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The Impacts of Social and Economic Determinants on Poverty: An Empirical Study on Southeast Asia

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Abstract

The article attempted to examine the influences of social and economic determinants on poverty in seven Southeast Asian countries, namely Lao PDR, Malaysia, Myanmar, the Philippines, Thailand, Timor-Leste, and Vietnam, between 1996 and 2013 using a panel dataset. It was empirically found that the average GDP per capita and Gini index contributed to poverty reduction in Southeast Asian countries. The results also addressed that the population and poverty gap had positive impacts on the rate of the poverty headcount in the region. Policies were recommended to accelerate economic growth, reduce poverty, and achieve sustainable development in Southeast Asia. First, economic growth should be fostered since it assists in reducing poverty in Southeast Asian countries. Second, although the growth of population provides the labor forces to the economy, population growth in Southeast Asia should be carefully controlled since it increases poverty in the region. Third, an increase in the number of rich inhabitants in the society should be encouraged because it can mitigate poverty in the region. Finally, policies in redistributing income as well as in narrowing down income inequality in each society should be considered by the governments because these contribute to poverty reduction in the region.

Keywords

Impacts, social, economic, determinants, poverty

Introduction

In Asia, severe social impacts occurred due to the economic crisis in 1997. However, the negative social effects were less severe than the initial predictions because of the social protection programs carried out by countries in the region (Ramesh, 2009). Southeast Asia still had achievements in economic growth and human development during the past quarter-century although the Asian financial crisis (AFC) had adverse impacts on the welfare of the region's population in the late 1990s. For instance, the annual economic growth of the region was five percent, on average, and the poverty rate rapidly

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decreased, particularly in Malaysia, Thailand, and Vietnam (Balisacan *et al.*, 2005). Forty-seven percent of the population of the Association of Southeast Asia Nations (ASEAN) Member States (AMS) was living below the standard poverty line of US$1.25 purchasing power parity (PPP) in 1990, however, after a quarter of a century, the poverty rate has declined by more than two thirds (ASEAN, 2017). This region, however, faces recent obstacles such as economic uncertainties associated with financial globalization, rapid urbanization, high informal employment, and highly unequal gender division of labors (Cook & Pincus, 2014). Between 2012 and 2017, Cambodia was ranked in the 3rd position for the highest poverty rate (17 percent) in ASEAN, followed by Indonesia and Thailand (11 percent), and Malaysia (2 percent). Technology progress, globalization pressure, and market-oriented reforms extended the imbalance ratio between unskilled and skilled human resources, reduced wage rates, and increased inequality in Southeast Asia after 1997's monetary crisis. Income disparities and different levels of access to education have been identified as the reasons leading to inequality in the region. For example, the inequality rates among Cambodia, Indonesia, Malaysia, and Thailand were below 5 percent for the period of 2012-2017 (Rachman *et al.*, 2019). When countries transform from low-income to middle-income, average incomes rise and the rate of extreme poverty decreases during the period of rapid economic transformation. However, moderate poverty and vulnerability to poverty may continue to increase in addition to ethnic, spatial, and other inequalities and disparities (Sumner *et al.*, 2012).

The GDP per capita increased in all AMS between 2000 and 2019. The highest proportion was found in Laos PDR, where the GDP per capita increased by 696.5 percent for this period, followed by Myanmar (572 percent), and Vietnam (502.4 percent). By 2019, the GDP per capita in ASEAN was 4.6 percent, a decrease by 1.1 percent from the previous year. The average growth of ASEAN's economy reached 5.7 percent during the period of 2000-2019. The highest growth was observed in Myanmar at 13.2 percent, followed by Laos PDR (7.7 percent), and Cambodia (7.6 percent) (ASEAN, 2020).

The ASEAN population increased from 355.2 million to 655.9 million between 1980 and 2019. The annual increase of the ASEAN population was 1.3 percent, on average, in this period. The unemployment rate in all AMS was observed to be relatively low for the period of 2005-2019. The rates fluctuated in all AMS due to fluctuations in the economic environment. For instance, by 2019, Brunei Darussalam had the highest unemployment rate at 6.8 percent, followed by Indonesia (5.3 percent), Malaysia (3.3 percent), Singapore (3.1 percent), Vietnam (2.2 percent), and Thailand (1 percent) (ASEAN, 2020).

