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Modelling Linkage of Globalization and Financial Development to Human Development in CLMV Region

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Abstract

Several existing theories emphasize the strong positive effects of globalization and financial development on human development, either because of the rising economic welfare and the higher productivity of workers generating from increasing skill specialization or because financial development will create an increase of investment in education which is the major source of economic growth and human development. We show that there is no such a huge promise in the case of CLMV countries. The globalization and financial development does unquestionably generate statistically positive impact but with a small magnitude. We suggest that this informative finding reflects the rapid increase of globalization and financial development in CLMV countries ameliorating significantly only human development of urban population but decreasing for rural population. This indicates the benefits of globalizing forces concentrate in urban region where the huge majority of CLMV population are living in rural area.

Key words: Financial Development, Globalization, Human Development, Analysis of Economic Significance, CLMV Region

JEL Classification: C01, C14, C31, F6, F21, O15

I. Background and Motivation

The rapid rising of globalization and financial development of both developed countries and much of the developing countries, especially the CLMV countries¹, depicted in Appendix 6 and 7, is seen as one of the most major economic catalysts in stimulating economic growth and human development during last decades (B. Sharma & A. Gani, 2004; A. Davies & G. Quinlivan, 2006; U. Gunduz, 2009; F. K. Rabbanee, 2010; Shahrabi, 2011; A. Assadzadeh & J. Pourqoly, 2013; Z. Hamid & R. M. Amin, 2013; Pérez-Segura, 2014; G. Mustafa, 2017; Santhosh Kumar, 2017; S. T. Jawaid & A. Waheed, 2017; Santhosh Kumar, 2017; & S. T. Jawaid & A. Waheed, 2017).

The highly popular approaches, building on the paradox of absolute and comparative advantage theories of A. Smith (1808) and D. Ricardo (1817), view that everyone is better-off through which globalizing forces by international trade and/or foreign direct investment (FDI) will result in increasing human capital and physical accumulation, which stimulate economic growth and household income (Harrod & Dommar, 1939-47; Solow, 1956, & Sabi, 2007); ameliorating international specialization (Eli Hecksher, 1919, Bertil Ohlin, 1933, and Paul Samuelson, 1953); rising capital education (Ronald Findlay, and Henryk Kierzkowski, 1983); promoting technology, innovation transformation and capital flow (S. D. Muhammad et al., 2010); encouraging mobility of both physical and financial capital (Dreher Axel, 2006, B. Sharma & A. Gani, 2007, Zhuang, 2016, M. Azam, 2015, and Steensma S. R., 2010); stimulating multinational firms allowing technological transfers to emerging countries (Agell & Lundborg, 1995, Davis, 1998, Albert & Merckl, 2001, Kreickemeier & Nelson, 2006, and Hellier, 2012); and reducing poverty as the proxy of human development and increasing welfare (A. Assadzadeh & J. Pourqoly, 2013).

A different but related challenge is emphasized by the positively significant effect of financial development on human development in which it is considered as the essential sources in increasing private investment and consumption (Cyn-Young Park, 2011); rising investment in education and other socio economic instruments (A. Ozpolat, 2016); promoting economic growth (Ghamati, 2014; Sehwat, 2014, & A. A. Kargbo, 2016); and enhancing bank private credit and domestic private credit contributing significantly to economic growth, both directly and through their influence on human capital accumulation (A. Abubakar, 2015).

The prime objective of the study is to illustrate the stylized facts of globalization and financial development on human development either in empirical or theoretical frameworks. The main objective is firstly to investigate their relationship relying on panel data set of small – dimension, (1995-2016) obtained from International Monetary Fund (IMF) and World Bank. Secondly, it aims at examining the economic significance to find out the smallest and largest share from estimated regressions. The key contribution inside the study is insightfully. Some interesting factors are adopted to examine the relationship at cross – sectional country level. Moreover, this study is the first empirical investigation in the context of CLMV region.

Therefore, the organized outline of the study is structured as follows: 1st section is to demonstrate the background and motivation whereas 2nd one is to design the methodology and data description. The 3rd section is to interpret the empirical results along with technical observations and analysis of economic significance. The last section is to make the concluding remarks and highlight some major policy recommendations.

¹ The CLMV countries represent Cambodia, Lao PDR, Myanmar and Viet Nam.

II. Econometric Methodology and Data Calculation

2.1. Data Collection and Hypothesis

From existing empirical studies, the choice of variables is designated due to the current stylized facts of CLMV region. In accordance to an aspect of simplicity and generalizability, Human Development Index (HDI), developed by the United Nations Development Programme (UNDP) and computed from three main composite statistics, namely life expectancy, education, per capita income, uses as the proxy of human development. It extracts annually from UNDP and IMF. The HDI trend of CLMV region reports in appendix 2 and 3 in the last section.

Globalization employs as the proxy of per capita trade and FDI net flows (% of GDP) extracts from the World Development Indicators (WDI), the World Bank. Furthermore, attempting to capture the impact of trade on HDI, we model the change in HDI index as a function of per-capita trade. It is because most of the studies used trade (% of GDP) to investigate its impacts to HDI. Yet, we are conversely concerned with trade as it impacts people rather than those as percentage of GDP. It differs from other empirical studies by which trade (% of GDP) is applied as the proxy (its trend illustrates in appendix 6). Therefore, per capita trade, following the study of A. Davies and G. Quinlivan (2006) equates as follows:

$$\text{per capita trade}_{it} = \ln \left[\frac{(\text{Export} + \text{Import})_{it}}{\text{Population}_{it}} \right] - \ln \left[\frac{(\text{Export} + \text{Import})_{i,t-1}}{\text{Population}_{i,t-1}} \right] \quad (2.1)$$

In line to some existing literature reviews, financial development employs two main indicators, namely domestic credit to private sector and broad money supply (M2) as the percentage of GDP. This indicator has become a standard measure of the financial depth and size of the financial intermediary sector (Alkhuzaim, 2014). It imports annually from WDI, the World Bank. Its trend shows detail in appendix 7.

Other control variables such as total, rural, urban population growth rate (%) and labor force participant import from WDI, the World Bank. The choice of control variables closely follows those applied in HDI regression and empirical research analysis (A. Abubakar, 2015; A. M. Figueroa, 2014; A. Hatemi-J & M. Shamsuddin, 2016) for example. All variables transfer to the nature of logarithm function and extract annually. Therefore, their detail description and hypothesis demonstrate in appendix 1 in the last session. Moreover, in order to examine the possible differences on how the vitality of globalization and financial development affect to HDI in CLMV region, the study considers several specifications due to the baseline model. The baseline model including and excluding control variable simultaneously is employed. The other models incorporating dummy variables and interacting with the proxy of globalization and financial development to examine differential effects from individual country of Cambodia, Lao PDR, Myanmar and Vietnam are adopted.

2.2. Specification Function: Globalization, Financial Development and Human Development

We model the specification function of human development and its impacts from globalization, financial development and other control variables in the simple form of panel data analysis as follows:

$$\text{HDI}_{it} = \alpha + \gamma \text{globalization}_{it} + \varphi \text{fin}_{it} + \delta W'_{it} + \mu_{it} \quad (2.2)$$

$i = 1, \dots, N \text{ and } t = 1, \dots, T$

Where,

- HDI_{it} is a matrix of explained variable, using as the proxy of human development index (HDI).
- $globalization_{it}$ is a matrix of globalization variables, adopting as the proxy of international trade (trade per capita) and foreign direct investment (FDI) flows as the percentage of GDP.
- fin_{it} is a matrix of financial development variables, applying as the proxy of domestic credit provide to private sector and broad money supply (M2) as the percentage of GDP.
- W'_{it} is a set of control variables from which assume to be impacted statistically and economically to HDI. In the regression equation, total, urban and rural population growth rate (%) and labor force participant are applied.
- $\alpha, \gamma, \delta, \varphi$ is vector parameters to be determined in estimated regression.
- μ_{it} is an error term and it is assumed to be Gaussian normal distribution, $N(0, 1)$.

