

THE IMPACT OF INFRASTRUCTURE ON STRATEGIC SECTORS EXPENSES FOR POVERTY: THE CASE IN ASEAN 4

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Abstract

The development of state infrastructure encourages economic growth. This is supported by the availability of adequate resources both in terms of quality of human resources, nature, and technology. This phenomenon is a reflection of the state government in development activities. Infrastructure development is a driver of growth by reducing poverty and reducing unemployment. The objectives of the study were to analyze appropriate strategies in economic development especially on poverty issues in ASEAN 4 (Indonesia, Malaysia, The Philippines, and Thailand). The variables that become the object of research are poverty, infrastructure (education and health), GDP per capita, the Gini index, government expenditure and the unemployment rate. The research method used is the Panel Generalized Method of Moment (PGMM). The results of PGMM estimates provide evidence that infrastructure in the form of health care, per capita GDP and government expenditure has significant implications for poverty in ASEAN 4. The results illustrate that the government for each country needs to make improvement and additional infrastructure as an investment in economic growth. This can be done by mobilizing monetary and fiscal policies, especially reviews those that lead to an emphasis on poverty.

Keywords: Poverty, infrastructure, economic growth, PGMM

INTRODUCTION

Economic growth reflected by gross domestic product. It means, increasing production able to grow economically. Gross domestic product affected by investment, consumption, government expenditure, and net export. Production needs labour and capital. Capital obtained from investment and investment originate investor cash. An investor who invest their money in increasing production able to owe from the bank or take investment return from other investment or engage their salary. But without labour, production activity never happen. Increasing investment equals with increasing job available for people. It means investment available to decrease unemployment and in aggregate, increase people income. Saving equals with loanable supply. Loanable supply is the cash available to investor lending. Therefore, Keynes explains that investment affected by interest rate and investor expectation.

We know, production output is a product. The product is not only goods for people consumption but also service. Goods need to distribute to customer and service need a place. The place is not just land but the server is placed too. Distribution and place need infrastructure support. For instance road, communication tower and internet network. But distribution and place of service are not enough to ensure production – consumption goes on. It needs security and justice. Road, telecommunication infrastructure, security, justice and other public goods for support production – consumption activity is infrastructure financed by government and it calls government expenditure. Government expenditure is determinants of economic growth because government expenditure support business operation which financed by investment. Business operation able to provide jobs for people. In aggregate to increase people earning or people revenue. Therefore government expenditure able to reduce poverty. Paul Spicker argues that poverty is an individual issue caused by the weakness and choice of the individual concerned. Poverty will disappear if market power is expanded to the maximum and economic growth is driven to the highest possible level. Directly, poverty reduction strategies must be temporary residual and involve only families, self-help groups or religious institutions. The role of the state (government) is only as a guard may be able to carry out their duties.

Economic growth able to increase production. When production has increased, availability of jobs is increasing too. When the availability of jobs increase, in aggregate people revenue increase and poverty is reducing. People in the world become poor because of the culture of poverty with apathy character, surrender to fate, unsteady family system, lack of education, lack of ambition to build the future, crime and violence occur. Poverty is caused by injustice and imbalance in society due to clogging of group access to community resources. Equality is an essential prerequisite for gaining independence and freedom. Achieving freedom is only possible if everyone has or is able to reach sources, such as education, good health and sufficient income. Freedom is more than free from outside influences; but also free in determining the choices. In other words, freedom means having capabilities to do or not to do something. For example, the ability to meet basic needs, the ability

to avoid premature death, the ability to avoid malnutrition, the ability to read, write and communicate. The State, therefore, has a role in ensuring that everyone can participate in community transactions that enable them to decide on their choices and meet their needs.