Between 2005 and 2018, the proportion of the population living below the national poverty lines in AMS declined. The highest rate of poverty reduction was observed in Myanmar, with a decline of 23.4 percentage points, followed by Cambodia (19.5 percent), Thailand (16.9 percent), and Laos PDR (15.2 percent). Likewise, poverty reduction was also found in Vietnam, the Philippines, and Indonesia, where the poverty rate decreased from 18.1 percent, 26 percent, and 16 percent in 2005 to 6.8 percent, 16.7 percent, and 16 percent in 2018, respectively. However, an increase of the Gini ratio, which reflects a rise in income inequality, was observed in Indonesia and Laos PDR, while the Gini ratio in Cambodia, Malaysia, Singapore, and Thailand decreased in the same period (ASEAN, 2020).

Raitzer & Maredia (2012) evaluated the impact of agricultural research investment on sustainable poverty reduction in Southeast Asia, while Warr (2018) examined the relationship between poverty reduction and economic growth in Southeast Asia. Further, Deutsch *et al.* (2020) investigated the revolution of poverty, inequality, and welfare in Southeast Asia. However, there is still a gap in understanding the influences of social and economic determinants on poverty in Southeast Asia. This article aims to explore the impacts of social and economic determinants, namely how the average GDP per capita, the population size, unemployment rate, inflation rate, poverty gap, and Gini index impact

poverty in Southeast Asia for the time period between 1996 and 2013. More importantly, policies are recommended to enhance economic growth, reduce poverty, and achieve sustainable development in the region.

Literature Review

Concepts and measurement of poverty

Poverty is a source of social ethics that may be seen as a vital component of political philosophy (Asselin & Dauphin, 2001). The term "poverty" is used to link to dominant development paradigms. The wider social and political contexts generate increases in poverty (Misturelli & Heffernan, 2010).

Three popular approaches to understanding poverty are the capability approach (CA), social exclusion (SE), and participatory approach (PA). According to the CA, poverty is a failure to achieve certain minimal or basic capabilities. Generic lists of crucial capabilities have been proposed by many scholars and generally, they concentrate on western conceptions of the "good life". In terms of the SE, poverty has been indicated as the process of marginalization and deprivation that can arise even in rich countries with comprehensive welfare provisions. It is very difficult for the SE to explain the poverty concepts under review due to multiple faces of deprivation. The structural characteristics of society and the situation of marginalized groups such as ethnic minorities and the landless are considerations of the SE instead of the monetary and capability approaches that tend to focus on individual characteristics and circumstances. Unlike the CA and SE, the PA describes the participation of people in their decisions about what it means to be poor and the magnitude of poverty. Externally imposed standards are avoided in this approach. In addition, the PA proposes methods to overcome the issues compared to the other approaches. For instance, they assist in identifying indicators such as an appropriate minimum basket of commodities for the monetary approach, and a list of basic capabilities in the capability approach. However, the PA method is complex and invariably contains multidimensional analysis (UNDP, 2006).

According to the wider concept, poverty has been defined as situations in which people are unable to meet generic needs such as nutrition, medical services, education, and clean water. Poverty can be the result of inequality in production ownership, or imbalances in the mindset among members of a society, culture, or environment (Rachman *et al.*, 2019).

Effects of social and economic determinants on poverty: A debate

The impacts of social and economic determinants on poverty have been studied by several scholars around the world. Adams (2004) examined the relationship among economic growth, inequality, and poverty in 60 developing countries. He found that economic growth contributed to reducing poverty in these countries and the proportion of poverty reduction depended upon the growth of the economy. A study by Agrawal (2008) investigated the correlation between economic growth and poverty alleviation in Kazakhstan using province-level data. He found that poverty reduced more quickly in provinces that had higher growth rates. He concluded that the education and health sectors should be supported by the government since these significantly contributed to poverty reduction. Likewise, Amini & Bianco (2016) assessed the relationships among poverty, growth, and inequality by macro data. Their results showed that poverty elasticity to growth and inequality was -2 percent and 2 percent, respectively, and human capital fostered the influence of economic growth on poverty reduction.