To examine effect from individual country and time dummy applying as binary variable, say 0 and 1, the study subscribes its function as follows: let's consider country dummy $CD_r = 1$ for r equates to the evaluated country, as example $CD_r = 1$ if $r = cambodia$ and 0 otherwise. As the result, we denote as follows:

$$\text{individual country dummy} = \theta_{rt} CD_r \quad (2.3)$$

Where, country dummy, (CD_r) and $r = 1, \dots, R$ is dummy variable taking number 1 for country r , and 0, otherwise. More importantly, FDI, trade per capita, broad money supply and domestic credit provided to private sector are adopted as country dummy in line with multiplying by its own determined factors of globalization and financial development variable. Again, it calculates as multiplying to country dummy variable. With regard to time dummy, let's denote $\tau_j T_j$ as time trend effect or time dummy where τ_j is the parameters of time trend, T_j . It equals to 1 on year j and 0 otherwise. For any given year j , denotes the function by setting $T_j = 1$ for j equates to determined period and 0 otherwise. As the result, we get an expression as follows:

$$\text{time dummy} = \sum_{j=1}^{T-1} \tau_j T_j \quad (2.4)$$

From equation (2.2), (2.3) and (2.4), we can accordingly rewrite a new specification function of human development in CLMV region as follows:

$$HDI_{it} = \alpha + \gamma globalization_{it} + \varphi fin_{it} + \delta W'_{it} + \theta_{rt} CD_r + \sum_{j=1}^{T-1} \tau_j T_j + \mu_{it} \quad (2.5)$$

$i = 1, \dots, N, r = 1, \dots, R \text{ and } t = 1, \dots, T$

The equation (2.2) and (2.5) will estimate throughout panel data model, say pooled OLS, fixed effect (FE), random effect (RE) and feasible generalized least squares (FGLS) in general. In particular, due to diagnostic detecting of autocorrelation and heteroskedasticity, FGLS will be adopted individually to remove those violent in regression model. Therefore, the brief description of panel data analysis explains in the following part as bellows:

2.3. Brief Description of Cross Country Analysis

In adjustment of Hsiao (1986), notifies that panel data method can estimate knowingly by three classes of estimators, namely pooled ordinary least squares (OLS), fixed effects (FE) and random effects (RE) estimations. Therefore, let's consider accordingly an explained variable (Y_{it}) and a matrix set of explanatory variables (X'_{it}) with an error term (μ_{it}) at time

(t) and number of cross – section (i). It though equates in the form of panel data analysis as follows:

$$Y_{it} = \alpha + \beta X'_{it} + \mu_i + \varepsilon_{it} \quad (2.6)$$

$i = 1, \dots, N$ and $t = 1, \dots, T$, and

$$v_{it} = \mu_i + \varepsilon_{it} \quad (2.7)$$

Where, μ_i captures unobserved characteristics, such as languages, distance and demographics, which does not change for a given individual. On the notification of (C. Hsiao, 2003), the crucial distinction between FE and RE estimator is whether the unobserved individual effect embodies the elements that are correlated with regressors in the model, not whether these effects are stochastic or not, (W. H. Greene, 2012). Hausman specification test (Hausman, 1978) is accordingly computed to compare the constant variances between two estimators. Under the null hypothesis of having variances of error term (ε_{it}) are constant, the two estimators produce the same statistical value. Thus, let's consider, $\hat{\beta}_{RE}$ and $\hat{\beta}_{FE}$ is RE and FE estimator respectively. We get the asymptotic distributed as chi – square distribution with ε_{it} degree of freedom as follows:

$$H = (\hat{\beta}_{RE} - \hat{\beta}_{FE})'(\hat{V}(\hat{\beta}_{FE}) - \hat{V}(\hat{\beta}_{RE}))^{-1}(\hat{\beta}_{RE} - \hat{\beta}_{FE}) \quad (2.8)$$

Moreover, it is worth noting that OLS estimator is bias, inconsistency and inefficiency because of the existence of violent assumptions due to serial correlation issue where it demonstrates in the handbook of (W. H. Greene, 2012). The empirical result is theoretically not reliable and untruthfulness. Accordingly, other estimators take into account. In the presence of heteroskedasticity of error term, though FGLS estimator, as a weight least square (WLS) is consistency and efficiency in correcting for the presence of heteroskedasticity and can be applied to linearized model.

FGLS, in contrast to RE or FE estimator, assumes orthogonally between explanatory variables and the unobserved heterogeneity (Baltagi, 2008). In empirical studies revealed that it is fitted perfectly to small sample size. Meaning that it is sensitive to small sample size observation, with the lowest bias. Consequently, it is perfectly fitted to our study where it exists only 4 cross-sections with 79 and 68 number of observations. FGLS applies weight matrix to estimate the parameter errors of heteroskedasticity. For the weight matrices, $\Omega_{i,j}$ to be parameterized to model cross-sectional correlation, they must be square (balanced panels). Our dataset is strongly balance. According to (Jeffrey M. Wooldridge, 2009) denotes that FGLS weighs the observations in line to the square root of their variance. It is given by:

$$\hat{\beta}_{FGLS} = (X'\Omega^{-1}X)^{-1}X'\Omega^{-1}y = (\sum_{i=1}^n X_i'\Sigma^{-1}X_i)^{-1} \sum_{i=1}^n X_i'\Sigma^{-1}X_i \quad (2.9)$$

It can be showed that even the weights use in FGLS estimation are biased (resulting in a biased estimation of the residuals variance), FGLS would still provide consistent estimated due to the variance matrix of the error terms applied retransformation technique (Manning, 1998). Yet, it is denoted as follows:

$$E[\varepsilon\varepsilon'] = \Omega = \begin{bmatrix} \sigma_{1,1}\Omega_{1,1} & \sigma_{1,2}\Omega_{1,2} & \cdots & \sigma_{1,m}\Omega_{1,m} \\ \sigma_{2,1}\Omega_{2,1} & \sigma_{2,2}\Omega_{2,2} & \cdots & \sigma_{2,m}\Omega_{2,m} \\ \vdots & \vdots & \ddots & \vdots \\ \sigma_{m,1}\Omega_{m,1} & \sigma_{m,2}\Omega_{m,2} & \cdots & \sigma_{m,m}\Omega_{m,m} \end{bmatrix} \quad (2.10)$$

The equation (2.2) and (2.5) will estimate throughout FGLS and GLS - RE estimator due to diagnostic test of Breusch-Pagan / Cook-Weisberg test for heteroskedasticity is detected. Still, GLS – RE also employs to check the robustness of standard error (SE) in

increasing an accuracy of estimation. It aims yet at calculating economic significance analysis. Last but not least, to capture more detail of panel data approach, they can be found in (Hsiao, 1986; Hausman, 1978; C. Hsiao, 2003; Baltagi, 2008; Jeffrey M. Wooldridge, 2009; Manning, 1998 & W. H. Greene, 2012).

III. Empirical Findings and Discussions

3.1. Discussions on Diagnostic Test Result

This section is to present the descriptive statistic highlighting the mean, maximum, minimum and standard deviation (SD). Table 3.1 reports 84 sample observations for nearly all variables excluding trade, FDI, M2, credit and urban conversely showing only 79 and 73 observations respectively. It is because we transform to logarithm and some observations are drooped. SD statistically reports in the gap of -0.824 for lowest and 4.181 for the highest one.

FDI indicates the maximum value, say 5.186 among others variables. Regarding to normality test under the null hypothesis of whether dataset come from normal distribution population reveals that 5 variables, namely trade, enroll, urban and rural, can reject the null hypothesis at 1% level of significant. It fails for the rest of variables. In short, most of variables are not come from normal distribution excluded HDI in accordance to Shapiro – Wilk test. Thus, FGLS accordingly takes into account to overcome normality issue and small sample size observation.

Table 3.1: Descriptive Statistics and Normality Test

Variables	Obs.	SD	Mean	Min	Max	Shapiro-Wilk Test	
						z	Prob>z
HDI	84	-0.670	0.152	-0.970	-0.381	1.177	0.1195
Trade	79	1.415	0.666	-1.374	2.333	3.875***	0.0001
FDI	79	3.693	2.106	-1.787	5.186	7.264***	0.0000
M2	79	3.405	0.672	2.041	4.925	2.364**	0.0091
Credit	79	2.715	1.019	1.138	4.743	3.391***	0.0004
Labor	84	4.181	0.105	4.034	4.365	3.599***	0.0002
Pop	84	0.310	0.337	-0.470	1.171	0.784	0.2165
Rural	84	1.196	0.360	0.740	1.939	4.473***	0.0000
Urban	73	-0.824	1.412	-5.780	1.024	4.004***	0.0000

Source: Computer calculation, author's estimates

Note: p – value is inside the parentheses, (). The sign notification of * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ indicates the statistical significant of the diagnostic test.

