Do Remittances Matter for Poverty Reduction in ASEAN?

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Abstract

This study examined the influence of remittances and macro-economic variables on poverty in ASEAN-4 countries (i.e., Indonesia, Malaysia, Thailand, and the Philippines) over the 1991 to 2019 period using a panel Autoregressive Distributed Lag (ARDL) model. The study documented that remittance and unemployment have a significant effect on poverty reduction in the long run. Meanwhile, economic growth and the Gini coefficient were found to have an insignificant influence on poverty reduction. The speed of adjustment due to shocks in the short term is restored within eight months into the long-run equilibrium. Our results emphasize that poverty in ASEAN-4 must be addressed with pragmatic macroeconomic policies, especially policies that affect the poor's income. Besides, with the real contribution of remittances, the strengthening of international cooperation related to migrant workers is also essential to alleviate poverty.

Keywords:

poverty, remittances, macroeconomic variables, ASEAN, Panel ARDL.

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Introduction

Governments have made poverty alleviation efforts at various levels in every country, including countries in the Association of Southeast Asia Nations (ASEAN). World Bank (2020) reported that poverty reduction efforts, especially in the last decade in East Asian and the Pacific regions, had shown significant success, resulting in the release of millions of people from poverty. This progress reflects the involvement of the government as well as non-governmental organizations working in this field. Besides, favourable economic conditions have also revitalized the market and provided employment opportunities for most of the population.

In ASEAN's context, the poverty rates generally follow the downward trend of the world poverty rate, as shown in Figure 1. Poverty in some ASEAN countries has been relatively low, such as in Malaysia and Thailand. In Singapore and Brunei Darussalam, the number of poor has been very minimal. Meanwhile, Indonesia and Vietnam are the two countries that have experienced a relatively higher poverty rate. However, these countries have experienced a relatively significant reduction in poverty in the last two decades. According to the World Bank (2018), Vietnam's success in reducing poverty is contributed by an increasing income from highland agriculture, where the farmers are encouraged to grow more profitable industrial crops. Meanwhile, Indonesia has adopted a macro-economic approach by maintaining strong economic growth to reduce poverty. However, the rate of poverty reduction in the country has not been as fast as in Vietnam.

Figure 1. ASEAN's Poverty Headcount Ratio at \$3,20 a Day (2011 PPP)

The generally relatively good foundation of peace between ASEAN countries is a pillar in improving welfare and poverty alleviation. Most ASEAN member countries are highly trade-oriented. This vital trade orientation has translated into an increasing market share of ASEAN globally, both in exports and imports over the past few decades (Karim & Majid, 2010; Intal & Chen, 2017). Each ASEAN country's internal policies

have also driven poverty alleviation efforts, such as higher public spending allocations for education, increased access to health care, and infrastructure expansion. Singapore and Malaysia have maintained their traditional emphasis on household savings and deposit funds, while Indonesia and the Philippines have adopted various poverty reduction policies, despite limited funding. Although its impact is still debated, Thailand has conducted a relatively comprehensive policy, while Vietnam has increased its spending on social protection and essential services for poverty reduction (Cook & Pincus, 2014).

As mentioned above, all the factors have been considered to improve people's living standards in the regions. Still, a variable has been (relatively) ignored in poverty alleviation efforts, namely international remittances or remittances. This thinking begins from the high population, and low availability of job opportunities at the lower-middle-class level is estimated to be a push factor for job searches out of their areas or out of their home countries. Such movements are commonly referred to as "Migrant Workers." Martin and Zürcher (2008) opined that a pull factor of the population to migrate includes recruiting labor and families' unification.

Remittances from migrant workers can improve the welfare of the lowest segment of the population as it allows recipients to increase their consumption. The literature on remittances shows that this monetary transfer from migrants to their relatives at home leads to higher consumption levels, better education, and greater access to health care (Amuedo & Pozo, 2004). Remittances also affect job market participation and entrepreneurial decisions and change recipient households' behavior and opportunities (Acosta et al., 2009).