Moreover, Balisacan *et al.* (2003) assessed the relationship between economic growth and poverty reduction in Vietnam using provincial panel data. Their results concluded that the faster the growth rate, the lesser the role of distributive factors that directly affect the poor's well-being. Similarly, Balisacan *et al.* (2005) examined rural poverty in Southeast Asia, and they argued that growth and poverty reduction in this region are not homogenous. The poor may obtain more benefits in countries that are interested in

agricultural trade liberalization and public investment to promote services. To deal with poverty, governments should implement appropriate policies to achieve the Millennium Development Goals in the region. Cook & Pincus (2014) studied the relationship among poverty, inequality, and social protection in Southeast Asia. They claimed that although governments in the countries in this region have attempted to facilitate social assistance programs, these countries still must deal with recent challenges such as economic uncertainties associated with financial globalization, rapid urbanization, high levels of informal employment, and highly unequal gender division of labors. Likewise, Ijaiya *et al.* (2011) examined the relationship between economic growth and poverty reduction in Nigeria using the multiple regression analysis. They concluded that economic growth does not support poverty reduction in the initial period, but a positive change of economic growth contributes to poverty reduction.

In addition, Iniguez-Montiel (2014) assessed the relationship among poverty, inequality, and economic growth in Mexico between 1992 and 2008. He concluded that growth with redistribution was the key factor contributing to poverty reduction between 2000 and 2006. However, after 2006, a decline in income per capita along with rising inequality has led to an increase in poverty compared to pre-2002 levels. A study by Hang & Hoi (2012) investigated the effect of sectoral growth on poverty reduction in Vietnam between 1998 and 2008. They found that the growth of the agricultural sector generates a higher poverty rate, and that economic growth has a positive influence on poverty reduction in this country. Suryahadi *et al.* (2012) investigated the relationship between poverty reduction and economic growth in Indonesia before and after the AFC. They argued that the annual rate of poverty reduction tended to reduce in the post-crisis period. However, the impact of economic growth did not change much between two periods. Mphuka *et al.* (2017) examined economic growth, inequality, and poverty in Zambia during the period of 2006-2015. They found that poverty highly depended on agriculture. Between 2006 and 2015, the agricultural sector led to an increase in poverty. However, other sectors such as construction, wholesale, retail, and mining had significant contributions to poverty reduction.

To sum up, due to differences among studies in terms of duration, venue, indicators, and scales (global, regional, national, and local levels), the debate on the effects of social and economic determinants on poverty still continues. Consequently, the findings of each study in terms of the effects of social and economic determinants on poverty were either positive or negative or not statistically significant.

Methodology

Data and sources

A panel dataset, which was gathered from the database released by the World Bank, was employed to estimate the effects of social and economic determinants on poverty in Southeast Asia. There are 11 countries in Southeast Asia, namely Brunei Darussalam, Cambodia, Indonesia, Laos PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor-Leste, and Vietnam. However, due to shortages in the database, four nations were excluded (Brunei Darussalam, Cambodia, Indonesia, and Singapore), and therefore the remaining seven countries, namely Laos PDR, Malaysia, Myanmar, the Philippines, Thailand, Timor-Leste, and Vietnam, were chosen for the study. Data was collected for the nine-year period between 1996 and 2013. This period was chosen for the study because it was able to cover the influences of the AFC on poverty in the region. However, due to a shortage of data in some years, a panel dataset for the nine years with 63 intervals was collected for the research. The panel data was employed for the study because of the following advantages. First, it was comprised of a large number of samples. Second, it gave more degrees of freedom, more information, and less multicollinearity among the variables. Lastly, it may overcome issues related to the control of individual data points or time heterogeneity faced by the cross-sectional data (Baltagi, 2005; Hsiao, 2014).

The fixed effect and random effect models

First, the multicollinearity phenomenon among the independent variables in the model was tested by the variance inflation factor (VIF) and if VIF was greater than or equal to 10, the multicollinearity phenomenon may exist among the independent variables (Gujarati, 2003). Second, both the fixed effect model (FEM) and random effect model (REM) were run. Third, the Hausman test was employed to select the most appropriate model between the FEM and REM. Lastly, the Wooldridge test and Wald test were used to examine autocorrelation and heteroscedasticity in the selected model. If autocorrelation and heteroscedasticity occurred in the model, these issues could be fixed by the feasible generalized least squares (FGLS) technique to ensure that the obtained estimates were viable and effective (Wooldridge, 2002).

To estimate the influence of social and economic determinants on poverty in Southeast Asia, the model proposed by Ravallion & Chen (1997) was employed as follows:

$$LogP_{it} = \alpha_i + \beta logY_{it} + \gamma logG_{it} + \delta_t + \varepsilon_{it} \quad (i = 1,\ldots, N; t = 1,\ldots, T_i) \quad (1)$$

where: P_{it} represents the poverty headcount index measured by the share of the population with an income per person below the poverty line (US$1.25 a day); α_i is the fixed effect; β denotes the growth elasticity of poverty with respect to income; Y_{it} is the average GDP per capita; γ is the elasticity of poverty with respect to income inequality; G_{it} represents Gini coefficient; δ_t presents the trend rate of change over time t; and ε_{it} denotes the error term.

