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ASEAN-Japan Comprehensive Economic Partnership (AJCEP) and Its Impact on CLM Countries

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ANALYSIS ON INTERNATIONAL TRADE OF CLM COUNTRIES

ABSTRACT

Since their accession to AFTA, trade volumes of CLM countries have being grown rapidly while their trade patterns and directions have significantly changed. Recognizing the importance of international trade in CLM economies, this study attempts to analyze the trade patterns of CLM countries based the gravity model. The empirical analysis is conducted to identify the determining factors of each country's bilateral trade flows and policy implications for promoting their trade.

The results indicate that CLM's trade patterns are mainly affected by partner country's GDP, the difference between per capita GDPs of two countries, distance, common border, and presence in particular FTA. Their trade relations with East Asian countries mainly China, Japan and Korea have yet to be exploited to their full potential. These findings suggest that CLM countries needs to promote their bilateral trade with countries in close proximity and having large economic size and high consumers' purchasing power through accelerating their trade liberalization efforts in FTAs in progress.

Keywords: CLM countries, ASEAN, East Asia, FTA, Bilateral trade

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1.   Introduction

Cambodia, Laos and Myanmar (CLM) are the newest members of the Association of Southeast Asia Nation (ASEAN). Since their accession to ASEAN they endeavored to integrate their economies to the region through several institutional and economic reforms. As a result, CLM countries can be seen as the fastest-growing economies in the region and have enjoyed a certain degree of macroeconomic stability in recent years. However, in fact, they are still included in the least developed countries characterized by primary sector-based transition economies with high poverty rate, insufficient infrastructure, and weak institutions. Their economies are still facing huge challenges in tackling poverty, reducing income gap and narrowing development gap in the region.

 Indeed, since their membership in ASEAN Free trade Area (AFTA), trade volumes of CLM countries have grown rapidly. At the same time, the pattern and direction of their trades have significantly changed with the various reasons. To explore the determinants of trade flows in CLM countries, this study empirically analyses the bilateral trade flows between each CLM country and their trading partners in a framework of the gravity model over the period for 1998 to 2007. The aims of this paper are to investigate the determinants of bilateral trade flows in CLM countries, to examine whether bilateral trade flows between CLM countries and their trade partners are lower or higher than what is predicted by the economic model, and to extract implications for their trade policies.

The main reason to choose CLM countries for this analysis is their characteristics which are much similar among them and largely different from the other seven members of ASEAN. These characteristics include the facts that they are latecomers of ASEAN, in transition to market-oriented economy since late 1980s, and in a comparable development stage. Since Lao and Myanmar joined AFTA in 1997 and then Cambodia entered in 1999, the analysis is conducted over the period from 1998 to 2007 in order to find out the determinants of their trade flows after the entry into AFTA.

The gravity model has been widely used in the empirical literature to explain bilateral trade. Hassan (2001) examined the issue of whether intra-SAARC trade is lower or higher than what is predicted by the gravity model. Sohn (2005) estimated a gravity model of bilateral trades between Korea and its 30 trading partners. Bussière and Schnatz (2006) practiced the gravity model to examine whether China's share in international trade is consistent with fundamentals of the gravity model. Huot and Kakinaka (2007) analyzed Cambodia's bilateral trade flows through investigating the

impact of trade structure in a framework of the gravity equation for the period of 2000-2004. However, there is not such a comparison study between the underlying factors in pattern and direction of bilateral flows in new members of ASEAN by using gravity model.

Considering the importance of international trade in economic development of CLM countries, it would be an essential task to identify which are determinant factors of their bilateral trade flows as it would assist in understanding CLM's trade patterns and formulating trade policies of respective countries. In this regards, this study will be the first attempt at comparison between the trade patterns of CLM countries based on gravity model. This study will, in addition to basic gravity model, look at the impacts of the generalized systems of preferences offered by developed countries and free trade agreements on bilateral trade flows of CLM countries.

This study is divided into six sections. Following the Introduction in Section 1, Section 2 provides brief overview of the CLM economies. Section 3 discusses the structure and performance of international trades in CLM countries. Section 4 presents main theme of this paper, empirical analysis on bilateral trade flows of CLM countries, by using the gravity model. This section elaborates the theoretical background of gravity model, model specification and data sources, and empirical results. In this part, firstly the determinants of bilateral trade flows in each country are examined based on results of gravity equation and then, comparison between actual trades and potential trades of each country is performed. Section 5 addresses important policy implications for promoting trades of CLM countries and Section 6 concludes.

2.   Overview of CLM Economies

Since their accession to ASEAN, CLM countries have implemented specific measures and provisions under the several agreements of ASEAN including ASEAN Free trade Area (AFTA), ASEAN Framework Agreement on Services (AFAS) and (ASEAN Investment Area) AIA, together with the other member countries, in the areas of liberalization, facilitation and promotion of trades, services and investment. Moreover, with the intention to promote trade and attract greater FDI, the CLM countries have also undertaken several institutional and economic reforms.