As for the case of ASEAN countries, it also seems that remittances negatively related to poverty rates, as shown in Figure 2. Remittances in ASEAN-4 (i.e., Indonesia, Malaysia, Philippines, and Thailand) have moved inversely to the poverty headcount ratio. Over more than 30 years, the per capita remittances in the Philippines and Thailand have increased quite sharply. On the other hand, the poverty rate in ASEAN countries has decreased significantly with Indonesia and Thailand's immense contribution.

Figure 2. Evolution of Remittances and Poverty in ASEAN (1991-2018)

The above phenomenon raises various allegations about the impact of remittances on poverty, although most of the study results suggest poverty alleviation's adverse influence. For example, a study conducted by Adams & Cuecuecha (2013) in Ghana produced three findings. First, compared to what they would spend without a remittance receipt, households receiving remittances spend less on food margins. Second, households receiving remittances spend more on margins for three investment items: education, housing, and health. Third, receipt of remittances dramatically reduces the likelihood of household poverty. These findings support the growing presumption that remittances can reduce poverty and increase investment in developing countries.

It cannot be denied that remittance income increases purchasing power and helps improve the economic resilience of recipient households. Research conducted by Airola (2007) in Mexico showed that the share of food in total consumption was significantly lower, while spending on durable goods, including health and housing, was considerably higher among households receiving remittances. This indicates that remittance flows helped increase purchasing power and basic needs, especially for non-food consumption. Rising income from remittances has also proven to provide a stronger safety net and reduce food insecurity (Lacroix, 2011).

Another study developed by Wagle & Devkota (2018) in Nepal's case using random-effects regressions documented strong evidence of the increasing economic well-being effects of foreign remittances, primarily when originating from countries other than India. This analysis's findings are generally consistent with results from existing studies for Nepal, such as those conducted by Lokshin et al. (2010), which found that a fifth of Nepal's poverty reductions between 1995 and 2004 were attributed higher migrant workers and remittances. In Southeast Asia, Osaki (2003) researched the effect of remittances on household welfare in Thailand using survey data conducted by the National Migration Survey of Thailand (NMS) in 1992. The results confirmed that remittances have a relationship with socioeconomic and demographic factors in Thailand. According to him, international migration is one of the right ways for low-income households to overcome household income shortage. Similarly, in Indonesia's case, Nahar & Arshad (2017) found that the increase in remittances led to a reduction in poverty by 2.56%. Meanwhile, inflation and exchange rate variables each have positive and negative effects on poverty.

A broader perspective on remittances-poverty nexus was developed by Vacaflores (2017). His research examined the effectiveness of international remittances in reducing poverty and inequality in Latin America. Using a dynamic panel regression model for 18 Latin American countries in the period 2000-2013, the study showed that increased remittances had a statistically negative and significant impact on poverty and inequality in the region. In particular, remittances seem to have a more substantial effect in countries that receive large remittances where more extensive parts of their population are working abroad. Regional differences also affect the impact of remittances on people's welfare, but financial developments have a limited effect on remittances' effectiveness on poverty and inequality. Imai et al. (2014) examined remittance, growth, and poverty relationships in

twenty-four Asia-Pacific countries. Using an approach to static panel data and two-stage least squares (2SLS) panel, they confirmed that remittance flows had benefited economic growth in the Asia-Pacific region. The analysis also shows that volatility in capital flows, such as remittances and foreign direct investment is harmful to economic growth. Thus, although remittances contribute to the economy's performance, they are also a source of output shocks. Finally, remittances contribute to poverty reduction, primarily through its direct effects. Migration and remittances have the potential to be supporting broader development efforts.

Using a broader sample with the classification of developing countries and dynamic panel estimators, Masron & Subramaniam (2018) investigated the implications of remittances on poverty in 44 developing countries from 2006 to 2014. Their findings provide strong evidence that poverty rates tend to be lower in countries with higher remittance flows. Remittances have a statistically significant impact on poverty, which means that remittances are a significant determinant of poverty on the panel of emerging economies. These results support the fact that remittances improve the recipients of a household's well-being by increasing their income and consumption at the micro-level. These findings are also supported by Nahar & Arshad (2017), Banga & Sahu (2010), and Chaudhry & Imran (2013), which found that remittance flows are more helpful to reduce poverty in a developing country.