In this research, we aimed to extend the model of Ravallion & Chen (1997) by adding some social and economic determinants to equation (1) that tend to affect poverty in Southeast Asia. Specifically, the size of the population, unemployment rate, inflation rate, and poverty gap index (measured by the mean distance from the poverty line as a proportion of the poverty line) of the seven countries were added to the model. Therefore, the final model for this research was defined as follows:

$$LogP_{it} = \alpha_i + \beta logY_{it} + \lambda logC_{it} + \varphi logU_{it} + \rho logI_{it} + \mu logD_{it} + \gamma logG_{it} + \delta_t + \varepsilon_{it} \quad (i = 1,\ldots, N; t = 1,\ldots, T_i) \quad (2)$$

where: P_{it} represents the poverty headcount index measured by the share of the population with an income per person below the poverty line (US$1.25 a day); α_i is the fixed effect; β, λ, φ, ρ, μ, and γ are parameters to be estimated; Y_{it} is the average GDP per capita of the country; C_{it} denotes the size of the population of the country; U_{it} is the unemployment rate of the country; I_{it} is the inflation rate of the country; D_{it} represents the poverty gap of the country; G_{it} is the Gini coefficient; δ_t presents the trend rate of change over time t; and ε_{it} denotes the error term.

Both the fixed effect and random effect models were estimated using the Stata MP 14.2 software. Descriptions of the covariates are presented in **Table 1**.

Table 1. Description of the covariates in the model

Variable definitions	Labels	Unit	Expected signs
Dependent variable: the rate of poverty headcount	P_{it}	%/year	
Covariates:			
The average GDP per capita	Y	US$/year	+
Total population	C	1,000 persons	-
Unemployment rate	U	%/year	-
Inflation rate	I	%/year	+/-
Poverty gap	D	%/year	+
Gini index	G		+/-

The fixed and random effect models have been employed by Balisacan *et al.* (2003), Adams (2004), and Perera & Lee (2013) to examine the relationship among economic growth, inequality, and poverty. According to Schmidheiny (2016), the fixed effect model presents advantages when we omit variables, and when these variables are correlated with other explanatory variables in the model. Moreover, this model assists to control for differences in time-invariant and unobservable characteristics which can influence the rate of poverty headcount. The random effect model is useful if we have no omitted variables, and when these variables are uncorrelated with the explanatory variables in the model. In this model, the individual-specific effect is a random variable that is uncorrelated with the explanatory variables.

Results

The effects of the AFC on societies in Southeast Asia

The livelihoods of inhabitants in Southeast Asia were negatively influenced by the crisis. The lives of the poor mainly benefited due to the rapid economic growth of recent decades. In Indonesia, Malaysia, the Philippines, and Thailand, the percentage of people in poverty declined by more than half between 1995 and 2015. However, the unemployment rate increased, real income decreased, and the prices of basic goods rose in association with the crisis, and therefore, led to sharp increases in poverty. In Indonesia, for instance, 20 percent of the poorest households spent about 25 percent of their income on rice, and from January to September 1998, the price of rice almost tripled, resulting in the percentage of people living in poverty to increase from 11 percent to 15-20 percent by the end of 1998. In Thailand, a rapid increase in incidences of poverty has been determined as being the result of a protracted crisis (Wart, 1986) since about 10 percent of the population lives just above the international poverty line of US$1 per day (World Bank, 1998). Unlike other countries in the region, poverty in the Philippines did not see a large increase since poverty in this country was less sensitive to economic growth than in many other developing countries (Balisacan, 1998). In Malaysia, although the government acknowledged an increase in poverty, the overall rate remained low at 7 percent (Jones *et al.*, 2000).