Despite these efforts, as shown in Table 1, CLM economies are far behind the other ASEAN members in terms of per capita GDP and economic structure which highlight their development stage. Although, CLM countries show higher GDP growth rate than other countries in the region, their per capita GDP are much lower than ASEAN average per capita GDP of US$5000. Moreover, the economic structure of these countries are quite different from the original members countries, with

the agriculture sector accounting for more than 40 percent in the case of Myanmar and Lao while representing only 11 percent of the GDP in ASEAN on average. Apart from primary sector, Cambodia and Myanmar have more concentrated on service sector than industry compared to that of Lao. Although CLM countries have rapidly increased their participation in regional trade since their participation in AFTA, their trade openness ratios are very low even comparing with other new member, Vietnam. Among them, Cambodia have greater openness ratio than other two, reflecting its garment sector led trade promotion.

Table - 1

Socio-economic Indicators of ASEAN Countries (2008)

Country	GDP Growth Rate	Per capita GDP	GDP Structure (2007) (% of GDP)			Trade Openness (% of GDP)	
	%	US$ PPP	Agriculture	Industry	Services	Exports	Imports
Brunei	0.4	50,235	0.7	71.0	28.3	61.9	22.0
Cambodia	**6.0**	**1,794**	**31.9**	**26.8**	**41.3**	**38.3**	**40.4**
Indonesia	6.1	3,705	13.8	46.7	39.4	26.8	25.3
Lao, PDR	**8.4**	**2,237**	**41.8**	**32.2**	**26.0**	**15.6**	**34.1**
Malaysia	4.6	13,192	10.2	47.7	42.0	87.3	64.8
Myanmar	**4.5**	**1,083**	**43.7**	**19.8**	**36.5**	**24.4**	**14.0**
Philippines	3.6	3,421	14.1	31.7	54.2	29.4	34.0
Singapore	1.1	50,347	0.1	31.1	68.8	131.1	125.3
Thailand	2.6	7,890	11.4	43.9	44.7	63.9	64.9
Vietnam	6.3	2,595	20.3	41.6	38.1	68.1	87.7
ASEAN	**4.4**	**5,007**	**11.0**	**43.0**	**46.0**	**58.3**	**55.2**

Source: World Development Indicator Database, World Bank; Asian Development Outlook 2009, ADB; and ASEAN Secretariat

3. Structure and Performance of International Trade in CLM

CLM countries have become a much more open economy over the past decades, a process spurred by the trade liberalization that occurred gradually since early 1990s. As a result, their trade values grew at an average annual growth rate of roughly 16 percent during the period of 1998-2007. Cambodia experienced rapid increases in exports and imports volumes nearly five times while Lao and Myanmar recorded three times increases in their trade during one decade. The trade to GDP

ratio has been recorded high in Cambodia with almost 80 percent while that of Laos and Myanmar were around 50 percent and 40 percent respectively. All CLM countries have experienced continual trade deficits throughout the study period. Although their export destinations and import sources are quite difference, Thailand, Singapore, China, Japan and Korea are always included in top-ten trade partners of CLM countries.

Cambodia: Cambodia exports have grown more than four times over the past decade to reach about US$4 billion in 2007(Table 2). The growth was due almost entirely to rapid expansion of knitwear industry, supplemented by woven garment assembly. Knit apparel, woven apparel and footwear altogether accounted for nearly 90 percent of total exports in 2007(Table 3). Almost 60 percent of exports are channeled to the United States followed by Germany and United Kingdom with more than 5 percent each. The growth of imports is much higher than its exports with over five times to reach US$6.5 billion in 2007. About 23 percent of Cambodia's imports are from Thailand, followed by Vietnam and China with above 15 percent each. The main import commodities are materials for garment such as knit, crocheted fabrics, cotton and yarn and mineral fuel and oil, each accounted for more than 13 percent of imports. Machineries and vehicle followed with over 6 percent each of total imports in 2007. Since Cambodia mainly exports to the United States and European countries, its intra-ASEAN export share is noticeably low about 8 percent of total exports in 2007 while its import from ASEAN is 52 percent, which grew from 26 percent in 1998.

Lao PDR: The trade volume of Lao is relatively small, about one-third of trade volumes of Cambodia and Myanmar. Copper has been the main export item of Lao in the recent years which accounted for 35 percent of total exports in 2007; roughly 60 percent are channeled to Thailand. Although Knit and woven apparel had dominated its exports with up to 30 percent of total till 2005, the share declined to about 15 percent in 2007. Thailand and Vietnam are main destination of its exports, together accounted 47 percent of the total, followed by China and Korea with 6 percent and 5 percent, in order. Mineral fuel, oil, vehicles and machineries are major import items, taking 19 percent, 15 percent and 13 percent of total imports, respectively. Thailand has been its main import source, with more than 60 percent along the decade, followed by China and Vietnam with 9 percent and 6 percent, respectively in 2007. Lao's trade mainly concentrates on ASEAN region since its intra-ASEAN export share is over 40 percent while its import share has been almost 80 percent during the last decade.