3.2. Discussion on Empirical Estimated Result

In this section, we interpret human development regression in line with globalization and financial development throughout panel data model of GLS-RE and FGLS. The empirical results show in table 3.2, 3.3 and 3.4. It accordingly indicates that selected variables are not correlated within the sample due to Variance inflation factor (VIF) is lower than 5 (appendix 8). Wald chi-square is statistically significant at 1% level. It discloses the facts that estimated models are statistically and methodologically modified. Model (1) and (3) estimate with and without incorporating control variables but interacting with dummy factors. Model (2), (4), (5) and (6) estimate with interaction of both control variables and dummy factors. Overall, it indicates that most of control variables are statistically significant in line to HDI by the positive and negative impacts. The positive affect of urban population reflects the facts that increase generating HDI score. Labor is positively and significantly associated to HDI. In general, HDI is positively affected by the extent of FDI, trade, credit, labor force and urban population. In contrast, rising total and rural populations reduce HDI score strongly. This

suggests the higher the magnitude of globalization and financial development, the higher the improvement of human capability in CLMV region, particularly in urban area. More importantly, this quantum of rising is reduced due to an increasing magnitude of population factor, especially those who are living in rural population.

Table 3.2: Human Development Regression, (Globalization = FDI and Trade)

HDI	Panel data model, FGLS based					
	(1)	(2)	(3)	(4)	(5)	(6)
Labor force participation		0.0265 (0.23)		0.296* (2.28)	-0.243 (-1.84)	-0.0124 (-0.12)
Total population growth rate		-0.474*** (-11.03)		-0.422*** (-7.5)	-0.348*** (-6.34)	-0.339*** (-7.62)
Urban population growth rate		0.0517 (1.84)		0.0764 (1.75)	-0.0363 (-0.67)	-0.0465 (-1.06)
Rural population growth rate		-0.0052 (-0.68)		-0.029*** (-3.7)	-0.0059 (-0.83)	-0.0162** (-2.79)
<i>Globalization</i>						
FDI	0.0358 (1.45)	0.0577*** (5.15)	-0.0542 (-1.02)	0.136*** (10.28)		0.0125 (0.65)
Trade	0.0153* (1.96)	0.0537*** (11.31)	0.106*** (4.31)		0.0769*** (15.89)	0.0769*** (8.28)
FDI x Cambodia			0.129 (1.93)	-0.032* (-2.13)		0.0783** (3.08)
FDI x Lao PDR			0.0731 (1.26)	-0.086*** (-5.33)		0.021 (1.01)
FDI x Myanmar			0.245** (2.7)	-0.167*** (-7.10)		0.0302 (0.86)
Trade x Cambodia			-0.099*** (-4.04)	-0.0132* (-2.05)		- 0.0468*** (-3.75)
Trade x Lao PDR			-0.0595** (-2.88)	-0.0124 (-1.65)		-0.0197* (-2.13)
Trade x Myanmar			-0.101** (-3.29)	-0.047*** (-7.11)		-0.052*** (-4.51)
Constant term (α)	-0.763*** (-19.19)	-0.966* (-2.00)	-0.91*** (-11.27)	-2.006*** (-3.56)	0.255 (0.46)	-0.729 (-1.66)
Time dummy	No	No	No	No	No	No
Cross section dummy	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	79	68	79	68	68	68
Log likelihood	45.5312	107.014	77.1147	105.3302	120.6316	141.3699
Wald Chi(s)	9.07 [0.0107]	556.26 [0.0000]	116.92 [0.0000]	526.1 [0.0000]	863.77 [0.0000]	1646.77 [0.0000]
Number of groups	4	4	4	4	4	4

Source: Computer calculation, author's estimates

Note: *t* statistics is inside the parentheses, () and number inside the basket, [] refers to the probability value. The sign notification of * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ indicates the statistical significant. FGLS estimator is computed based on independent and identically distributed (i.i.d) of error structure across the panel and corrected autocorrelation based on Durbin – Watson statistics.

Table 3.2 indicates that FDI and per capita trade are positively and significantly affected to HDI by different aspects. Without control variables, FDI does not associate to HDI. In contrast, it reveals an important connection whereas population and labor factor are included. This somehow suggests that FDI will flow into the countries due to the presence of population and abundant of labor force. With the rising trend of globalization, inward FDI increases dramatically, particularly in developing countries such as CLMV countries. In 2015, almost 19 billion USD of FDI flows into CLMV countries (*author calculation due to data from WDI, the World Bank*). Apart from this crucial benefit, incoming FDI plays a key

role in the enhancement of human capital in all developing countries (M. Azam, 2015). A growing of per capita trade boosts HDI by its positive affect, as it is not differ from FDI. Both are the essential fragment of rising globalization from which caused in improving human capability via transferring technology ICT (Information and Communications Technology) based, new business structure, employment creation and poverty reduction. Precisely, as reflecting to the study conducted by UNDP (2011) revealed that trade has played an important role in expanding people's horizons and choices. Furthermore, our finding is also replicated to some empirical studies which stated that trade liberalization boosts to growth in static and dynamic gains leading to rapid capital accumulation and faster productivity growth (Khan and Zahler, 1985). CLMV trade has grown rapidly. Starting in the late 1980s, CLMV countries put trade and investment at the center of their respective development strategies. They have been gaining global export and import market share since 2000, though since they are small economies, these market shares remain small in absolute terms (Koshy Mathai et al., 2016).

In addition, we investigate human development regression with respect to financial development whereas it shows in table 3.3. The control variables show positively and negatively significant even if dummy factors are dropped in estimated regression. Consequently, in one part, it implies that HDI is driven not only from development of financial sector but it is generated from other internal factors such as population, labor force in the economy and country – specific itself as well. Model (1) shows that M2 and credit is positively and significantly impacted to HDI. Hence, 1% increases of M2 and credit (% GDP) will generate HDI score by 0.138% and 0.041% respectively. One could explain is that development of financial sector has been successful for CLMV countries in facilitating and improving banking and financial system. It is such an important catalyst in elaborating trade and foreign capital flows into the country. This finding is that development of financial section by efficient resource allocation and financing innovative activities can support and boost economic growth. As the result, this has generated the country growth in CLMV countries, yet increasing HDI score of the country.

It is also interestingly to incorporate simultaneously globalization and financial development incorporate simultaneously in the regression model. Both factors remain positively and significantly in explaining HDI during observation period. Capital and trade flows connect powerfully and strongly in generating human development. An increasing in trade are positively associated with future increases in social welfare (A. Davies & G. Quinlivan, 2006) by which it referred the main idea that among developing countries, those with significantly more open economies had the highest per-capita incomes while those with closed economies were the poorest. Yet, trade only affects human development in income channels. Financial development in CLMV countries is growth rapidly and interlinks to FDI and trade. One study found that funding of the capital and financial services to facilitate economic growth in CLMV countries were not only coming from capital inflows but also from the improvement of the financial environment domestically (Chaisrisawatsuk, 2016). In the empirical study of (A. Abubakar, 2015) found that both domestic credit and banking sector credits are found to be making significant contributions to economic growth directly and by boosting human capital accumulation. More importantly, it showed that among all the financial indicators, M2 has the largest contribution to changes in human development in India (M. Sehrawat, 2014). Hence, these results generally suggest that FDI, trade, credit provided to private sector and M2 are persistently as the central factor in improving human capability in CLMV countries followed closely by other factors such as population and labor force. The developing of financial depth in the believing of improvement human resource through needs to ensure that financial literacy is considered.