Poverty has not only been regarded as an indicator of the economic well-being of an individual or household, but it has also been used to indicate broader deficiencies in well-being. For example, in Indonesia, incidences of severe and moderate malnutrition in babies and young children, especially in Java, West Sumatra, and South Sulawesi, had a sharp rise because of the serious effects of the crisis. Poor nutrition among three-year-old children in the north coast of Central Java jumped from 8 percent in 1996 to 15 percent in 1998, and similar patterns were found in East and West Java. This can have very serious consequences for the physical and intellectual development of the next generation. Further, the poor also received less health care, both privately purchased and publicly provided, and consequently had a higher level of morbidity and mortality than the non-poor. For instance, 20 percent of the richest individuals were twice as likely to visit a doctor and four times as likely to visit a hospital than were the poorest 20 percent (Serrato & Melnick, 1995; World Bank, 1998).

Poverty in Southeast Asia

The population rate at the national poverty lines in selected Southeast Asian countries is presented in **Figure 1**.

The percentage of the population at or below the national poverty line of ASEAN significantly dropped by 13 percent from 27 percent in 1995 to 14 percent in 2015. The poverty rates of all ASEAN countries declined between 1995 and 2015, in which the most impressive decrease was found in Vietnam with 51 percent, followed by Laos PDR (26 percent), Cambodia (22 percent), the Philippines (10 percent), Malaysia (8 percent), Indonesia (7 percent), and Thailand (3 percent). These outcomes reflect the tremendous efforts of the governments in Southeast Asian countries in fighting poverty in this region (**Figure 1**).

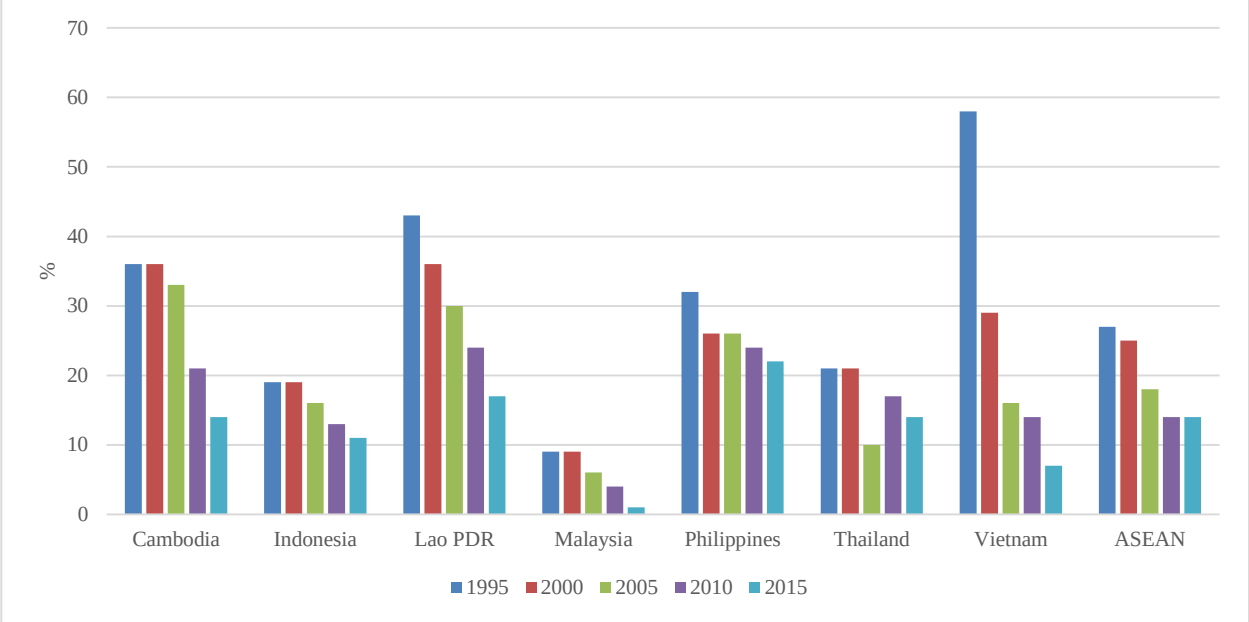

Figure 1. Proportion of the population at or below the national poverty line of selected countries in Southeast Asia

Source: ASEAN (2017)

The rates of the population living below US$1.25 a day in ASEAN decreased significantly by 24 percent from 38 percent in 2000 to 14 percent in 2015. In the same period, all ASEAN Member States had a rapid decline in the proportion of the population living below US$1.25 a day, except Thailand. In Cambodia, the percentage of the population living below US$1.25 a day dropped sharply by nearly a half from 44 percent in 2000 to 24 percent in 2015. Likewise, the ratio of the population living below US$1.25 a day in Indonesia decreased remarkably by 39 percent from 48 percent in 2000 to only 9 percent in 2015. The decline in the proportion of the population living below US$1.25 a day in Laos PDR, the Philippines, and Vietnam accounted for 12 percent, 3 percent, and 28 percent, respectively. By contrast, the rate of the population living below US$1.25 a day in Thailand increased slightly by 2 percent from 16 percent in 2000 to 18 percent in 2015 (**Figure 2**).