Table - 2
Top-Ten Trade Partners of CLM Countries (1998-2007)

(US$ Million & Percent of Total)

		Exports			Import	
		1998	2007		1998	2007
Cambodia						
1	United States	31.4	58.1	Thailand	14.9	23.1
2	Germany	7.7	7.3	Vietnam	8.0	16.9
3	United Kingdom	2.7	5.2	China	8.5	15.0
4	Canada	0.2	4.6	Hong Kong	11.5	10.4
5	Vietnam	18.8	4.5	Singapore	0.3	7.5
6	Japan	0.8	3.1	Korea	8.5	4.8
7	Spain	0.1	2.8	United States	3.5	2.4
8	Singapore	14.2	1.9	Malaysia	0.1	2.3
9	France	1.3	1.2	Indonesia	2.5	2.1
10	China	4.5	1.1	Japan	6.3	1.9
	Intra-ASEAN	42.4	8.0	Intra-ASEAN	25.9	52.0
	Total Exports	**933.52**	**4066.37**	**Total Imports**	**1128.86**	**6456.55**
Lao, PDR						
1	Thailand	7.8	32.7	Thailand	63.8	68.5
2	Vietnam	32.2	14.3	China	3.0	9.3
3	China	1.9	5.9	Vietnam	12.5	5.5
4	Korea	0.0	4.8	Korea	0.8	2.9
5	Germany	5.8	3.3	Singapore	3.4	2.0
6	United Kingdom	2.1	3.2	Japan	3.3	2.0
7	Malaysia	0.0	2.5	Germany	2.4	1.7
8	France	6.3	2.0	Australia	0.4	1.1
9	United States	5.4	1.4	Hong Kong	1.3	0.7
10	Japan	4.8	0.8	United States	0.6	0.7
	Intra-ASEAN	40.2	49.8	Total Imports	80.4	76.7
	Total Exports	**370.80**	**1320.74**	**Total Imports**	**644.57**	**2106.15**
Myanmar						
1	Thailand	9.0	44.3	China	24.9	33.7
2	India	14.9	14.5	Thailand	18.5	19.1
3	China	4.9	7.1	Singapore	21.3	15.5
4	Japan	7.1	5.7	Korea	6.9	5.8
5	Malaysia	4.6	2.7	Indonesia	7.8	5.2
6	Germany	4.0	2.3	Malaysia	13.7	4.2
7	Korea	1.1	1.5	Japan	8.7	3.5
8	Hong Kong	3.6	1.5	India	1.6	3.4
9	Vietnam	0.1	1.4	Italy	0.9	1.9
10	United Kingdom	2.3	1.2	Germany	2.4	1.1
	Intra-ASEAN	15.5	50.2	Intra-ASEAN	42.9	44.6
	Total Exports	**1138.60**	**4753.74**	**Total Imports**	**2358.47**	**5520.09**

Source: Direction of trade Statistics (DOTS) 2009, IMF

Table - 3

Shares of Top-Ten Trade Commodities of CLM's Trade(1998-2007)

(Percent of Total)

	HS	Commodity	Exports 1998	Exports 2007	HS	Commodity	Import 1998	Import 2007
Cambodia								
1	61	Knit Apparel	46.8	58.8	60	Knit, Crocheted Fabrics	8.3	13.6
2	62	Woven Apparel	30.3	21.2	27	Mineral Fuel, Oil Etc	3.5	13.4
3	64	Footwear	3.4	9.1	84	Machinery	8.9	6.7
4	87	Vehicles, Not Railway	0.0	2.4	87	Vehicles, Not Railway	10.8	6.3
5	40	Rubber	3.6	1.7	85	Electrical Machinery	6.3	5.7
6	44	Wood	10.2	1.7	52	Cotton, Yarn, Fabric	5.5	5.0
7	71	Precious Stones, Metals	0.0	0.6	72	Iron And Steel	2.9	3.4
8	73	Iron/Steel Products	0.0	0.6	39	Plastic	2.2	2.8
9	24	Tobacco	0.0	0.5	30	Pharmaceutical	4.4	2.5
10	63	Misc Textile Articles	0.6	0.4	24	Tobacco	6.1	2.4
		Top-10	94.9	97.1		**Top-10**	58.9	61.7
		Total Exports	100	100		**Total Imports**	100	100
Lao, PDR								
1	74	Copper ,Articles Thereof	0.0	35.0	27	Mineral Fuel, Oil Etc	8.3	19.2
2	61	Knit Apparel	27.4	15.8	87	Vehicles, Not Railway	25.1	14.6
3	62	Woven Apparel	35.1	15.3	84	Machinery	9.8	13.4
4	44	Wood	17.1	13.9	85	Electrical Machinery	10.0	6.5
5	27	Mineral Fuel, Oil Etc	0.2	6.0	72	Iron And Steel	2.7	4.5
6	9	Spices, Coffee &Tea	12.1	3.5	22	Beverages	1.5	3.8
7	64	Footwear	1.1	1.4	73	Iron/Steel Products	3.2	2.8
8	10	Cereals	0.0	1.0	39	Plastic	1.7	2.3
9	85	Electrical Machinery	0.4	0.9	71	Precious Stones, Metals	0.1	2.1
10	40	Rubber	0.1	0.9	60	Knit, Crocheted Fabrics	1.8	1.9
		Top-10	93.6	93.8		**Top-10**	64.1	71.1
		Total Exports	100	100		**Total Imports**	100	100
Myanmar								
1	27	Mineral Fuel, Oil Etc	0.1	39.4	84	Machinery	17.3	17.2
2	44	Wood	17.8	18.6	27	Mineral Fuel, Oil Etc	6.9	10.7
3	62	Woven Apparel	18.7	12.4	85	Electrical Machinery	10.2	6.8
4	7	Vegetables	6.1	11.0	87	Vehicles, Not Railway	3.4	6.2
5	3	Fish And Seafood	15.2	5.1	73	Iron/Steel Products	6.7	5.8
6	71	Precious Stones, Metals	4.6	2.1	15	Fats And Oils	6.8	5.3
7	61	Knit Apparel	19.9	1.9	72	Iron And Steel	2.6	5.1
8	64	Footwear	1.0	1.2	39	Plastic	2.3	4.3
9	12	Misc Grain, Seed, Fruit	3.1	1.2	30	Pharmaceutical	1.5	2.8
10	40	Rubber	0.9	1.1	55	Manmade Staple Fibers	2.5	2.2
		Top-10	87.3	94.0		**Top-10**	60.2	66.4
		Total Exports	100	100		**Total Imports**	100	100