If we trace previous studies on remittances and poverty, there is little analysis of remittances and poverty in the ASEAN region. Most of the researches was conducted in Latin America and Africa. Studies focusing on the ASEAN region still refer to the general discussion of developing or global countries. For example, Azam et al. (2016) examined the impact of remittances along with several other macroeconomic variables (i.e., foreign assistance, debt, human capital, inflation, and income) on poverty alleviation in 39 countries, including lower, middle, and high middle-income countries in the period 1990-2014. The results of Azam et al. (2016) were quite different from most of the above-reviewed previous studies. Using the Fully-Modified OLS (FMOLS) panel method revealed an increase in income (GDP per capita) led to a significant poverty reduction.

Meanwhile, foreign remittances positively impacted poverty alleviation and were statistically significant only for upper-middle-income countries. The impacts of aid and debt on poverty were found to be positive. This indicates that both factors contribute positively to the expansion of poverty. These results show no concrete evidence that foreign aid has effectively reduced poverty.

Thus, it is interesting to examine the time effects of these two variables. Although the existing literature shows that the international remittances contribute to reducing poverty, its impact on the recipient's household cannot directly be interpreted as improving overall well-being. When most people who migrate are from the upper-middle class, the effects of remittances on poverty will be significantly influenced by time because there is a distance in the money turnover from remittances to reaching the poorest segments of the region. This shows that the findings rely heavily on how

it spreads throughout a country's economy. However, when these remittances flow to the population's poorest segments, it should directly affect the recipient's standard of living and reduce poverty.

Considering poverty as a multi-complex social issue and many variables that influence it in the process; therefore, our study considers a series of macroeconomic variables that strongly affect poverty as the control variables. For example, Mulok et al. (2012) explored how economic growth affects poverty in Malaysia. Using real GDP as a proxy for economic growth, they found that the GDP significantly influenced poverty reduction even at the 1 percent level. These results are one of the references in the selection of GDP as a control variable in our study in addition to several other studies related to GDP and growth (Sabir & Tahir, 2012; Sasmal & Sasmal, 2015; Dewi et al., 2018; Majid et al., 2019; Nansadiqa et al., 2019).

Another economic variable that affects poverty, in addition to economic growth, is income inequality. Hassan et al. (2015) found a positive and significant relationship between income inequality and poverty levels both in the long- and short-term. In micro perspectives, Cheema & Sial (2012) determined the long-term relationship between poverty, income inequality, and growth using data sets of income and household expenditure surveys between 1992/93 and 2007/08 in Pakistan. They found that growth and income inequality significantly affected poverty. The increase in GDP in developing countries leads to high-income disparities in the early stages of a country's economic development (Cheema & Sial, 2012). Although the increase in GDP lowers poverty, the level of inequality remains constant. On the other hand, the inequality represented by this Gini coefficient has a positive and significant effect on the poverty level.

Human capital in the form of educational achievement and health status also affects the number of poor people. Higher levels of education from households have been shown to reduce poverty (Rahman, 2013). In terms of health, heads of well-health and primed households also enjoy higher economic well-being (Weaver, 2012), while those with health problems increase the chances of living in poverty (Henly et al., 2005). Unemployed or inactive households increase the likelihood of poverty or lower economic well-being (Rupasingha & Goetz, 2007). Households with higher unemployment rates are also more likely to be low (Mukherjee & Benson, 2003). Following these studies' findings, our study also considers one of the human capital elements as the research control variable, namely the unemployment rate.