The decrease in the proportion of the population living below US$1.25 a day in CLMV was faster than that of ASEAN-6. For example, the ratio increased by 0.23 from 1.23 in 2000 to 1.46 in 2015 (**Table 2**). These results highlight the achievements of Southeast Asia countries, especially in CLMV, because in 1990, the poverty rate of CLMV was higher than that of ASEAN-6 by 1.63 times, but the pattern changed at the beginning of the 21st century.

As seen in **Table 3**, the poverty headcount rate of the selected Southeast Asian countries accounted for 18.4 percent, while the average GDP per capita accounted for US$2,718.5, and the average population reached 45,786.2 million for the period of 1996-2013. Unemployment, inflation, poverty gap rates, and the Gini index accounted for 2.6 percent, 9.1 percent, 6.0 percent, and 22.6, on average, respectively **(Table 3)**.

Influences of social and economic determinants on poverty in Southeast Asia

First, the correlation matrix and VIF were employed to diagnose the multicollinearity of the independent variables in the pooled ordinary least squares (POLS) model. As seen in Table 4, the correlation coefficients among variables were appropriate reflecting that there was no the multicollinearity among the independent variables of the model **(Table 4)**.

Table 2. Percentage of the population living below US$1.25 (PPP) a day in CLMV and ASEAN-6

Countries	2000	2005	2010	2015
ASEAN-6[a]	36	21	19	13
CLMV[b]	45	26	17	19
Ration of CLMV to ASEAN-6	1.23	1.22	0.90	1.46

Source: ASEAN, 2017

Note: [a] means excluding Brunei Darussalam, Malaysia, and Singapore

CLMV means Cambodia, Laos PDR, Myanmar, and Viet Nam

[b] means excluding Myanmar

Table 3. Description of the covariates in the model

Variables	Mean	SD	Min	Max
The rate of poverty headcount (percentage)	18.40	23.51	0.04	91.82
The average GDP per capita (US$)	2,718.55	2,744.73	144.39	10,882.26
Total population (in millions)	45,786.2	33,728.27	863.26	98,401.03
Unemployment rate (percentage)	2.60	2.01	0.5	9.6
Inflation rate (percentage)	9.15	17.04	0	125.3
Poverty gap (percentage)	6.09	10.75	0	51
Gini index	22.66	19.93	0	46.26

Table 4. The correlation matrix

	Headcount	GDP per capita	Population	Unemployment	Inflation	Poverty gap	Gini index
Headcount	1.000						
GDP per capita	-0.586	1.000					
Population	-0.178	-0.151	1.000				
Unemployment	0.136	0.026	-0.245	1.000			
Inflation	0.309	-0.232	-0.117	-0.175	1.000		
Poverty gap	0.957	-0.452	-0.178	0.166	0.243	1.000	
Gini index	-0.078	0.318	-0.049	-0.071	-0.085	0.061	1.000

Results of the regression of the POLS model are presented in **Table 5**. As seen in **Table 5**, adjusted R-squared was equal to 0.902 implying that 90.2 percent of variation of the poverty headcount rate was explained by variables in the model. The GDP per capita, population, and poverty gap have positive influences on the poverty headcount rate, while Gini index negatively affects the poverty headcount rate. Results show that unemployment and inflation rates did not have statistically significant effects on the poverty headcount rate **(Table 5)**.

VIF was equal to 2.56 (VIF < 10) and this implied that there was no multicollinearity among the independent variables of the POLS model **(Table 6)**.

Second, both the FEM and REM were run, and the results are presented in **Table 7**.

Third, the Hausman test was employed to select the most appropriate model. The P-value of the Hausman test was equal to 0.000 (P-value = 0.000) and therefore the FEM was chosen as the most appropriate model (**Table 7**).

Fourth, the Wooldridge test and Wald test were used to examine autocorrelation and heteroscedasticity in the selected model (**Table 8**).