Table 3.3: Human Development Regression, (Financial Development = Broad money supply and Credit)

HDI	Panel data model, FGLS based					
	(1)	(2)	(3)	(4)	(5)	(6)
Labor force participation		0.417*** (5.16)		0.622*** (3.96)	0.506*** (4.74)	0.35* (1.98)
Total population growth rate		-0.194*** (-4.91)		-0.23*** (-4.43)	-0.253*** (-6.35)	-0.3*** (-5.31)
Urban population growth rate		-0.0074 (-0.28)		0.134** (3.11)	0.116** (2.90)	0.0984* (2.33)
Rural population growth rate		0.041*** (-5.72)		-0.03*** (-4.49)	-0.035*** (-6.28)	-0.03*** (-3.49)
<i>Financial development</i>						
Broad money supply (M2)	0.138*** (4.41)	-0.0677 (-1.66)	0.279 (1.72)	0.137*** (8.53)		0.0654 (0.74)
Domestic credit	0.0414* (2.00)	0.157*** (6.47)	-0.108 (-0.67)		0.096*** (14.02)	0.0018 (0.02)
M2 x Cambodia			-0.185 (-1.2)	-0.0091 (-1.17)		-0.12 (-1.39)
M2 x Lao PDR			-0.0467 (-0.29)	-0.053*** (-5.63)		-0.0388 (-0.4)
M2 x Myanmar			-0.0657 (-0.42)	-0.0271* (-2.41)		-0.138 (-1.43)
Credit x Cambodia			0.176 (1.09)	-0.0011 (-0.15)		0.127 (1.41)
Credit x Lao PDR			0.0162 (0.09)	-0.057*** (-5.07)		-0.026 (-0.24)
Credit x Myanmar			-0.0114 (-0.07)	-0.0212 (-1.86)		0.123 (1.23)
Constant term (α)	-1.261*** (-20.51)	-2.59*** (-6.77)	-1.22*** (-16.6)	-3.8*** (-5.28)	-3.11*** (-6.67)	-2.316*** (-2.77)
Time dummy	No	No	No	No	No	No
Cross section dummy	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	79	73	79	73	73	73
Log likelihood	88.4839	125.9866	106.0642	134.303	141.5727	145.5021
Wald Chi(s)	218.92 [0.0000]	922.55 [0.0000]	385.94 [0.0000]	1177.31 [0.0000]	1452.86 [0.0000]	1626.30 [0.0000]
Number of groups	4	4	4	4	4	4

Source: Computer calculation, author's estimates

Note: *t* statistics is inside the parentheses, () and number inside the basket, [] refers to the probability value. The sign notification of * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ indicates the statistical significant. FGLS estimator is computed based on independent and identically distributed (i.i.d) of error structure across the panel and corrected autocorrelation based on Durbin – Watson statistics.

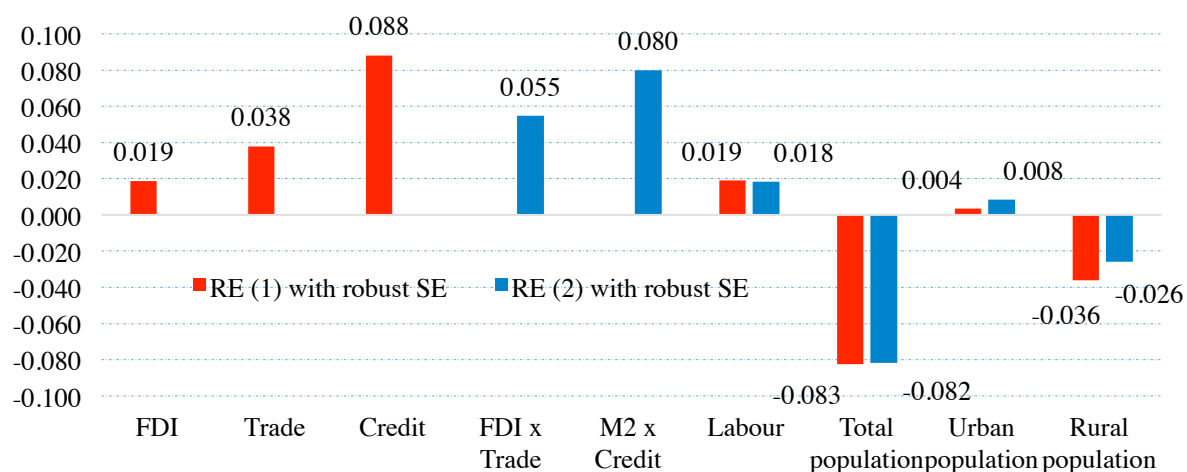
3.3. Analysis of Economic Significance

The largest or smallest share of an explanatory variables in line with an explained variable is computed from the analysis of economic significance (ES). It is a dubbed ES of a one-standard deviation (SD) increase of variable. ES calculates from multiplying between the estimated coefficients of variable and its SD. Due to a statistical insignificant of some variables, though we dropped from calculation. As the result, figure 3.1 shows that ES is approximated 1.9%, 3.8% and 8.8% running from FDI, per capita trade and credit to HDI respectively. Simply, it indicates that ES of one SD increase of FDI variable hands up HDI score by 1.9%. FDI and trade reveal the positive relationship as its statistical value is lower than 2.0% whereas total and urban population show the negative relationship as it is higher than -1.0%. More importantly, it is notified that rising total and rural population reduce HDI strongly. This suggests the facts that the huge augmentation of globalization and financial development is not share inclusively to all level of economic. The most important impact

benefits those population living in urban area. As both RE and FGLS show urban population is riding in paralleling to higher HDI. This replicated the facts as the fastest – growing economic, CLMV countries themselves is growing beyond the gap of exclusive growth. It is simply that the process of globalization may help only specific group of people to become richer and this will widen the gap between the poor and the rich. As we have known, most of population, over 70% in CLMV countries is living in rural or countryside area (See appendix 11). It highly exposes to inequality, particularly in income distribution within the country and the low level of institutional quality such as political stability and corruption. Yet, the connection of economic growth and HDI is automatic, it is depended on a variety of factors such structure of economics, income and asset distribution, institutional quality and policy choice within the country (G. Mustafa, 2017).

Though the empirical findings show the positive correlation of both globalization and financial development relating to improvement of human capability in CLMV countries. Yet, the proportion contributes to HDI score is only a small magnitude. This should be higher as it should be as we notify trade and FDI is augmenting dramatically in the country since the year of 2000. Credit shows the largest impact to HDI. Most of developing countries experience a shortage of capital, this is reflected in their respective savings-investment and import-export gaps, which implies that developing countries have insufficient savings and/or foreign exchange to finance their investment needs. Improving human capital would have long-term payoffs on human development but it has not showed a strong magnitude effect as human development (Pérez-Segura, 2014). The role of globalization will simulate in changing business structure, particularly the usage of ICT in organization throughout technical progress. But it should be rising within the level of education and provide sufficient source of fragility. It can be implied that in general, the globalization process is likely to bring negative results to those countries with high levels of state fragility and delinquency.

Figure 3.1: Economic Significance of a One-SD Increase of Explanatory Factors on line of HDI (% Probability) with Robust Standard Error (SE)



Source: Computer calculation, author's estimates

The financial development presented as domestic credit to private sector is initiated the positive impacts and a significant factor in contributing to human improvement. In CLMV countries, financial system is remained as the gap of development in the long term. It needs a high level of commitment for CLMV countries to integrate its region not only economic but also finance. As in CLMV countries, providing loan from financial institutes to household resulted in enhancing debt. People are not used loan as investment option but rather for daily

consumption. Thus, the needs in development financial system is moved a path forwardly to improving their human resource capability via financial literacy.

Table 3.4: Human Development Regression, (Globalization and Financial Development)