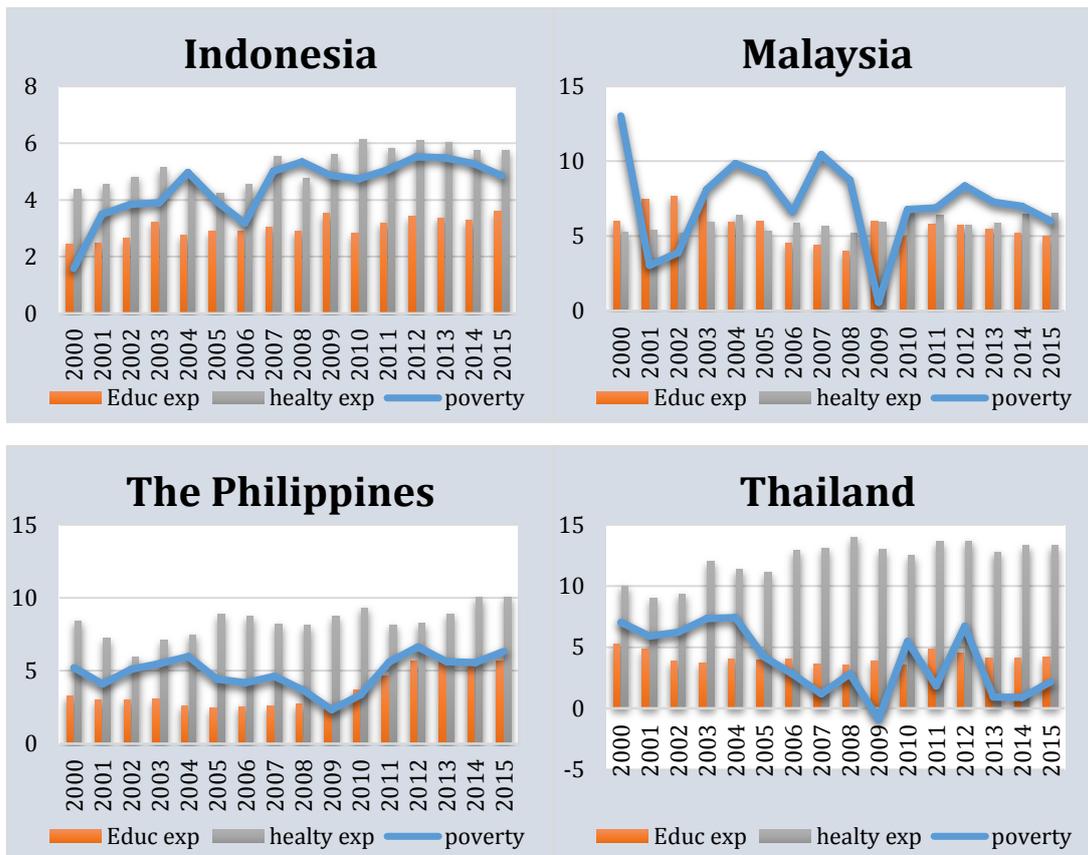


Figure 1. Development of infrastructure costs (education expenditure and health expenditure) and poverty in ASEAN 4 (The World Bank, 2000-2014)

The phenomenon of inequality, poverty and the movement of the economic growth of developing countries in ASIA which include low income or poor, viewed from the position in below the poverty line nationally and internationally namely income below \$ 1 per day, gross revenue (gross domestic product / GDP) per capita as an indicator for economic development and generating measure income differences between population groups with the lowest incomes and the highest (The World Bank, 2017). Based on Figure 1, the ASEAN 4 is generally between infrastructure costs are proxied by the cost of education and health have a positive relationship and negative in certain periods. Sometimes the allocation of infrastructure costs incurred as a whole has not been accommodated so that the poverty rate is likely to increase [1], [2]. Therefore, this study has the objective to see influence between the cost of infrastructure and poverty, and policy recommendations, especially to overcome poverty.

The world is dominated by a single economy in such a way that all the countries of the world are integrated into the production environment of capitalism which causes backwardness in poor countries. Core countries attract surpluses from poor countries through a metropolis-satellite chain. As a result, poorer countries are becoming increasingly poor and rich countries are getting richer. In macro terms, poverty can be overcome by enhancing mutually beneficial cooperation between countries. Of course with the advantages of each interdependent and mutually build the economy so economic growth can be created with harmonious relations and mutual benefits socially and economically.

DATA AND METHODOLOGY

This research focuses on a phenomenon that occurs in the ASEAN 4 (Indonesia, Malaysia, the Philippines, and Thailand) especially those on the problems of poverty and the growth of infrastructure in each country. The data used are secondary data obtained from the World Bank Indicator (WDI). The definition of a variable which is the object penalties can be seen in Table 1. The period penalties 200-2015 is used that year by using panel data with a cross-section of four countries, namely Indonesia, Malaysia, the Philippines and Thailand.