Source: Global Trade Atlas

Note: All shares are derived from partner countries trade data

Myanmar: Myanmar trades have grown at an average annual rate of 13 percent over the last decade to reach over US$10 billion in 2007. The major export destinations are Thailand, India and China whereas its import sources are China, Thailand and Singapore, in order. In 2007, Thailand took 44 percent of exports, mainly natural gas, and 19 percent of imports while China held 7 percent of exports and 20 percent of imports. Since early 2000, Myanmar export has been mainly dominated by natural gas, which accounted for 40 percent of total exports in 2007 mainly channeled to Thailand. Wood, woven apparel and vegetables are also top export commodities, with 19 percent, 12 percent and 11 percent, respectively, of total exports in 2007. Major import items are machinery, mineral fuel, oil, electrical machinery and vehicles, altogether taking 40 percent of total imports in 2007. Since imposition of trade sanction by the United States and European countries Myanmar trade mainly concentrates on its neighboring countries and, hence, the share of intra-ASEAN in Myanmar's trade takes around 50 percent in both exports and imports.

In fact, relatively low records of economic performance of Myanmar reflect its struggles in a number of challenging domestic and international problems. Moreover, the stagnation of economy has been highly deepened by the investment restrictions and trade sanctions imposed by Western countries.

4.   Empirical Analysis by using Gravity Model

4.1   Literature Review

Following the Newton's law of gravity, gravity model of international trade estimates the bilateral trades as a function of attraction factors such as economic mass and resistance factors such as distance or various obstacles to trade. Specifically, trade volume between two countries should increase with their GDPs, since rich countries should trade more than poor ones and decrease with geographical distance because proximity reduces transportation and information costs. Moreover, population (or per capita income) and land area are frequently included in the model as proxies for economic size. This standard model is commonly extended to include other factors generally perceived to affect bilateral trade relationships.

The gravity model was first applied to the international trade field by Tinbergen (1962) and Linneman (1966) as an econometric analysis of bilateral trade flows based on gravity-type equations to provide empirical evidence. Since then, many researchers applied variants of the gravity equation as an empirical benchmark for the bilateral trade volume. It is generally accepted that a number of trade models are responsible for the empirical success of the gravity equation. While the Heckscher-

Ohlin (H-O) theory would account for the success of the gravity equation in explaining bilateral trade flows among countries with large factor proportion differences and high shares of inter-industry trade, the Differentiated Product Model would serve well in explaining the bilateral trade flows among countries with high shares of intra-industry trade. Frankel (1997) formulated a more complex and advanced form of gravity equation by including geographical factors, such as distance, landlockedness and population as determinants of bilateral trade flows, and regional trading blocs in order to estimate the impact of regional integration on bilateral trade flows.

Hassan (2001) applied the gravity model to analyze trade creation and trade diversion effect of South Asian Association for Regional Cooperation (SAARC) and examine whether intra-SAARC trade is lower or higher than what is predicted by the model. He estimated the gravity model of trade (sum of imports and exports) and the results showed that SAARC trade is positively determined by the size of the economies, distance and adjacency of the trading partners. The analysis also found that SAARC member countries are yet to achieve trade-creating benefits.

Sohn (2005) used the gravity model to identify the underlying trade model of Korea's bilateral trade flows. He used such determinants of trade as GDP, distance, and trade conformity index and dummy variables for (Asia-Pacific Economic Cooperation) APEC. Empirical results proved that gravity model is very effective in explaining Korea's bilateral trade flows. He found that Korea's bilateral trade flows depend mainly on inter-industry trade and to lesser degree on vertical intra-industry trade. By comparing actual trade volume with predicted trade by the model, he also pointed out that there is significant un-exhausted trade potential from which Korea can enjoy a large trade expansion by forming a FTA with respective countries.

Achay (2006) investigated the determinants of trade flows between various countries of the world. He applied the gravity model on a sample of 146 countries for the five-year sub-periods between 1970 and 2000. His model included such determinants of trade as GDP, distance, and regional integration agreement. His findings showed that all estimated coefficients were statistically significant and their signs were in conformity with expectations. He found that GDP, per capita GDP, common frontier, common official language, common currency or common colonial past have a positive impact on the volume of bilateral trade. On the other hand, the geographical distance factor had a negative effect on the volume of trade.

Bussière and Schnatz (2006) practiced the gravity model to examine whether China's share in international trade is consistent with fundamentals of the model such as economic size, distance. They also included dummy variables for common language, common border, being same territory in

the past and participation in a free trade area (FTA) on sample of 61 countries for the period of 1980-2003. They proved that all explanatory variables significantly explained the evolution of trade flows between china and its trading partners over time.