HDI	Panel data model, RE and FGLS					
	RE	RE	RE	FGLS	FGLS	FGLS
Labor force participation	0.18* (2.15)		-0.0161 (-0.15)	0.18* (2.31)		-0.0161 (-0.17)
Total population growth rate	-0.245*** (-6.40)		-0.216*** (-5.72)	-0.245*** (-6.87)		-0.216*** (-6.48)
Urban population growth rate	0.0098 (0.44)		0.0179* (0.52)	0.0098 (0.48)		0.0179* (0.59)
Rural population growth rate	-0.0255*** (-4.13)		-0.02*** (-4.79)	-0.026*** (-4.43)		-0.02*** (-5.43)
<i>Globalization</i>						
FDI	0.0279*** (3.36)	0.0571*** (3.57)	0.0421*** (4.26)	0.0279*** (3.61)	0.057*** (3.87)	0.042*** (4.82)
Trade	0.018*** (3.59)	0.0005 (0.02)	0.0119 (0.60)	0.018*** (3.86)	0.0005 (0.02)	0.0119 (0.68)
Averaging (FDI, Trade) x Cambodia		-0.15*** (-5.81)	-0.096*** (-5.72)		-0.15*** (-6.30)	-0.096*** (-6.48)
Averaging (FDI, Trade) x Lao PDR		-0.111** (-3.21)	-0.0312 (-1.43)		-0.11*** (-3.48)	-0.0312 (-1.62)
Averaging (FDI, Trade) x Myanmar		0.0578 (1.06)	0.0351 (0.79)		0.0578 (1.15)	0.0351 (0.89)
<i>Financial development</i>						
Broad money supply (M2)	-0.0092 (-0.27)	0.275*** (9.74)	0.06* (2.18)	-0.0092 (-0.29)	0.275*** (10.56)	0.06* (2.47)
Domestic credit	0.0865*** (3.91)	-0.12*** (-4.85)	-0.0111 (-0.54)	0.0865*** (4.19)	-0.14*** (-5.25)	-0.0111 (-0.61)
Averaging (M2, Credit) x Cambodia		0.107*** (4.71)	0.08*** (4.73)		0.107*** (5.11)	0.08*** (5.36)
Averaging (M2, Credit) x Lao PDR		0.0643 (1.89)	-0.0116 (-0.50)		0.0643* (2.04)	-0.0116 (-0.57)
Averaging (M2, Credit) x Myanmar		-0.0983* (-2.09)	-0.0777 (-1.93)		-0.0983* (-2.26)	-0.0777* (-2.19)
Constant term (α)	-1.688*** (-4.44)	-1.175*** (-11.96)	-0.759 (-1.5)	-1.688*** (-4.77)	-1.175*** (-12.96)	-0.759 (-1.7)
Time dummy	No	No	No	No	No	No
Cross section dummy	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	68	74	68	68	74	68
R ²	0.9563	0.9363	0.9852	138.0731	139.2782	174.8948
Wald Chi(s)	1291.32 [0.0000]	926.05 [0.0000]	3529.6 [0.0000]	1488.3 [0.0000]	1087.74 [0.0000]	4528.54 [0.0000]
Number of groups	4	4	4	4	4	4

Source: Computer calculation, author's estimates

Note: *t* statistics is inside the parentheses, () and number inside the basket, [] refers to the probability value. The sign notification of * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ indicates the statistical significant. FGLS estimator is computed based on independent and identically distributed (i.i.d) of error structure across the panel and corrected autocorrelation based on Durbin – Watson statistics.

IV. Concluding Remarks and Recommendations

The empirical findings of this paper suggest that globalization and financial development have positive effect on human development. However, contrary to a range of theories emphasizing a huge promise of positive effect, we found a small magnitude of the effect in the CLMV countries. One possible explanation for this pattern is possibly related to geographic and sociological context of population and endogenous factors of human development. We document that, during last several decades in the CLMV countries, human development does increase for urban population while it is decreasing for rural population. This indicate that the positive effect of globalized forces and financial development could not benefit the majority of population who are living in rural area whereas it has less effect on educational and health factors which are the major components of human development.

We recommend policy makers to pay very strong attention to rethink and rewrite the rule of welfare redistribution generating positively from globalizing forces and financial development so that a society could narrow the gap of social and economic development between urban and rural region in each country of the CLMV region.

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Appendix 1: Detail description of selected variables without taking logarithm

Sign	Variables	Sources	Expected outcome	Obs.	Mean	SD	Min	Max	
Dependent variable									
HDI	Human development Index	IMF and UNDP	n/a	84	0.52	0.08	0.38	0.68	
Independent variables									
Globalization variables									
FDI	Foreign direct investment, net inflows (% of GDP)	WDI, World Bank	+	79	4.90	2.56	0.25	10.31	
Trade	International trade (% of GDP)		+	79	86.60	48.73	0.17	178.77	
Financial development variables									
M2	Broad money (% of GDP)	WDI, World Bank	+	79	38.38	30.57	7.70	137.65	
Credit	Domestic credit to private sector (% of GDP)		+	79	26.16	30.40	3.12	114.72	
Controlled variables									
Labor	Labor force participation rate for ages 15-24, total (%)	WDI, World Bank	+	84	65.80	6.94	56.50	78.62	
Pop	Population growth (annual %)	WDI, World Bank	+/-	84	1.44	0.51	0.62	3.23	
Rural	Rural population growth (annual %)		+/-	84	0.68	0.76	-0.49	2.79	
Urban	Urban population growth (annual %)		+/-	84	3.54	1.39	2.10	6.95	
GDP	GDP growth (annual %)	WDI, World Bank	+	84	7.78	2.48	0.09	13.84	
Dummy factor variables									
FDI x Cambodia			+/-	79	0.47	0.82	0.00	2.33	
FDI x Lao PDR			+/-	79	0.29	0.67	-1.37	2.14	
FDI x Myanmar			+/-	79	0.21	0.44	0.00	1.88	
FDI x Vietnam			+/-	79	0.45	0.78	0.00	2.27	
Trade x Cambodia			+/-	79	1.25	2.10	0.00	4.97	
Trade x Lao PDR			+/-	79	1.15	1.92	0.00	4.46	
Trade x Myanmar			Taking number 1 in observing period and 0, otherwise	+/-	79	0.01	0.96	-1.79	3.86
Trade x Vietnam				+/-	79	1.28	2.15	0.00	5.19
M2 x Cambodia				+/-	79	0.83	1.43	0.00	4.20
M2 x Lao PDR				+/-	79	0.61	1.22	0.00	3.59
M2 x Myanmar				+/-	79	0.87	1.47	0.00	3.84
M2 x Vietnam				+/-	79	1.10	1.86	0.00	4.92
Credit x Cambodia				+/-	79	0.68	1.23	0.00	4.14
Credit x Lao PDR				+/-	79	0.45	0.92	0.00	3.04
Credit x Myanmar			+/-	79	0.52	0.91	0.00	2.89	
Credit x Vietnam			+/-	79	1.05	1.80	0.00	4.74	

Source: Author's illusion

Note: Dummy variables are calculated after logarithm to determinant variables such as FDI, trade, M2 and credit is employed.

Appendix 2: CLMV countries – A snapshot of HDI and economic growth

Cambodia, Lao PDR, Myanmar and Vietnam, known as CLMV countries have been taking a ways longer for the nation to reform her economic and connect to the world through trade and financial liberation since 1986.

Table A.1: CLMV – Human development indicators comparing to rest of the world, (2015)

Description	HDI Value	Life expectancy at birth (years)	Expected years of schooling (years)	Mean years of schooling (years)	GNI per capita (\$)	HDI rank
World	0.717	71.6	12.3	8.3	14,447	-
Medium human development	0.631	68.6	11.5	6.6	6,281	-
LDCs	0.508	63.5	6.9	4.4	2,385	-
Cambodia	0.563	68.8	10.9	4.7 ^q	3,095	143
Lao PDR	0.586	66.6	10.8	5.2 ⁿ	5,049	137
Myanmar	0.556	66.1	9.1 ^m	4.7	4,943	146
Vietnam	0.683	75.9	12.6	8.0 ^c	5,335	115

Source: Author's compilation, data generated from IMF

Note: q = Based on data from ICF Macro Demographic and Health Surveys for 2006–2015.

n = Based on data from United Nations Children's Fund (UNICEF) Multiple Indicator Cluster Surveys for 2006–2015.

m = Updated by HDRO based on data from UNESCO Institute for Statistics (2016).