The differences in the results of previous studies and similar limited studies conducted in the ASEAN region have motivated our research to empirically examine the influence of remittances on poverty reduction in ASEAN. Besides, previous studies mostly relied more on the micro-panel schemes in econometrics where the length of the period is smaller than the number of individuals observed. Thus, this study aims to fill these gaps in the existing literature on remittances-poverty nexus in ASEAN using more robust macro panel schemes by considering both long- and short-term influences. Our study also utilizes a more comprehensive data set than the previous studies (Lokshin et

al., 2010; Azam et al., 2016; Vacaflares, 2017; Masron & Subramaniam, 2018) that covers the period from 1991 to 2019.

Our study's findings are hoped to shed some light for the policymakers in ASEAN countries in designing macro-economic policy to utilize remittances for poverty reduction optimally. Our results are also expected to enrich the existing literature on remittances-poverty nexus from developing countries of ASEAN.

Methods

This study used the Autoregressive Distribution Lag (ARDL) panel approach to explore the role of time and relationships between remittance and poverty. The dependent variable used in this study is the poverty level. In contrast, the variable remittances from migrants (remittances) and other macroeconomic variables, namely GDP per capita growth, unemployment rates, and Gini coefficient, are included as the independent variables. The ASEAN-4 countries investigated in this study comprise Indonesia, the Philippines, Thailand, and Malaysia.

The general form of the ARDL model tested in this study is based on Pesaran et al. (2001), as follows:

$$Y_t = \alpha_0 + \alpha_i t + \sum_{i=1}^p \theta_i Y_{t-i} + \beta' X_t + \sum_{i=1}^{q-1} \beta^{*'} \Delta X_{t-i} + u_t \quad (1)$$

Since our study uses panel data, thus the Equations (1) could be re-written, as follows:

$$Y_{j,t} = \alpha_0 + \alpha_i t + \sum_{i=1}^p \theta_{1i} Y_{j,t-i} + \beta' X_{i,t} + \sum_{i=1}^{q-1} \beta^{*'} \Delta X_{j,t-i} + u_{j,t} \quad (2)$$

Substituting our investigated variables into Equation (2), the following panel ARDL model can be re-written:

$$\begin{aligned} \Delta POV_{j,t} = & \alpha_0 + \sum_{i=1}^n \alpha_{1i} \Delta POV_{j,t-i} + \sum_{i=1}^n \alpha_{2i} \Delta REM_{j,t-i} + \sum_{i=1}^n \alpha_{3i} \Delta GDP_{j,t-i} \\ & + \sum_{i=1}^n \alpha_{4i} \Delta UNP_{j,t-i} + \sum_{i=1}^n \alpha_{5i} \Delta GINI_{j,t-i} + \beta_{11} POV_{j,t-1} + \beta_{21} REM_{j,t-1} \\ & + \beta_{31} GDP_{j,t-1} + \beta_{41} UNP_{j,t-1} + \beta_{51} GINI_{j,t-1} + u_{j,t} \end{aligned} \quad (3)$$

Where *POV* is a poverty level, *REM* is remittances, *GDP* is per capita income growth, *UNP* is the unemployment rate, *GINI* is Gini coefficient, α_i is a short-term estimated coefficient, β_i is a long-term estimated coefficient, u is the error term, j is the country j , and t is the period t .

The poverty rate is measured in the form of a poverty headcount ratio at USD3.20 a day. The percentage of remittances measures remittance to per capita GDP. GDP variables are represented by GDP growth per capita, unemployment is the percentage of unemployed to the total labor forces, and Gini is the index of Gini to represent the income disparity level. All data was obtained from the publication

of the World Bank and World Development Indicators (2020). In estimating the remittances-poverty nexus, the study follows the standard procedures of estimation. It starts by testing the data stationarity using Levin, Lin and Chu (LLC) and Phillips-Perron (PP) tests, followed by panel cointegration test of Kao (1999) and panel ARDL model estimation.

Result and Discussion

This paper uses the ARDL model in panel form to test the effect of remittances and macroeconomic variables on the poverty level. In the first part, the findings of stationary and cointegration of panel data are provided and discussed. Meanwhile, in the second part, the ARDL panel model's estimates are provided and discussed in the long-run. Finally, the short-term ARDL model estimates, along with the correction term error value, are highlighted.