Huot and Kakinaka (2007) analyzed Cambodia's bilateral trade flows through investigating the impact of trade structure in a framework of the gravity equation. They regressed the bilateral trade with the product of GDPs, the product of per capita GDPs, distance, exchange rate volatility, trade conformity index and dummy variables for ASEAN. The result showed that all explanatory variables have significant impact on Cambodia's trade flows, which are notably dependent on inter-industry trade that comes from factor endowment difference rather than intra-industry trade from monopolistic competition.

Simwaka (2007) used a gravity equation to analyze Malawi trade flows with its trading partners. In the model, the bilateral trade was regressed with economic size of the country, geographical distance, and exchange rate volatility and other factors. The result indicated that Malawi's bilateral trade is positively determined by the size of the economies (GDP of the importing country) and similar membership to regional integration agreement. On the other hand, transportation cost, proxy by distance, and exchange rate volatility depress Malawi's bilateral trade.

4.2 Methodology and Data

Since the theoretical foundation of gravity model had been establish in 1960s, most of the empirical studies have confirmed that the gravity equation remains at the center of applied researches on international trade of the day. However there is a little work that has been done on examining whether the gravity equation fits to the trade flows of new members of the ASEAN. This paper attempts to test to what extent the gravity model is applicable to explain the trade flows of the three newest members of ASEAN: Cambodia, Laos and Myanmar and to extract implications for their trade policies. The empirical analysis is conducted by using bilateral trade data of each CLM country with their 27 trading partners, which are same set of trading partner countries covering the top-20 trading partners of each CLM country, over the period from 1998 to 2007 after their accession to AFTA except for Cambodia that joined ASEAN in 1999.

The gravity equation that this paper seeks to estimate follows closely the standard gravity model developed by Frankel (1997), in which emphasis is given to the role of geopolitical factors such as distance, adjacency and regional trading blocs. In this study, the model uses five basic variables; GDP, gap in per capita income between each pair of trade partners, distance, adjacency, and FTA.

Moreover, to address the peculiarity of their trade patterns, this paper adds one more variable, generalized system of preference (GSP) and in case of Myanmar, dummy variables for trade sanction.

The empirical gravity equation takes the form:

$$Ln\ T_{ij} = \alpha + \beta_1 Ln[Y_i] + \beta_2\ Ln[Y_j] + \beta_3\ Ln\ [GAP_{ij}] + \beta_4\ Ln\ D_{ij} + \beta_5\ FTA_{ij} + + \beta_6\ GSP_{ij} + \beta_7\ ADJ_{ij} + \varepsilon_{ij} \qquad (1)$$

where T_{ij} is the bilateral trade flow (exports + imports) between each CLM country (i) and its trading partner (j). Since national products are valued at current exchange rates, the influence of exchange fluctuation can distort the underlying trade pattern. Drysdale (2005) recommended to use the purchasing power parity (PPP) valuations of national product in order to estimate the relative size of economies. Thus, Y_i and Y_j stand for GDPs of country i and partner j based on PPP, which are considered as an approximation for economic sizes of respective countries, in terms of both production capacity and market size. GAP_{ij} is the absolute value of difference in per capita GDP (PPP) of country (i) and partner (j), which is used as a proxy for level of development stage gap of each pair of countries to determine the trade pattern between CLM countries and their trading partners. D_{ij} is the distance variable, measured in terms of great circle distances between the capitals of country i and partner j. FTA_{ij} is a dummy variable assuming the value "1" if country i and partner j have a free trade agreement and "0" otherwise. GSP_{ij} is also a dummy variable which takes on a value of "1" if partner country j grants preferential tariff treatment to each CLM country and a value of "0" otherwise. ADJ_{ij} is a dummy variable with the value "1" if country i and partner j share a common land border and "0" otherwise and ε_{ij} is the error term. In the equation, all variables are in natural logarithm except for dummy variables.

In the case of Myanmar, one important dummy variable, SANC, is added in the model to examine the impact of trade sanctions on bilateral trade flows of Myanmar, which is "1" if partner country imposes trade sanction on Myanmar and "0" otherwise, since the United States imposed the trade sanctions on Myanmar since 2003. The resulting equation takes the following form:

$$Ln\ T_{ij} = \alpha + \beta_1 Ln[Y_i] + \beta_2 L\ [Y_j] + \beta_3 Ln[GAP_{ij}] + \beta_4 LnD_{ij} + \beta_5 FTA_{ij} + \beta_6 GSP_{ij} + \beta_7 ADJ_{ij} + \beta_8 SANC_{ij} + \varepsilon_{ij} \quad (2)$$

Since countries seem to export more or import more as their size and purchasing power increase, bilateral trade volume is expected to rise when the GDPs of respective countries increase. This implies that our estimated coefficients, β_1 and β_2, are predicted to be positive. Bergstrand (1989) and Frankel (1997) among others suggest the gravity equation should include both income and per capita income. This study incorporates GAP into our gravity model in order to identify the trade pattern of respective countries since the GAP reflects some of the differences in location advantages and factor endowments between exporting and importing countries. The coefficient of GAP, β_3

would be positive when trade volume increases with higher gap in per capita income which implies that the country trade more with more developed countries. On the other hand, the coefficient becomes negative when trade volume increase with falling income gap, which implies that the country has strong trade relationship with the country at similar development stage.