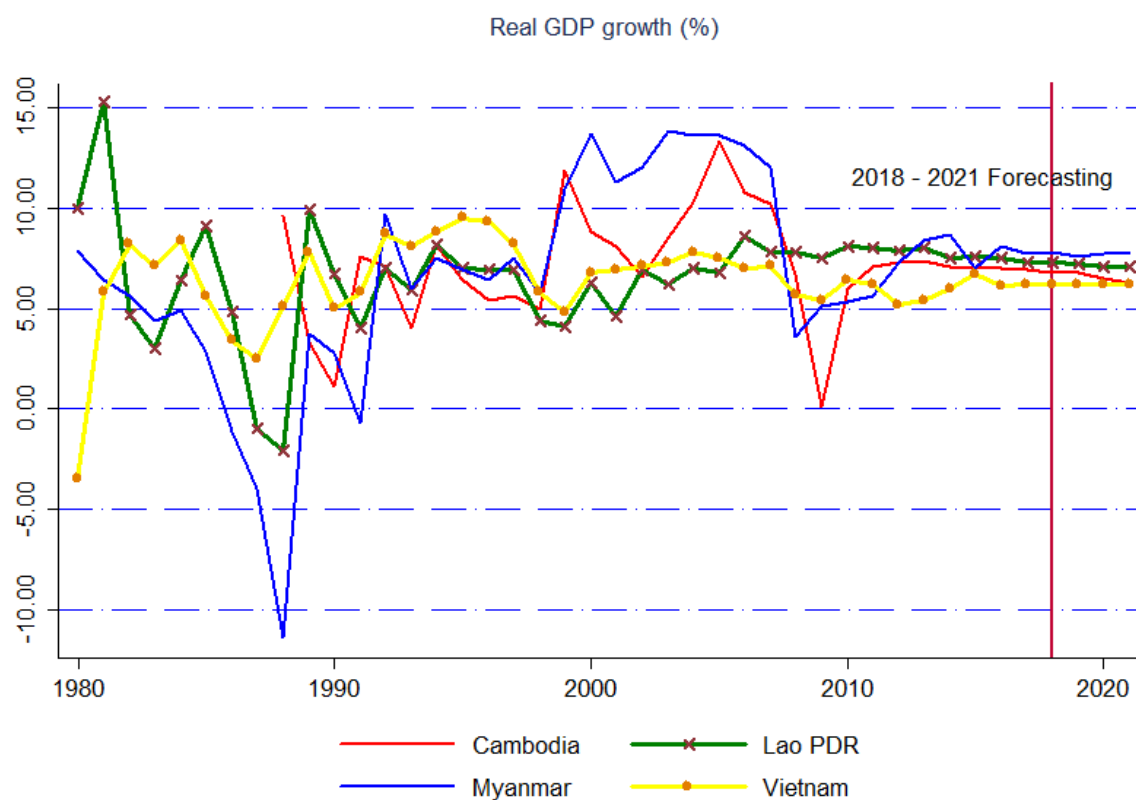
c = Updated by HDRO using Barro and Lee (2016) estimates.

With the total population of 168 million and GDP growth rate averagely approximates 7% per year, CLMV's market size is 267.33 billion USD, (World Bank, 2016). According to ASEAN Secretariat indicates that in 2015, combined merchandise trade amounted to US\$ 385.5 billion and contributed 16.9% to ASEAN's total trade, compared with 14.1% in 2014. In the same period, foreign direct investment into the four countries totaled US\$17.4 billion, which constituted 14.6% of total inward direct investment to ASEAN.

Positive absorbed from Economic growth (figure 1.1) has brought the region transferring to transition economics and development. The path of development is onward and continued, particularly in the form of capital investment, financial liberalization, enhancing and monitoring skill – labor force etc. Lao PDR for example is aiming to remove itself from the list of least developed countries (LDC) by 2020 and eradicate mass poverty by 2010. It is not differ, Cambodia in 2016, has transferred from lower income country to the lower middle income status as GDP per capital approximates 1,269.91 USD, (World Bank, 2016).

Aside from continued efforts in economic growth, CLMV themselves have cognized to promote the education in both primary and secondary education and higher education. The investment in basic science in tertiary education in CLMV countries is continuing implement. Increasing investment in vocational schools, including through public–private partnerships, can increase the scientific and technical skills needed to foster technological progress and innovation. A paradox of growth and development in CLMV region, Myanmar is somehow observed to be lowest among others in line with HDI whereas Vietnam is devoted to be highest. Developing country is persistently so far comparing to the world as in average term, it is represented 0.508 for LDCs and 0.717 for the world.

Figure A.1: CLMV - Path of growth rate trend, (2000 – 2022)



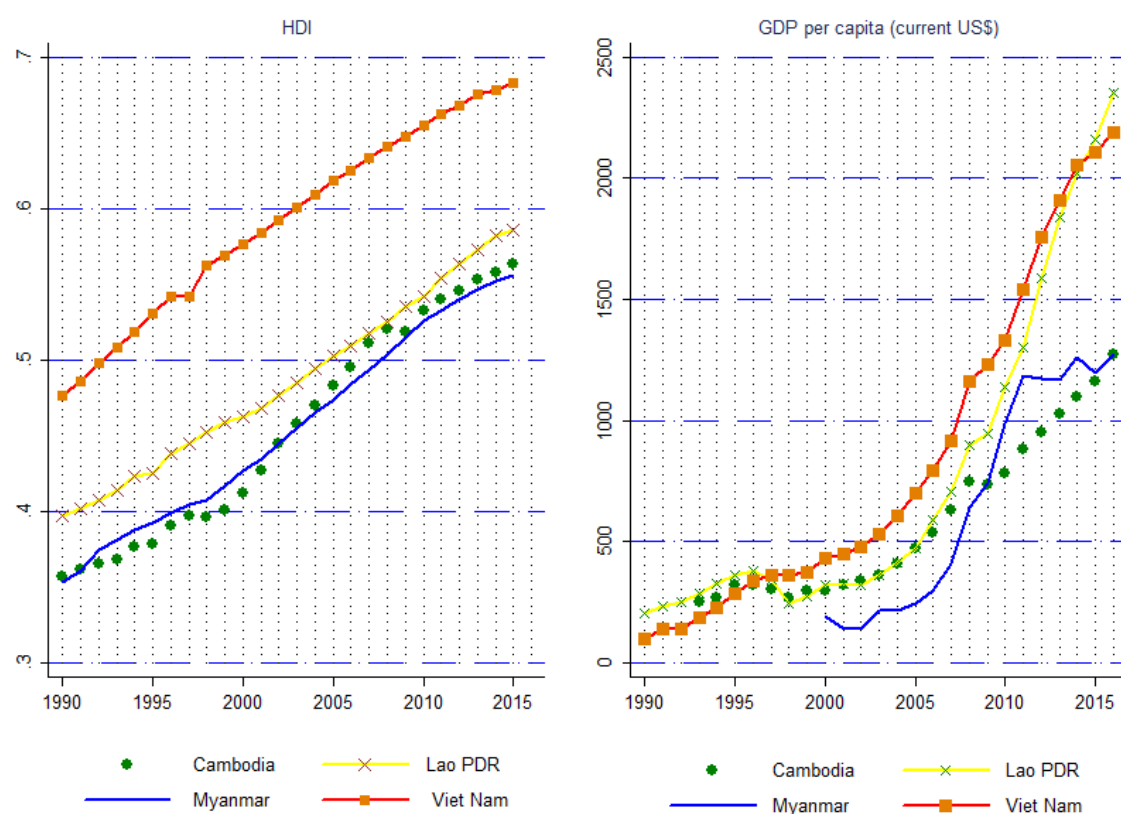
Source: Author's compilation, data generated from IMF