Table 1. The panel of Unit Root Tests Results

Variables	Level & First Diff.	Intercept / Trend	Prob.		Decision
			Levin, Lin, and Chu (LLC)	Phillips-Perron (PP)	
Poverty	Level	Intercept	0.4919	0.1732	I(1)
		Interc. & trend	0.3104	0.7307	
	First diff.	Intercept	0.0060	0.0001	
		Interc. & trend	0.0350	0.0004	
Remittance (Log)	Level	Intercept	0.0010	0.0091	I(0)
		Interc. & trend	0.7111	0.5084	
	First diff.	Intercept	0.0513	0.0000	
		Interc. & trend	0.4456	0.0000	
GDP Per Capita Growth	Level	Intercept	0.0000	0.0000	I(0)
		Interc. & trend	0.0004	0.0000	
	First diff.	Intercept	0.0000	0.0000	
		Interc. & trend	0.0000	0.0000	
Unemployment	Level	Intercept	0.4767	0.2546	I(1)
		Interc. & trend	0.3731	0.7278	
	First diff.	Intercept	0.0000	0.0000	
		Interc. & trend	0.0000	0.0000	
Gini	Level	Intercept	0.9828	0.9939	I(1)
		Interc. & trend	0.5075	0.7137	
	First diff.	Intercept	0.0000	0.0000	
		Interc. & trend	0.0000	0.0000	

The findings of stationary tests based on Levin, Lin, and Chu (LLC) and Phillips-Perron (PP) Fisher Chi-Square are reported in Table 1. As observed from Table 1, the variables of poverty, unemployment, and Gini index are found to be stationary at the first difference. Meanwhile, remittances and GDP growth per capita are stationary at the level. The panel of unit root test results showed a mixture of I(0) and I(1) where it confirmed the suitability of the use of the ARDL panel model for the case of our study.

Cointegration tests benefit from analyzing variables that are estimated to have a stable relationship in the long run. In this study, the Kao (1999) test that comprises both Dickey-Fuller (DF) and Augmented Dickey-Fuller (ADF) is used to test the panel data cointegration. The cointegration test output gives rise to residuals obtained by regressing free variables to the OLS bound variables. The results of the panel cointegration test are reported in Table 2.

Table 2. Kao (1999)'s Cointegration Test

ADF	t-statistic	Prob.
	-2.00479	0.0225*
Residual variance	5.99338	
HAC variance	7.70367	

Note: *** p<0.01, ** p<0.05, * p<0.1.

Table 2 describes panel cointegration testing results for the ASEAN countries over the period from 1991 to 2019. The test results showed a significant probability value at a level of 5%. In other words, it can be concluded that there is a possible correlation of cointegration between remittances and other macro variables with poverty in ASEAN in the long term. These findings show the tendency of the variables to move toward the same direction in the future. Thus, to predict a variable's movements in the model, one can rely on the other variables' movements' trends.

ARDL panel results are estimated from the best model, where lag selection on ARDL models (2, 2, 2, 2, 2) is conducted using the Akaike Information Criteria (AIC) lag criteria by limiting the length of all variables for two years. Table 3 presents the long-term relationship between remittances (REM) and other macro variables (GDP, UNP, & GINI) with poverty (POV) as predicted by the alleged pooled mean group (PMG). ARDL panel models are estimated with interceptions and trends. The estimated result of PMG in Table 3 shows that remittances negatively affect poverty with a coefficient of -10.45. This indicates that a 1 percent increase in remittances will reduce poverty by 10.45 percent in the long run. On the other hand, GDP has no effect on poverty in the long run. These long-term remittance results seem to corroborate previous researchers' findings in which remittances contributed significantly to the reduction in poverty (Imai et al., 2014; Vacaflares, 2017; and Nahar & Arshad, 2017).