Furthermore, the distance between each CLM country and its trading partner j, D_{ij}, reflects trade barriers such as transportation cost, delivery time, and market access barriers, etc. Most of previous literature interpreted the coefficient of distance variable as the elasticity of trade with respect to an absolute level of geographical distance. Since a larger trade resistance factor is likely to lessen bilateral trade volume, in this study, the coefficient β_4 is anticipated to be negative. To examine the extent to which a regional trade arrangement is important in determining each country bilateral trade flows, a dummy variable, FTA_{ij}, is included in the model. This provides a means of determining how much trade within each FTA is due to factors common to trade throughout the world and how much remains to be explained by the effects of FTA. Since each country's bilateral trade volumes are expected to expand through FTA membership, the sign of the coefficient β_5 is expected to be positive.

In addition, since the preferential tariff privilege granted by partner countries can directly stimulate the exports volume of respective country and also encourage imports from them with the lesser extent, GSP_{ij} may have a positive impact on bilateral trade volumes. As the existence of a common border usually facilitates trade, the coefficient of adjacency, β_6, is supposed to be positive. For Myanmar, the trade sanction imposed by the United States has an impact on its direction of trade after 2003, the coefficient of trade sanction, $SANC_{ij}$, is likely to be negative.

In this study, ordinary least-squares (OLS) linear regression is conducted by using Statistical Package for the Social Sciences (SPSS version-17). Although SPSS is given the tremendous popularity throughout the social science community, it provides no means for correcting OLS standard error estimates for the possible effects of heteroscedasticity to the user. In this paper, therefore, the heteroscedasticity-consistent standard error estimates of OLS regression (HCREG) is conducted by using the SPSS macro formulated by Hayes (2003). The macro is implemented based on the methods described in MacKinnon and White (1985) for computing a heteroscedasticity-consistent covariance matrix (HCCM) and heteroscedasticity-consistent standard error estimates in OLS regression (HCREG).

For analysis, firstly, top-twenty trade partners of each CLM country are selected and then by combining those partners, common 27 trade partners are included in analysis which cover about 90 percent of total trade volume of each CLM country. Nominal trade flows are from the Direction of

Trade Statistics, DOTS (May 2009) from International Monetary Fund (IMF) for the period from 1998 to 2007; these data are deflated by U.S. GDP deflator to generate real trade flows. Missing trade flows are excluded and $\ln(1+T_{ij})$ is used to deal with zero trade values in logs.

GDP, per capita GDP and U.S GDP deflator come from IMF's World Economic Outlook Database (2009) and then GDP and per capita GDP are deflated by U.S. GDP deflator. The distance is measured in kilometers as the direct line distance between the capital cities of the two countries which is taken from GEOBYTES. GSP statuses are collected from Handbooks on the GSP Schemes of United Nations Conference on Trade and Development (UNCTAD).

4.3   Empirical Results

4.3.1   OLS Regression Results

The pooled cross-sectional OLS regression results for the period of 1998-2007 are presented in Table 4. It is observed that the overall performance of the model seems to be good with high R^2 values of over 70 percent and almost all estimates of the coefficients are highly significant with expected signs, indicating that the gravity models are fitting and efficient in explaining bilateral trade flows of CLM countries. Following this, the empirical results of each country are reported.

Cambodia

The power of the model to explain the variation of Cambodia's bilateral trade flows is considered to be strong enough as the value of the R^2 is almost 0.72 and the value of F-test, the overall significance of the model, is highly significant at 1 percent level. All standard variables (GDPi, GDPj, GAP, and Adjacency) are highly significant at the 1 percent level and other two explanatory variables, Distance and FTA, are significant at 5 percent level. All variables except for GSP have their expected signs.

The estimated coefficient of the GDPi is 0.847 and GDPj is 1.035 which means that, holding constant for other variables, a 1 percent point increase in Cambodia's GDP will result in, roughly, a 0.85 percent point increase in its bilateral trade flows and similarly, a 1 percent point increase in partner's GDP will promote their bilateral trade flows proportionately. The results are consistent with fundamental hypothesis of the gravity model that trade volume is increasing in economic sizes of trading partners. The estimated coefficient on the GAP is 0.969, which implies that a 1 percent point increase in difference in per capita GDPs between Cambodia and its trade partners will lead to increase in their bilateral trades nearly 1 percent point, holding other variables constant. Since GAP

represents the different level of income with different production and consumption pattern, increasing GAP lead to higher trade in different industrial sector (inter-industry trade) than trade within same industry (intra-industry).

The significant and negative coefficient of the distance variable suggests that geographical distance is a barrier for Cambodia's bilateral trade flows and it follows the basic assumption of the gravity model. When the distance increases in 1 percent point, the trades between Cambodia and its trading partner decreases by 0.58 percent point, holding other variables constant. Regarding the FTA variable, positive and significant coefficient indicates that trade volume between Cambodia and its trading partners is increased when both are members of a FTA. The estimated coefficient of FTA is 0.564 which means that, its trade flows with a member of particular FTA is almost 1.8 times [exp(0.564)=1.758] as much as those with a non-member.

The unexpected negative sign of for GSP variable (-1.737) suggests that Cambodia's bilateral trade flows with the countries which offer GSP privilege is roughly 0.2 times [exp(-1.737)=0.176] as low as two otherwise similar countries. Though this result may be plausible with ASEAN member countries, China and Korea because they do not offer any GSP privilege to developing countries, it is not clear why it may be so with other trading partners. The estimated coefficient of adjacency is 2.668, indicates that two countries sharing a common border trade about 14 times [exp(2.668)=14.411] as large as those with non-border.