Note: Graphic line for CLMV calculates from average data of economic growth rate

Appendix 3: CLMV – ASEAN, HDI, averaging decomposition period

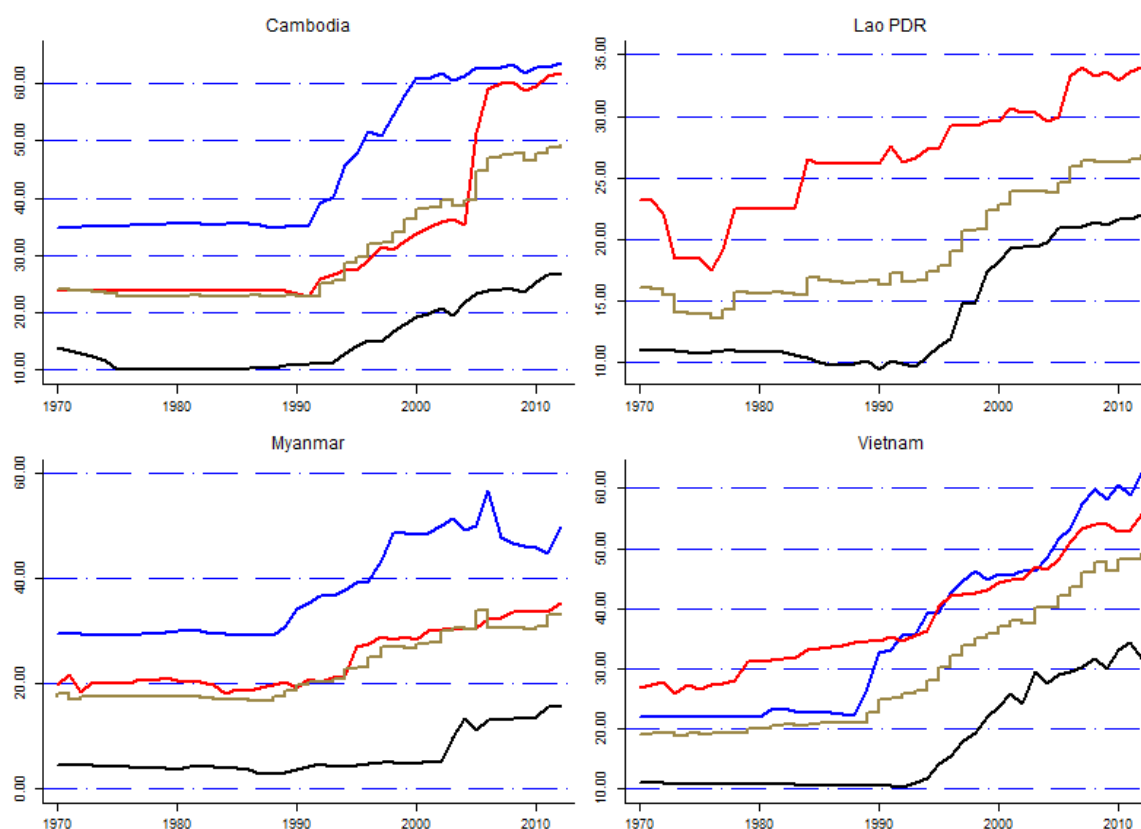
Period	1990-2000	2000-2005	2005-2010	2010-2015	Growth Rate (2010/15)
<i>CLMV</i>					
Cambodia	0.382	0.449	0.510	0.549	0.076
Lao PDR	0.430	0.482	0.522	0.567	0.086
Myanmar	0.392	0.450	0.499	0.542	0.086
Viet Nam	0.528	0.597	0.637	0.670	0.053
<i>ASEAN 6</i>					
Brunei Darussalam	0.803	0.827	0.842	0.858	0.020
Indonesia	0.565	0.618	0.646	0.678	0.040
Malaysia	0.684	0.728	0.752	0.781	0.026
Philippines	0.601	0.634	0.657	0.674	0.045
Singapore	0.771	0.823	0.880	0.920	0.044
Thailand	0.611	0.669	0.702	0.733	0.049

Source: Computer compilation, data generated from IMF



Source: Computer compilation, data generated from IMF

Appendix 4: CLMV - 2015 KOF Index of Globalization, 1970 to 2012



Source: Dreher, Axel, 2006, *Does Globalization Affect Growth? Empirical Evidence from a new Index*, *Applied Economics* 38, 10: 1091-1110

Note: The Red line denotes political globalization index, the Blue one is economic globalization index, the Black one is social globalization index whereas the Brown one is overall globalization index.

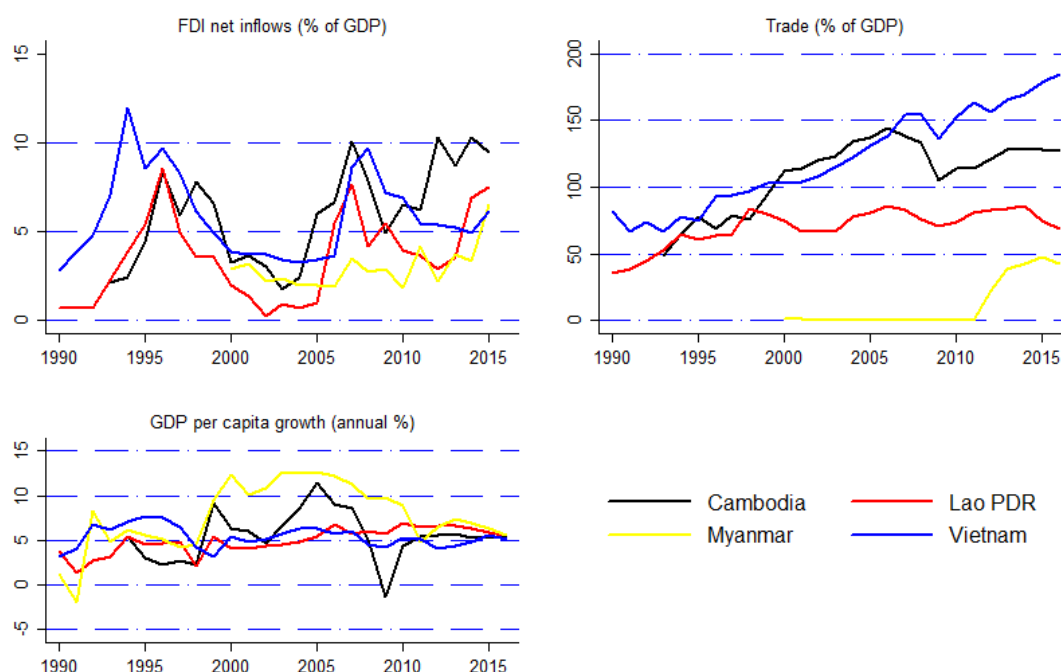
Appendix 5: CLMV- International trade, FDI inflows and GDP per capital, 1990 – 2016

Variable	Mean	SD	Min	Max
<i>Cambodia</i>				
FDI net inflows (% of GDP)	6.03	2.77	1.75	10.31
Trade (% of GDP)	109.57	26.81	48.72	144.61
GDP per capita growth (annual %)	5.52	2.77	-1.40	11.49
<i>Lao PDR</i>				
FDI net inflows (% of GDP)	3.52	2.43	0.25	8.53
Trade (% of GDP)	69.92	13.98	35.85	86.32
GDP per capita growth (annual %)	4.96	1.46	1.40	6.89
<i>Myanmar</i>				
FDI net inflows (% of GDP)	2.97	1.19	1.82	6.52
Trade (% of GDP)	11.65	18.61	0.17	47.32
GDP per capita growth (annual %)	7.70	3.68	-2.01	12.69
<i>Vietnam</i>				
FDI net inflows (% of GDP)	5.86	2.42	2.78	11.94
Trade (% of GDP)	120.86	36.99	66.21	184.69
GDP per capita growth (annual %)	5.36	1.21	3.12	7.76

Source: Author's calculation, data generated from WDI, the World Bank (2017)

Note: Full sample observations are observed from 1990 to 2016

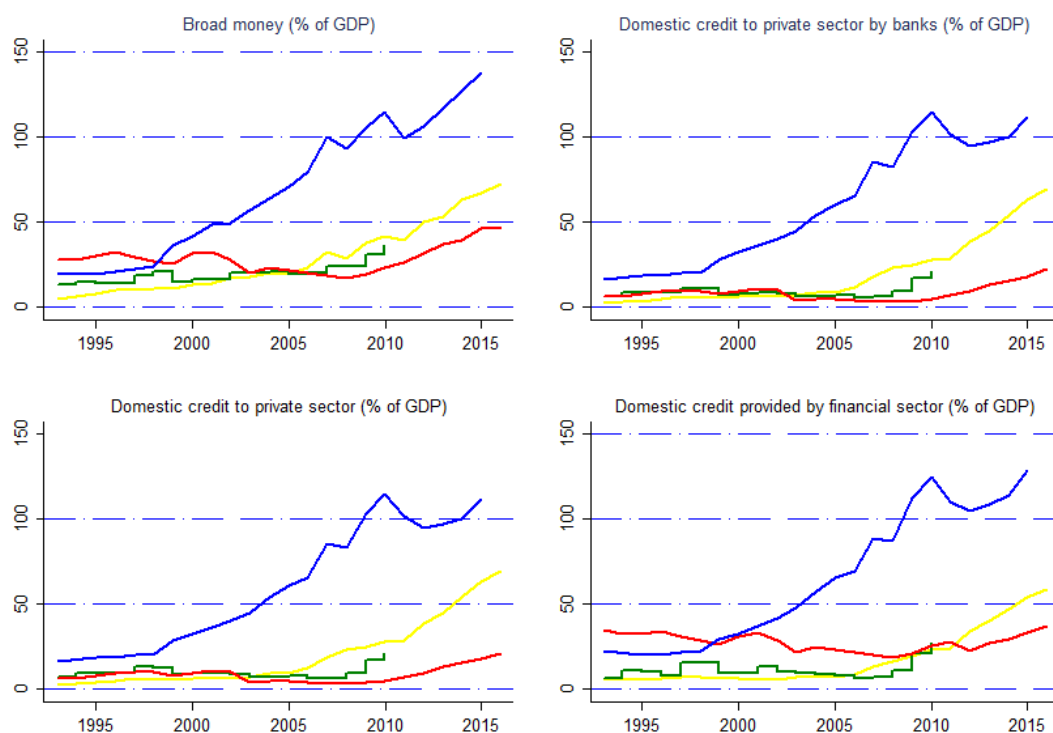
Appendix 6: CLMV – International trade, FDI and GDP per capital, 1990 – 2016