Table 3. Long Run Results

Variables	Coefficient	Std. error	t-statistic	Prob.
LREM	-10.45219	2.70517	-3.86378	0.0003***
GDP	-0.55566	0.33598	-1.65383	0.1028
UNP	9.01219	2.87236	3.13756	0.0025***
GINI	-0.38416	0.42120	-0.91206	0.3650

Note: *** p<0.01, ** p<0.05, * p<0.1

The unemployment variable was found to positively affect long-term poverty, with an estimated coefficient of 9.01. Thus, a 1 percent drop in unemployment would lower the poverty rate by 9.01 percent and vice versa. However, income inequality has did not affect poverty in ASEAN countries. These empirical findings corroborate previous research conducted by Siyan et al. (2016), where unemployment proved to be significant in causing poverty. On the other hand, the finding that income inequality did not affect poverty seems to reject the results of research conducted by Hassan et al. (2015), which documented a significant positive link between income inequality and poverty in Pakistan.

An increase in economic growth supposedly benefits almost all citizens in a country and, in turn, reduces poverty. If economic growth increases its citizen's income in equal proportions, then the income distribution would not change. Our finding showed weak evidence of the positive effect of economic growth on poverty reduction in the long-run at the 10 percent (10.28 percent) level of significance. This implies that the direction of macroeconomic policies that encourage economic growth in the ASEAN-4 region is already heading towards poverty reduction but at the weakest level. The fact that so many of the world's poor people now live in middle-income countries (which, by definition, have experienced moderate economic growth) suggests that economic growth alone is not sufficient to reduce poverty (Mulok et al., 2012). If economic growth is pro-poor, why is there still a global poverty problem, particularly in developing countries, such as ASEAN?

About the insignificant effect of income inequality on poverty in the long run, perhaps, it is worth considering some arguments stating that inequality does not need to get all the attention to distract from the real problem (Peterson, 2017). Brückner & Lederman (2015) believed that inequality would only be related to economic growth because the rich save more than middle-lower income groups by generating more investment resources. Thus, it makes sense when our study showed an insignificant effect of inequality on poverty because most incomes are controlled by a small fraction of people who only increase savings. On the other hand, economic activity generated from savings would also increase the poor's income, but with a small proportion. This explains the existence of a weird relationship between inequality and poverty.

Furthermore, the other two variables, namely remittances and unemployment, are documented to significantly affect the poverty rate. The implications are clear that

both variables affect as they directly impact the incomes of poor people. The transfers of remittances by the migrant workers to their original home country had directly increased the income and even their family savings. As for unemployment, the expansion of employment directly absorbs the labor force and further reduces the number of unemployed. In this study, a decline in unemployment has been proven to help reduce poverty. This means that jobs increase the amount of income from the poor and increase household savings (Munir et al., 2011; Gani, 2016).

From another point of view, remittances are a consequence of domestic labor's oversupply, further encouraging workers to migrate. Therefore, a pragmatic approach is needed where macroeconomic strategies, such as industrialization policy and job creation, must also be supported by access for the poor and those vulnerable to poverty. Social security is also one of the policies that must be strengthened because significant price changes will encourage vulnerable people to fall below the poverty line.

Table 4. Short Run Results

Variable	Coefficient	Std. error	t-statistic	Prob.
COINTEQ01	-0.08363	0.04543	-1.84076	0.0700*
D(POV(-1))	0.42606	0.16876	2.52457	0.0139**
D(LREM)	-0.78136	1.24769	-0.62624	0.5333
D(LREM(-1))	7.36971	4.47149	1.64816	0.1039
D(GDP)	-0.09896	0.14373	-0.68849	0.4935
D(GDP(-1))	-0.00208	0.03712	-0.05602	0.9555
D(UNP)	0.03394	0.10990	0.30884	0.7584
D(UNP(-1))	-0.02168	0.61414	-0.03530	0.9719
D(GINI)	0.03782	0.39173	0.09655	0.9234
D(GINI(-1))	-0.01314	0.12828	-0.10244	0.9187
C	1.55087	2.43779	0.63618	0.5268

Note: *** p<0.01, ** p<0.05, * p<0.1.