Table 1. Definitions Variable

Variables	Resources	Information
Poverty (POV)	WDI	Household final consumption expenditure (annual% growth)
EDU (Education Expenditure)	WDI	Government expenditure on education, total (% of GDP)
HE (Health Expenditure)	WDI	Health expenditure, public (% of government expenditure)
GDP (Gross Domestic Product)	WDI	GDP per capita growth (annual%)
GOVEXP (Government expenditure)	WDI	General government final consumption expenditure (annual% growth)
UNEMP (Unemployment)	WDI	Unemployment, total (% of total labour force) (national estimate)

The method used is the Panel Generalized method of Moment (PGMM). GMM is a method of analysis that serves to make the interpretation of the parameters of the expansion moment method, in which the moment method can be used when a smaller number of instrument variables dividing by the number of parameters that will do the interpretation [3], [4]. Pre Test PGMM estimation consists of a statistical test, the data stationary test, cointegration test. Furthermore, estimate panel data and GMM panel estimation.

Specifications research model adapted from the study [1], [2], so specification models research are as follows:

$$POV_{it} = \beta_0 + \beta_1 EDU_{it} + \beta_2 HE_{it} + \beta_3 GDP_{it} + \beta_4 GOVEXP_{it} + \beta_5 UNEMP_{it} + \mu_{it} \tag{1}$$

Estimate moment can be defined by entering into the sample analogues

$$\frac{\sum_{it} m_{it}(y_{it}, \theta)}{T} = 0 \tag{2}$$

However, the estimated moment of the equation (3.63) has not been may meet obstacles θ obtained when M is greater than the parameter θ . Therefore, to meet these conditions, the estimate becomes:

$$\sum_{it} m(y_{it}, \theta) A(y_{it}, \theta) m(y_{it}, \theta) \tag{3}$$

A is a metric at each moment in a model used and any positive (A) will produce consistent estimates of θ . GMM method contains an endogenous variable that has a relationship with an error.

Model of methods GMM used in the study can be written so as to form a model:

$$POV_{it} = \beta_0 + \beta_1 EDU_{it} + \beta_2 HE_{it} + \beta_3 GDP_{it} + \beta_4 GOVEXP_{it} + \beta_5 UNEMP_{it} + \theta_{it} \tag{4}$$

$$E(eit) = 0$$

$$E(POV_{it} - \beta_0 - \beta_1 EDU_{it} + \beta_2 HE_{it} + \beta_3 GDP_{it} + \beta_4 GOVEXP_{it} + \beta_5 UNEMP_{it} - \theta_{it}) = 0 \tag{5}$$

Equation 5 is used to estimate between level 4 and macroeconomic condition in ASEAN poverty using GMM panel.

RESULTS AND DISCUSSION

Analysis

Statistical tests in this study aim to look at the minimum and maximum values as well as distribution of each variable. In Table 2 gives an explanation that the minimum and maximum values of GOVEXP has a gap that is high enough that signifies GOVEXP growth quite fluctuating gap of 19.6 points. Further growth of the variables that have a gap height between the minimum and maximum values that POV, is known based on data from the World Bank among ASEAN 4 were thoroughly (see Figure 1) that the growth of poverty in Malaysia is quite volatile, where the highest rate in 2000 and the lowest figure in 2009. Judging from the distribution of the visible variable that is normally distributed evidenced by the standard deviation value which is lower than their mean.

Table 2. Results of statistical tests

	POV	EDU	HE	GDP	GOVEXP	UNEMP
Mean	5.106151	4.134917	7.900773	3.437175	5.795718	5.262969
Median	5.152825	3.865025	6.614583	3.563961	5.220757	4.815000
Maximum	13.02843	7.662190	13.92774	7.445581	15.70289	11.85000
Minimum	-0.899216	2.425330	4.235455	-4.271241	-3.971871	0.190000
Std. Dev.	2.477173	1.336533	2.929090	2.073361	4.133765	3.375070
Jarque-Bera	3.226099	6.567904	7.454449	25.36340	2.487995	4.076167
Probability	0.199279	0.037480	0.024060	0.000003	0.288230	0.130278
Observations	64	64	64	64	64	64

Results stationary or often unit root test is a test of pre-estimate of the support that the data are well used in the study. This study uses four methods of calculation, namely LLC, IPC, ADF and PP-Fisher. Based on the results of stationary data shown in Table 2, that the Communities and UNEMP stationery at a rate of 1st different that showed with a probability value alpha <5%. POV stationary at level LLC level on methods and PP-Fisher, while the IPC method, ADF-Fisher showed POV 1stationary at levels.st different Furthermore stationary GDP [No current level on four methods, while HE stationary at the current level in the LLC and stationary method at a rate of 1st different on IPC method, ADF-PP-Fisher Fisher damn. In Table 2 also provides evidence that the method GOVEXP pada LLC, IPC and PP-Fisher stationary at the current level and the ADF-Fisher method stationary at the current level.