The results of the Wooldridge test showed that the P-value was equal to 0.060 (P-value > 0.05) and this implied that the null hypothesis

Table 5. Regression of the POLS model

Variables	Coefficients	Standard Errors	t	P-value
LogGDP per capita	0.851***	0.19	-4.26	0.000
LogPopulation	0.135**	0.06	2.00	0.050
LogUnemployment rate	0.148	0.15	0.98	0.332
LogInflation rate	-0.140	0.11	-1.27	0.211
LogPoverty gap	0.546***	0.08	6.52	0.000
LogGini index	-0.142**	0.05	-2.41	0.019
Constant	6.715***	1.68	3.99	0.000
Number of observations	63			
F(6, 56)	97.05			
Prob > F	0.000			
R-squared	0.912			
Adjusted R-squared	0.902			
Root MSE	0.766			

*Note: *** and ** mean statistical significance at 1% and 5%, respectively*

Table 6. The VIF test for the multicollinearity

Variables	VIF	1/VIF
LogGDP per capita	5.17	0.193
LogPopulation	5.05	0.197
LogUnemployment rate	1.38	0.723
LogInflation rate	1.35	0.738
LogPoverty gap	1.25	0.800
LogGini index	1.18	0.850
Mean VIF	**2.56**	

should be accepted, which reflected that there was no autocorrelation in the FEM. In terms of the Wald test, the P-value was equal to 0.000 (P-value < 0.05), which reflected that the null hypothesis should be rejected and implied that there was heteroscedasticity in the FEM (**Table 8**). Consequently, the feasible generalized least squares (FGLS) model was run to overcome the heteroscedasticity issue of the FEM. The results of regression in the FGLS model are presented in **Table 9**.

As seen in **Table 9**, the GDP per capita and poverty gap were statistically significant at 1%, and the population and Gini index were statistically significant at 5%, while the unemployment and inflation rates were not significant. Specifically, if the average GDP per capita increased by US$1, then the poverty headcount ratio would decrease by 0.85 percent, ceteris paribus, and this implies the importance of economic growth to poverty reduction in Southeast Asian countries. Likewise, if the Gini index increased by a unit, then the poverty headcount ratio would decrease by 0.14 percent, ceteris paribus. The Gini index reflects the income inequality among people groups in society. The growth of the Gini index implied that the number of rich individuals in the countries increased and this led to a decrease in the poverty headcount rate **(Table 9)**.

By contrast, the population and poverty gap had positive relationships with the poverty headcount ratio. If the population increased by 1,000 people, then the poverty headcount ratio would rise by 0.13 percent, ceteris paribus. The boom of the population has led to obstacles faced

Table 7. Regression of the FEM and REM

Variables	FEM	REM
LogGDP per capita	-0.700**	-0.851***
LogPopulation	-1.852	0.135**
LogUnemployment rate	0.733**	0.148
LogInflation rate	-0.321***	-0.140
LogPoverty gap	0.355***	0.546***
LogGini index	0.013	-0.142**
Constant	25.135	6.715***
Number of observations	63	63
Number of groups	7	7
F(6, 50)	48.93	
Prob > F	0.000	0.000
R square:		
Within	0.854	0.807
Between	0.023	0.983
Overall	0.110	0.912
Correlation (u_i, X_b)	-0.759	0

*Note: *** and ** mean statistical significance at 1% and 5%, respectively.*

by Southeast Asia countries, especially in providing public services such as education, health, and housing. In addition, this issue is one of the reasons for the decreased average GDP per capita in these countries. The poverty gap presents the percentage of the poverty line and certainly, it had a positive relationship with the poverty headcount ratio **(Table 9)**.

Discussion

It has been empirically found that the GDP per capita and Gini index had negative influences on the poverty headcount in Southeast Asian countries. The results also stated that the population and poverty gap had positive relationships with the poverty headcount in the region. Thus, economic growth should be accelerated since it can assist to reduce poverty in Southeast Asia. Obviously, the increase of the number of rich inhabitants in society was also an important driver to mitigate poverty in the region. The growth of the population in the region should be carefully considered by governments because it may enhance poverty in Southeast Asian countries. Policies in redistributing income as well as narrowing down income inequality should be encouraged since these contribute to poverty reduction in the region.

Our findings indicated the importance of economic growth to poverty alleviation and these results are consistent with the conclusions of Adams (2004), Agrawal (2008), Ijaiya *et al.* (2011), and Amini & Bianco (2016). However, the results contradict the arguments of Balisacan *et al.* (2003) because they claimed that a faster economic growth did not directly affect the well-being of the poor in Vietnam. Further, Amini & Bianco (2016) found that poverty elasticity to inequality was equal to 2, which implies that a rise in inequality leads to an increase in poverty in developing countries. By contrast, our results showed that a higher inequality (Gini index) generates a lower poverty headcount ratio.