Source: Author's calculation, data generated from WDI, the World Bank (2017)

Note: Full sample observations is calculated from 1990 to 2016

Appendix 7: CLMV – Financial development trend (1993 – 2016)



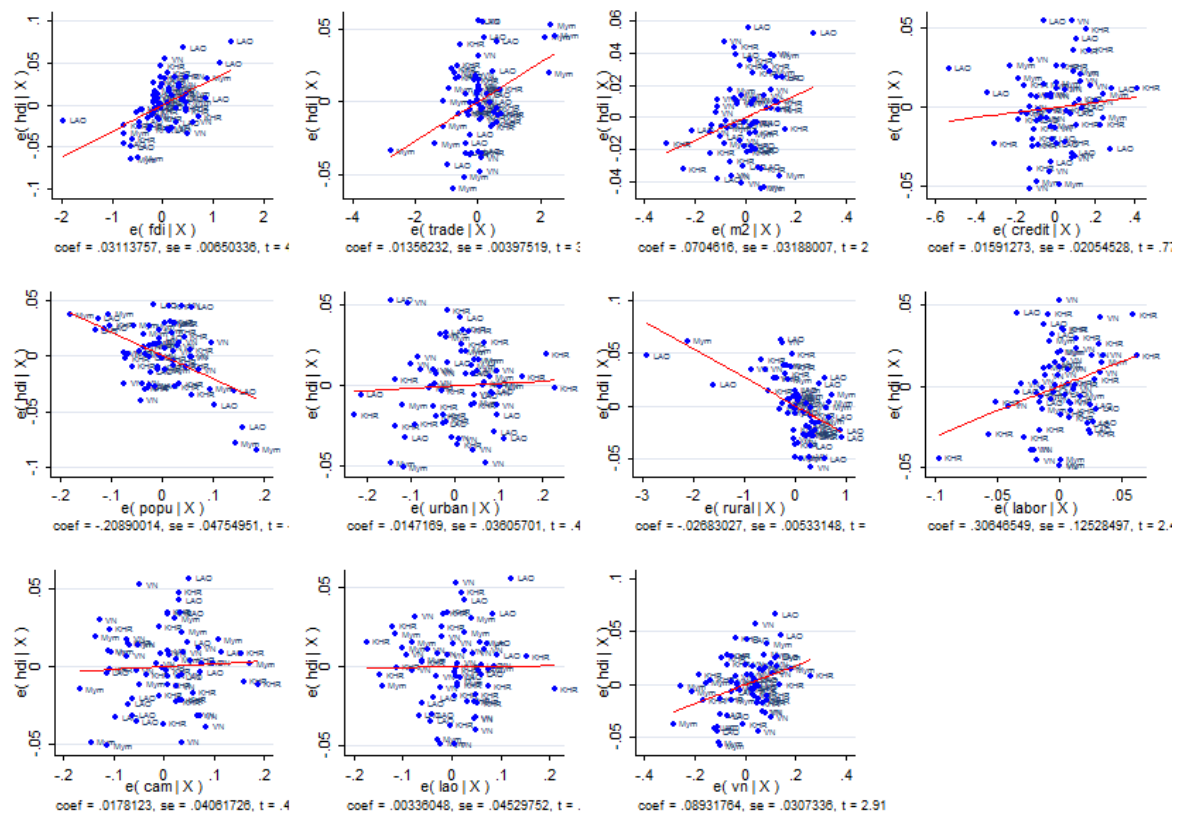
Yellow line is denoted Cambodia, green one is for Lao PDR, red one is for Myanmar and the blue one is referred to Vietnam.

Source: Author's calculation, data generated from WDI, the World Bank (2017)

Note: All data is denoted as % of GDP

*<https://www.adb.org/news/adb-forecasts-cambodias-economic-growth-remain-robust>

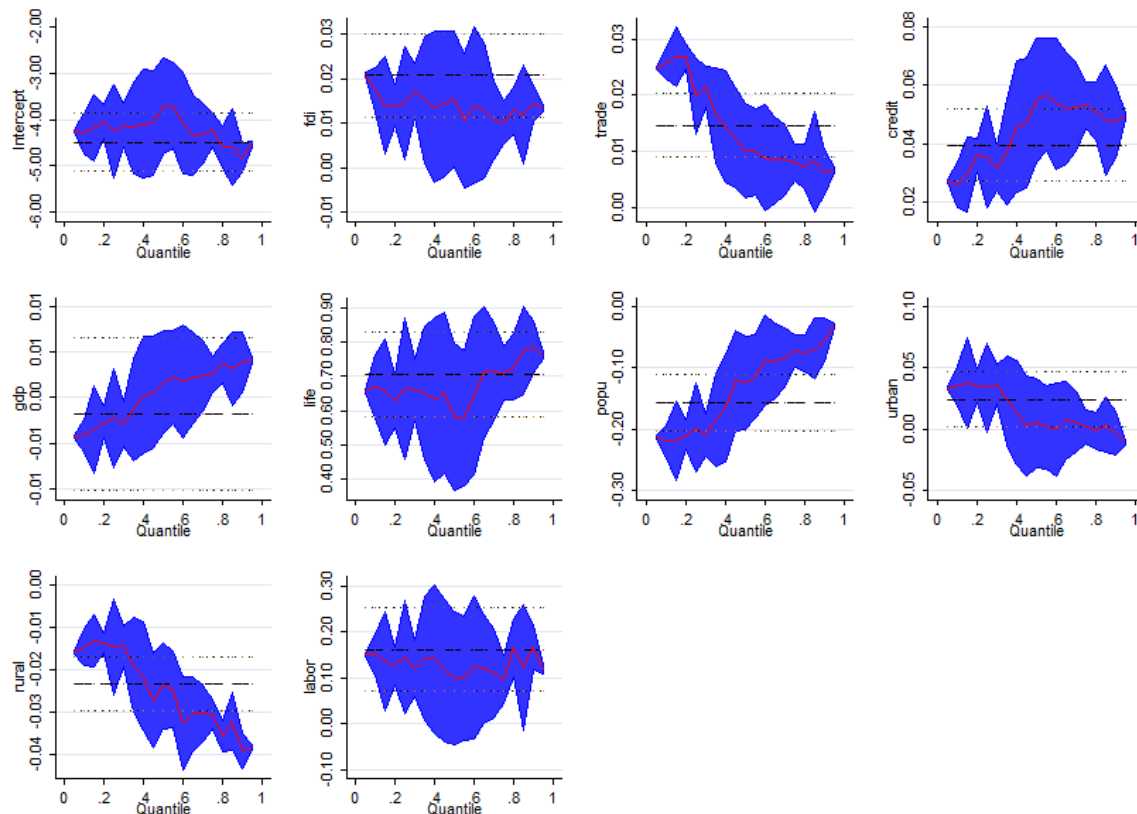
Appendix 8: Plotting regression of coefficients by simple static panel data method



Source: Computer compilation, author's calculation

Note: The monographic is regressed from simple OLS estimator without controlling time and country specific effect and statistical tests as well. Full sample observations are used to estimate. It is noteworthy that avplots regression plot is applied to capture whether the series is somehow fitted to regression line. It is allowed us furthermore to see clearly its pattern as comparison between estimated points and regression line. According to the above graphic in appendix 9 shows that due to the multicollinearity is detected via mean VIF (its value is 4.35), we can capture most of variables are fitted perfectly to the regression line. FDI, trade, credit, life, labor and urban are completely positive associated to HDI for example.

Appendix 9: Estimating parameter coefficients based on quantile regression without checking robust standard error



Source: Computer compilation, author's own calculation, quantile regression based

Note: The coefficient plotted from quantile regression model regressed from residuals is to capture the lost from estimated regression line. It is noteworthy that parameters of all selected variables are statistically in the lowest and highest gap of -0.04 and 2.00 respectively. The graphic reveals in the 95% confidential interval (the blue area around the red line) that population and rural population growth rate are having narrow confidence bands and indicates the perfect positive and negative relationship respectively. For detail about quantile regression method, (Koenker R. and Hallock K., 2002).