The relative contribution of each variable in determining Cambodia's bilateral trade flows was estimated by using the standardized regression coefficient (β-coefficient). The β-coefficient for the GDPi, GDPj, GAP, distance, FTA, GSP, and adjacency were estimated at 0.113, 0.608, 0.702, -0.268, 0.113, -0.416, and 0.359, respectively. Therefore, it can be seen that the most influential factor, explaining almost 30 percent of the variability of Cambodia's bilateral trade flows is GAP. The next most important is the GDP of partner country, explaining 24 percent, followed by adjacency and distance with 14 percent and 10 percent, respectively. The relative influence of Cambodia's GDP and FTA are minimal, each taking 4 percent even their coefficients are significant.

Lao, PDR

The specified model explains the variation of bilateral trade flows of Lao quite well, as the value of R^2 is more than 74 percent. The value of F-test, the overall significance of the model, is also highly significant at 1 percent level. All explanatory variables show expected sign and highly significant at 1 percent level except for GDPi, which is insignificant although it has positive coefficient.

Table – 4

Regression Result of Gravity Equation of CLM Country

Explanatory Variables	Cambodia		Lao, PDR		Myanmar	
	OLS Coefficient (B)	Std. Coefficient (β)	OLS Coefficient (B)	Std. Coefficient (β)	OLS Coefficient (B)	Std. Coefficient (β))
Constant	-8.721*** (2.462)	-	1.158 (1.450)	-	5.757*** (1.310)	-
GDP of Country i	.847*** (.285)	.113	.256 (.323)	.025	-.185 (.171)	-.034
GDP of Partner j	1.035*** (.065)	.608	.650*** (.068)	.425	1.156*** (.053)	.730
GAP	.969*** (.081)	.702	.631*** (.063)	.536	.664*** (.090)	.464
Distance	-.578** (.293)	-.268	-1.259*** (.163)	-.648	-1.787*** (.096)	-.801
FTA	.564** (.271)	.113	.721*** (.218)	.165	.960*** (.133)	.211
GSP	-1.737*** (.526)	-.416	1.174*** (.234)	.320	.084 (.117)	.022
Adjacency	2.668*** (.486)	.359	3.021*** (.264)	.531	.687** (.269)	.129
Trade Sanction of U.S.	-	-	-	-	-3.738*** (.233)	-.241
No. of observation	270		270		270	
R²	.716		.742		.795	
Adjusted R²	.708		.735		.788	
F-statistics	61.454***		107.262***		142.240***	

Note: 1. Heteroskedasticity-consistent standard errors (White) are in parentheses.
2. *** and ** and * mean significant at 1%, 5% and 10% level, respectively.
3. All variables except dummy variables are in natural logs.

The estimated coefficient of the GDPi is 0.256 and GDPj is 0.650 which implies that a 1 percent point increase in Lao's GDP will promote bilateral trade flows by 0.26 percent point and also rising 1 percent point in partner's GDP will lead to 0.65 percent point increase in their bilateral trade flows, holding constant for other variables. Sohn (2005) suggested that there are three possible reasons for less proportionate increase in bilateral trade volume with increase in GDP: 1). the existence of relatively larger home-market effect, i.e. a home-bias effect, such as localized taste or

local distribution networks, play a greater role in trade; 2). lower level of intra-industry trade, i.e. a country enjoying a lesser scale economies will trade a smaller volume, and 3). the extent of trade barriers. The estimated coefficient on the GAP is 0.631, which means that a 1 percent point increase in difference in per capita GDPs of two countries will lead to 0.63 percent point increase in their bilateral trades, holding other variables constant. Since GAP is used as a proxy for differences in locational advantages such as wages rate, investment climate between partner countries, the positive coefficient of GAP indicates that Lao trades more with more developed countries.

The distance variable is statistically significant with the expected negative sign, highlighting that geographical distance is an important resistance factor for bilateral trade flows especially for landlocked countries like Lao. The coefficient of distance variable is 1.259 indicating that when distance between two countries is higher by 1 percent point, trade between them falls by 1.26 percent point. This finding is consistent with previous studies, although the magnitude of the coefficients is slightly larger than their result (Frankel, 1997 and Buch et al., 2003). Probably transportation costs have a greater impact on smaller developing economies like Lao than bigger developed ones. FTA variable is highly significant with a positive coefficient of 0.721; this means that, if Lao and its trading partner belong to any specific FTA, Lao's bilateral trade flow with that country will be two times [exp(0.721)=2.056] as great as those with a non-member.

The high significance with expected positive sign in GSP variable (1.174) indicates that Lao's bilateral trade flows with the countries which offer GSP privilege is 3 times [exp(1.174)=3.235] higher than otherwise. Similarly, having highly significant, positive coefficient of 3.021 on common border implies that trade between the two countries is twenty times [exp(3.021)=20.512] higher than otherwise, highlighting the Lao's much reliance on trade with neighboring countries.

To evaluate the relative significance of each variable in Lao's bilateral trade flows, the standardized regression coefficient (β-coefficient) can be used. The highest β-coefficient is 0.648 for distance variable, explaining 24 percent of the variability of Lao's bilateral trade flows. The next influential variables are GAP and Adjacency, each accounting 20 percent, followed by the GDP of partner country with 16 percent. The relative influence of Lao's GDP seems to be almost 0 as it proved to be an insignificant factor.