After analyzing the long-term relationship between remittances and other macroeconomic variables to poverty, this section discusses the results of these variables' short-term studies. As reported in Table 4, PMG results showed a significant and negative error correction term (ECT) of -0.0836. The ECT coefficient's negative value means that the model's variables move in a convergent way to restore stable conditions in case of short-term shocks. Speed of adjustment of ECT coefficient of -0.0836 shows that the adjustment has taken up to about eight months to recover from the short-term shock. The exciting thing about these findings is that none of the existing

independent variables affected poverty in the short-term. This fact implies that, in general, low households in ASEAN are classified as having resilience in the short-term. This conjecture is based on the poverty conditions in the region dominated by rural poverty (World Bank, 2020).

Our findings of the significant effect of remittances on poverty in the long-run are disharmony with most previous results (Vacaflores, 2017; Nahar & Arshad, 2017; and Chaudhry & Imran, 2013). However, on the other hand, the findings that remittances did not affect poverty in the short-term corroborate Musakwa & Odhiambo (2019). They found that when poverty is measured by household consumption expenditure, remittances had no impact on poverty in Botswana. The remittances also do not affect the long-run when poverty in question is measured by household spending (Musakwa & Odhiambo, 2019). A previous study by Azam et al. (2016) classified the impact of remittances globally based on GDP per capita. It documented that foreign remittances have a positive impact on poverty alleviation only for upper-middle-income countries. As three of the four ASEAN countries sampled in our study are upper-middle-income countries (i.e., Malaysia, Indonesia, and Thailand), it is plausible for the remittances to have only a significant effect long-run.

Table 5. Cross-Section Short-Run ECT Coefficients

Variables	The Philippines		Thailand		Indonesia		Malaysia	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
COINTEQ01	-0.1900	0.0005***	-0.0036	0.0536*	-0.0126	0.0001***	-0.1283	0.0001***
D(POV(-1))	0.7124	0.0005***	0.5107	0.0001***	-0.0626	0.0534*	0.5437	0.0003***
D(LREM)	0.8670	0.9078	1.8178	0.5744	-2.5989	0.8765	-3.2113	0.1681
D(LREM(-1))	2.8781	0.6110	0.9483	0.6096	20.5390	0.3240	5.1134	0.0844*
D(GDP)	0.1014	0.0002***	-0.0534	0.0002***	-0.5181	0.0000***	0.0742	0.0000***
D(GDP(-1))	0.0125	0.0362**	-0.0628	0.0002***	0.0970	0.0020***	-0.0551	0.0000***
D(UNP)	0.2903	0.7321	-0.0341	0.8551	0.1083	0.9323	-0.2288	0.4176
D(UNP(-1))	-0.4603	0.5000	1.5717	0.0010***	0.1519	0.9120	-1.3501	0.0256**
D(GINI)	0.4919	0.0060***	0.4654	0.0015***	-1.1323	0.0010***	0.3263	0.0008***
D(GINI(-1))	-0.2657	0.0371**	0.1359	0.0477**	0.2689	0.0461**	-0.1917	0.0054***
C	8.4225	0.7833	-0.0929	0.9276	-3.0287	0.0624*	0.9026	0.8692

Note: *** p<0.01, ** p<0.05, * p<0.1.

A comprehensive understanding of the speed of adjustment and fluctuations in the short-term could be viewed from Table 5 when we sort out the coefficients of ECT from each country. Table 5 shows that Thailand and Indonesia are countries that have experienced relatively fast adjustment speeds. The short-term imbalance of

remittances and other macroeconomic variables in Thailand and Indonesia in the previous year was adjusted in a somewhat shorter period. Meanwhile, the coefficients of ECT for Malaysia and the Philippines tend to be slow at 0.1283 and 0.1900, respectively. This means that the short-term shocks in Malaysia and the Philippines in the previous year could not be adjusted in the ongoing year but somewhat adjusted for the coming year. The overall ECT coefficient on short-term ARDL panel results (Table 5) shows that adjusted speeds are generally relatively fast in response to short-term imbalances.

