption on economic growth is beneficial. These results are in line with the conclusion by Ben Jedidia et al. (2014) for Tunisia, Sarkar et al. (2019) for Malaysia, Glasure and Lee (1997) for South Korea and Singapore, or Long et al. (2018); Ngoc (2019); Nguyen and Ngoc (2020) for Vietnam. Physical capital accumulation and a developed financial system will enhance economic growth through the process of mobilizing and allocating the saving capital flows into projects, which have high productivity or output. All six countries in our sample are developing or developed countries, so the demand for production, distribution, or household consumption is rapid growth. According to the forecasting of the International Energy Agency, the energy demand is growing by 1.4% per year until 2035. This is valid for both emerging or developed countries.

6. CONCLUSION

The study applies the Bayesian approach via the Metropolis-Hasting and Gibbs samplers as the MCMC methods to investigate the impact of financial development and electricity consumption on economic growth in ASEAN+6 countries over the period 1980 to 2016. Five simulations are conducted with Gaussian prior distributions ranging from (0,1) to (0,10000). As shown by model comparison results via a Bayes factor and a model test, the model with a noninformative, namely, N(0,1) prior fits the best. According to the estimation results, we claim in view of the probability that both electricity consumption and financial development strongly and positively affects economic growth.

Based on the empirical results, some policy implications are suggested, as detailed:

Firstly, electricity consumption is beneficial for growth, so the Government should intend to expand energy supply through the development of renewable or green energies, such as solar, wind, biofuels, and geothermal power.

Secondly, financial development will drive economic growth if the country has a transparent and efficient financial system. Thus, the rate of the money supply should be calculated corresponding to the rate of growth. A deficiency in the money supply will result in a decrease in economic growth, negatively impacting other economic activities.

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