Table 2. Test Results Data Stationarity

Variables	LLC	IPC	ADFFisher	PP-Fisher
POV	-2.0447 [0.0204] *	-4.5250 [0.0000] **	34.3967 [0.0000] **	29.3103 [0.0003] *
Communities	-2.3796 [0.0087] **	- 2.9511 [0.0016] **	23.7025 [0.0026] **	50.0534 [0.0000] **
HE	-2.5755 [0.0050] *	-5.6387 [0.0000] **	42.3283 [0.0000] **	67.5378 [0.0000] **
GDP	-3.6257 [0.0001] *	-2.4428 [0.0073] *	19.6328 [0.0118] *	37.9067 [0.0000] *
GOVEXP	-1.6739 [0.0471] *	-1.6800 [0.0465] *	52.8373 [0.0000] **	2.5792 [0.0001] *
UNEMP	-2.2989 [0.0108] **	- 2.7715 [0.0028] **	22.0196 [0.0049] **	49.6288 [0.0000] **

[]: probability; *: Levels levels; **: level 1st;***: level 2^{sd}

Once the data stationary test next steps see cointegration data showing the connection between long-term or short of variables. Based on Kao approach Residual Cointegration Test showed that alpha probability value of <5%, so that the results indicate the presence of cointegration or their long-term relationship.

Table 3. Test Results Cointegration

Approach	Value	Cointegration
Kao Residual Cointegration Test	-4.86708 [0.0000] *	cointegrated

*: significant alpha <5%

This study uses data ASEAN panel 3 so that at this stage best compare models with test Chaoww, Hausman and LM. The model compared to that panel Least Square (PLS), Fixed Effects Model (FEM) and Random Effects Model (REM). Based on estimates PLS and REM all variables have significant relations at the level of 1%, 5% and 10% except UNEMP variables that have relationship insignificant. In the FEM model provides results that GDP and GOVEXP which has a significant relationship as evidenced by a probability value alpha <10%. Selanjutnyas interconnect models to obtain the best model, the first test Choww the comparison of the PLS model and FEM FEM produce the best model is shown from the value of prof> f 0.00053 which is less than 5%. So based on test Chaow, Hausman and LM broadly provide results that FEM is a model of FEM.

Table 4. Estimation Results Panel Data

Variable		Panel Least Square (PLS)	Fixed Effect Model (FEM)	Random Effect Model (REM)
EDU	coefficient	0.7343	0.2785	0.7422
	[prob]	[0.0002] *	[0.1899]	[0.0002] *
HE	coefficient	-0.3688	-0.6158	-0.3675
	[prob]	[0.0001] *	[-0.6158]	[0.0001] *
GDP	coefficient	0.7024	0.7499	0.71678
	[prob]	[0.0000] *	[0.0000] *	[0.0000] *
GOVEXP	coefficient	-0.1318	-0.0792	-0.1354
	[prob]	[0.0097] *	[0.0905] *	[0.0081] *
UNEMP	coefficient	-0.0770	0.0523	-0.0789
	[prob]	[0.3887]	[0.7530]	[0.3705]
Adjusted R-Squared		0.6888	0.6116	0.6115
F-statistic		0.6888	20.8429	20.83649
prob (F-statistic)		0.0000	0.0000	0.0000
Choww Test			17.5914	
Prob> f			0.00053	
Hausman Test				4.7508
Prob> chi-Sq				0.4470
testLM			1.8921	
Breusch-Pagan			0.1690	

*) significant at $\alpha = 1\%$, **) significant at $\alpha = 5\%$, ***) is significant in $\alpha = 10\%$

Estimated Generalized next is used the method of moment (GMM) is useful for getting basic parameter estimator for a parameter. Besides the advantage of GMM method is to resolve the situation in the form of data with violations of the assumptions in the regression analysis. This stage data Panel GMM estimates using two different first is method and system GMM. GMM panel estimation results in Table 5 shows that the GDP difference fist method that had a significant association with POV with a probability value of 0.000 and 0.6566 parameter values. Whereas the method of System GMM prove there are several variables that had a significant relationship with POV is HE, GDP and GOVEXP described with a probability value of less than 10% alpha. The results of System GMM HE has negative parameter values that indicate that there is -0.6158 relationship negative significant with POV influenced by economic phenomena that occur in the ASEAN 4, in addition, GOVEXP also used negative parameter value with the value of -2.7227. While. The next GDP discount positive parameter value of 0.7499 which indicates that when the POV that proxy for household consumption increases, due to the increasing value of GDP of ASEAN 4.