The research outcomes can be explained by the following reasons. First, after the AFC, due to diversified structures of their economies,

Table 8. The Wooldridge test and Wald test for the FEM

Variables	Wooldridge test (Autocorrelation)	Wald test (Heteroscedasticity)
LogGDP per capita	Null hypothesis: There is no autocorrelation	Null hypothesis: There is no heteroscedasticity
LogPopulation	Alternative hypothesis: There is autocorrelation	Alternative hypothesis: There is heteroscedasticity
LogUnemployment rate	F(1, 6) = 5.351	Chi2(7) = 340.09
LogInflation rate	Prob > F = 0.060	Prob > chi2 = 0.000
LogPoverty gap		
LogGini index		

Table 9. Regression of the FGLS model

Variables	Coefficients	Standard Errors	z	P-value
LogGDP per capita	-0.851***	0.18	-4.52	0.000
LogPopulation	0.135**	0.06	2.12	0.034
LogUnemployment rate	0.148	0.14	1.04	0.299
LogInflation rate	-0.140	0.10	-1.34	0.179
LogPoverty gap	0.546***	0.07	6.92	0.000
LogGini index	-0.142**	0.05	-2.55	0.011
Constant	6.715***	1.58	4.23	0.000
Number of observations	63			
Number of groups	7			
Wald chi2(6)	655.07			
Prob > chi2	0.000			
Log likelihood	-68.893			

*Note: *** and ** mean statistical significance at 1% and 5%, respectively.*

Southeast Asia countries utilized different poverty alleviation and distributive instruments. Except for Brunei Darussalam and Singapore, where land tenure systems did not figure owing to their small sizes, agricultural development with strong land tenure mechanisms became an important factor in Indonesia, Malaysia, and Thailand. Moreover, land tenure and agriculture were used as key instruments for the governments to target poverty reduction (Rasiah *et al*., 2014). Second, after presenting a strong growth in the early and mid-1990s, the economy of Southeast Asia tended to decline. Specifically, by 1998, the economy in Indonesia dropped by 13 percent, by 10.5 percent in Thailand, and by 7 percent in Malaysia. The decreases in the growth rates implied the drops of national incomes in 1998. As a result, unemployment increased in these countries and pushed them to deal with threats in the labor market. For instance, the unemployment rate rose by one-third in Indonesia from 1996 to the first-half of 1998. In Thailand, underemployment increased from 1.7 percent in 1998 to 3.6 percent in 1999. Indeed, the crisis pushed up consumer prices, especially food prices in these countries. In Indonesia, food prices increased significantly by 81 percent in 1998 and by 25 percent in the following year. In Malaysia and Thailand, food prices rose by 9 percent and 10 percent, respectively. Due to the negative impacts of the crisis, unemployment and poverty increased and this led to a worsening of education and health outcomes. Third, interventions of governments and international organizations are necessary to stabilize the market and improve socio-economic development during and after the crisis (Ramesh, 2009). Lastly, a selection of political and

economic strategies will play essential roles in pursuing sustainable development for Southeast Asia countries in the future (Bello, 1999).

Conclusions and Policy Implications

The aim of this study was to evaluate the impacts of social and economic determinants on poverty in seven Southeast Asian countries, namely Laos PDR, Malaysia, Myanmar, the Philippines, Thailand, Timor-Leste, and Vietnam for the nine-year period of 1997-2013 by employing a panel dataset. It was empirically found that the population and poverty gap had positive impacts on the rate of the poverty headcount in Southeast Asian countries. The results also demonstrated that the average GDP per capita and Gini index contributed to reducing poverty in the region.

It is necessary to recommend policies to facilitate economic growth, reduce poverty, and achieve sustainable development in Southeast Asia. First, economic growth should be fostered since it assists in reducing poverty in Southeast Asian countries. Second, although the growth of population provides the labor forces to the economy, population growth in Southeast Asia should be carefully controlled since it increases poverty in the region. Third, an increase in the number of rich inhabitants in the society should be encouraged because it can mitigate poverty in the region. Finally, policies in redistributing income as well as in narrowing down income inequality in each society should be considered by the governments because these contribute to poverty reduction in the region.

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