Short-term fluctuations of independent variables indicate that autoregressive variables (lag poverty) both overall and in each country significantly affect poverty levels. Our findings are in line with Vacaflores (2017), who stated that poverty is a persistent variable that could not be changed within a shorter period. This further confirms that the poverty alleviation program would take a more extended period to be effective. The macro-economic policies for poverty reduction might be ineffective in a short period. Still, in the longer-period, they would reduce the poverty rate in the ASEAN region. Thus, a macro-economic policy harmonization among the ASEAN countries to combat poverty should be evaluated and enhanced from time to time, as its effectiveness takes a more extended period.

Besides, Table 5 shows that remittance receipts have an insignificant effect on poverty in the short-term. This is demonstrated by all insignificant p-values, except for lag 1 of the short-term remittance (DLREM(-1)) for Malaysia's case. The estimated short-term coefficient of DLREM(-1) for Malaysia has shown no adverse effects following the existing macroeconomic theories. Unemployment is also found to be insignificant in the short-term, except for the coefficient lag (-1) for the cases of Thailand and Malaysia. These findings are in line with macroeconomic theories that state, although the market-clearing model assumes that all wages and prices are flexible, in the real world, some wages and prices are rigid (Mankiw, 2013). In the labor market, a person who works, if dismissed, would be given a guarantee in the form of severance (or other terms) so that in the short-term, those who lose their jobs can still survive. Finally, the dominance of rural poverty in ASEAN reinforces this finding because most rural communities can maintain their primary consumption by relying on natural economic resources.

Finally, the cross-section results for GDP per capita growth and income inequality were very different from the findings of short-term (overall) and long-term estimates. These two macroeconomic variables have significant short-term fluctuations in each country. This means that macroeconomic policies carried out in the ASEAN-4 have been generally temporary. Cook and Pincus (2014) stated that the growing awareness of the need to strengthen social protection in ASEAN coincides with a global reassessment of social assistance's role in reducing poverty. The reversal of prevailing assumptions about the disincentive effects of direct transfer policy and government agencies' capacity to provide direct financial assistance without leaks and political manipulation further obscures the conceptual differences between social security and poverty alleviation programs. This

condition makes the effect of macroeconomic policy on poverty alleviation is ineffective in the long term.

Conclusion

This study empirically examined the short and long-run effects of remittances on poverty reduction in ASEAN-4 (i.e., Indonesia, Malaysia, Philippines, and Thailand) over the period from 1991 to 2019. Using the panel ARDL model, the study found that GDP growth per capita and income inequality have no significant effect on poverty. Meanwhile, the study documented the significance of remittances and unemployment in connection with poverty. This implies that unemployment is one of the significant economic determinants contributing to poverty in the ASEAN region. From another point of view, remittances are a consequence of domestic labor's oversupply, further encouraging workers to migrate. Remittances sent directly by migrant workers to their families in their home countries in the long-term have improved the welfare of low households in this ASEAN region.

Meanwhile, in the short-term, poverty lagging values become the only variables that significantly affect the contemporaneous poverty in the ASEAN-4 countries. However, fluctuations of macroeconomic variable shocks in the short-term were adjusted to the long-run equilibrium within the next eight months. This fact implies that, in general, low households in ASEAN are classified as having resilience in the short-term because the majority of poor people in the region are dominated by rural poverty. Those poor people generally have the resilience to the bare necessities available by nature.

Our findings provide some policy implications, especially the policies that can affect the incomes of the poor. One of the things that can be done is policies that can create conducive working conditions and eliminate barriers to low participation in the growth process by increasing employment access and investing in necessary infrastructure and social protection. Given the significant remittance income contribution to reducing poverty, strengthening international employment cooperation can be an excellent alternative policy to be implemented. Prevention of illegal labor delivery practices, improvement of workers' skills and capacity, and guaranteeing the safety of migrant workers are priorities in pushing this alternative policy. On the other hand, because remittance recipient households in the ASEAN region are suspected to be the poor and those who are likely to be needy and depend mainly on natural resources for their livelihoods, environmental conservation policies should be integrated into the poverty alleviation program.

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