Table 5. Test Results GMM Panel

Variable		First Difference	System GMM
Communities	Parameter Value	0.2785	-0.2274
	t-statistics	1.3272	-0.5332
	Prob	[0.5960]	[0.1899]
HE	parameter Value	-0.6158	-0.3235
	t-statistic	-2.9155	-0.9708
	Prob	[0.3358]	[0.0051] *
GDP	parameter Value	0.7499	0.6566
	t-statistic	8.7173	6.8421
	Prob	[0.0000] *	[0.0000] *
GOVEXP	parameter Value	-0.0792	-0.0315
	t-statistic	-1.7227	-0.6035
	Prob	[0.5485]	[0.0905] ***
UNEMP	parameter Value	-0.0523	-0.0071
	t-statistic	-0.3161	-0.0220
	Prob	[0.9824]	[0.7530]
J-stats		54.9999	45.1163
Prob. (J-statistics)		0.0000	0.0000

*: significant $\alpha = 1\%$, *: * significant $\alpha = 5\%$, ***: significant $\alpha = 10\%$

Aspects of equitable health services to be one of the important points in the implementation of the National Health Insurance program, especially in the availability of health services, both in terms of quantity and quality of health facilities [5] - [7]. Health care providers increasingly required to provide quality service, fast,

affordable and scalable up to the expectations and needs of the community. For conditions that exist in Indonesia budgetary allocations during the last seven years has increased but the data presentation budget realization decreased. Therefore, there is a need for a strategy for policy implementation in order to synchronize between the budgets and realize. The difference between the budget and the realization made possible as a result of not sprightly government and stakeholders in mapping the existing conflict between countries.

The government can also intervene directly through activities funded by the government, which includes the activities of providing goods and public services [8] - [10], implementing activities or strategic initiatives, empower the powerless (empowering the powerless) or alignments, Nevertheless, the problem of poverty is very complex and multidimensional, not only the responsibility of government, but it becomes more responsible all stakeholders ranging from local governments, businesses, activists of non-governmental and international organizations.

Conditions occurring in Thailand tend to be caused by the existing financial conditions, for example when the economic crisis that hit Thailand in 1997, the unemployment rate increases that pushed the poverty rate. Based on some research conducted showed that poverty in Thailand tend to be caused by the equalization of financing has not been evenly distributed, because they are focused on Bangkok and surrounding areas [11] - [13]. Additionally, equitable distribution of income such as investments and large salaries are still concentrated in Bangkok and surrounding areas. So, in this case, labour market needs to be managed appropriately to maximize equity and economic stability objectives. In general, the phenomenon of poverty in some parts of ASEAN due to planning or strategy developed by the government is less precise.

To alleviate the problem of poverty should not only emphasize on economic development approach alone. Economic development has an important role in alleviating poverty, but economic development often reaps a failure in creating public welfare, for example, the case of unemployment, social inequality, social disintegration, social injustice and others [14] - [16]. This is because poverty is a multidimensional problem.

Therefore, economic development must work together with social development, in which social development aimed at improving the quality of individuals, families, and communities through education, health, social security, public participation, and social justice. With the increasing ability of individuals, families, and society, it will have implications for their self-reliance in meeting basic needs, able to manage social problems, and is able to maximize the opportunities that exist

CONCLUSION

Poverty is a public discussion that has the influence to economic growth. The problem of poverty in ASEAN based on the analysis PGMM prove that health expenditure, GDP and government spending has a significant relationship to poverty which in this study on proxy and consumption levels. These results indicate that consumption expenditure per household was affected by expenditure allocation especially the government's financial allocation for education and health. Education is a sector that explores human resource skills, so required proper planning strategy to improving the quality of education in each country. Besides health related to people's living standards, which meet the standards of health care if the survival rate of each country has increased. so for the preferred policy recommendations on infrastructure in the form of public service.

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