Myanmar

The power of the model to explain the variation in bilateral trade flows of Myanmar is considered to be strong as the value of the R^2 is roughly 0.80 and the value of F-test, the overall significance of the

model, come out highly significant at 1 percent level. Almost all explanatory variables show expected sign in coefficients and highly significant at the 1 percent level whereas Adjacency is significant at 5 percent level. The coefficient of GDPi and GSP are insignificant while former shows unexpected sign.

The estimated coefficient of GDPj is around 1.156, suggesting that the increase in partner country's GDP by 1 percent point will rise up almost 1.2 percent point of bilateral trade volume which is consistent with the basic hypothesis of the gravity model that trade volumes will increase with an increase in economic size of trade partners. The unexpected negative sign in the coefficient of GDPi suggests that Myanmar's GDP is inversely related with its bilateral trade volume with trading partners even though it is insignificant. The coefficient of GAP variable is highly significant with 0.664. As per capita GDP of Myanmar is fixed, the greater the GAP means the higher the per capita GDP of partner country. The positive and significant coefficient of GAP indicates that Myanmar's trade flows are dependent on its trading partners' income level. However, the coefficient of GAP is much lower than that of GDPj. It can be concluded that Myanmar's trade patterns would be affected by its trading partner's overall economy size rather than their consumers' purchasing power. Moreover, it can be envisaged that Myanmar export items are quantity-based standardized products that are sensitive to the overall market size rather than quality-based high value-added products that are sensitive to the trading partner's income level.

Highly significant negative coefficient of distance variable (1.787) indicate that when the distance between Myanmar and its trading partner is increased by 1 percent point, the bilateral trade between them falls by about 1.8 percent point, holding other variables constant. FTA variable is highly significant with positive coefficient of 0.960, which implies that if Myanmar and its trading partner belong to any specific FTA, their bilateral trade flows will be more than 2.6 times [exp(0.960)=2.612] as large as those with a non-member. The estimated coefficient of GSP is 0.084 which means that Myanmar's bilateral trade flows with the countries which offer GSP privilege is 1.1 times [exp(0.084)=1.088] as much as two otherwise similar countries. The coefficient on adjacency is about 0.687 which suggests that two countries sharing a common border trade roughly 2 times [exp(0.687)= 1.988] as high as those with non-border. Combining with high significant of distance variable, it can be conjectured that the Myanmar's trades mainly concentrate on its neighboring countries. The sanction variable is statistically significant with negative coefficient of -3.738, which stipulates that Myanmar's bilateral trade flows with the countries which imposed trade sanction on it is roughly 0.02 times [exp(-3.738)=0.024] as low as two otherwise similar countries.

Overall, the standardized regression coefficient (β-coefficient) of distance has the largest value among explanatory variables, explaining 30 percent of the ability to predict the variability of Myanmar's bilateral trade flows when the variance explained by other variables is controlled for. The next most

important variables is partner country's GDP, taking 28 percent, followed by GAP with 18 percent. β-coefficient of FTA and trade sanction are 9 percent and 8 percent, respectively, indicating lesser contribution to variability of bilateral trade flows between Myanmar and its partners. The relative influence of Myanmar's GDP sand GSP seems to be almost 0 each as it proved to be an insignificant factor.

4.3.2   Comparison of Actual Trade with Trade Potential

The gravity model is supposed to provide a long-term equilibrium view of trade flows. The difference between actual trade flow and its long-term equilibrium value can be regarded as unexhausted trade potential. Baldwin (1994), Nilsson (2000) and Sohn (2005) suggested that the ratio of potential trade to actual trade as a measure of the degree of trade integration. Indeed, the gravity model prediction can be differed from actual trade volume due to various reasons. The most obvious reason is exclusion of immeasurable variables in gravity estimation like domestic policies including competition and antitrust rules, corporate governance, product standards, worker safety, regulation and supervision of financial institutions, environmental protection, tax codes and other national issues. In this paper, the important viable that left out in the gravity equation is trade barriers which encompass various forms such as tariffs, non-tariff barriers, and other trade restrictions due to the unavailability of data, thus, the unrealized trade potential can be seen as the result of trade barriers.[1] The comparison between actual and potential trade volume of CLM countries in 2007 are presented in Table 5, in which the potential trade is predicted by using gravity equation.

In Cambodia, actual trade volumes with almost all top-ten trade partners are higher than trade potential predicted by the model except for Thailand, Korea and Japan. The ratio of the United States, Germany, United Kingdom and Hong Kong are significantly high reflecting its strong trade relationship with the countries outside ASEAN, mainly accountable by garment exports. Significantly high ratio of Vietnam is mainly due to its large volume of imports from neighboring country. The high ratio of China also reflects its importance as an import source for Cambodia. Even though Thailand is the neighboring country and its second largest partner, the trade volume is less than half of its trade potential (42 percent) in 2007, indicating some trade obstacles between two countries. At the same time, another possible reason for the low ratio is the smuggling and unrecorded trade in border areas. The actual trade volume with Japan and Korea are also about two-third of its potential, highlighting the requirement to promote trades with them to realize trade potential.

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[1]   The exchange rate volatility is also excluded due to the reason that any exchange rate volatility affects all trading partners equally as US dollar is the invoicing currency of most trades in CLM economies. Moreover, common language and historical ties are also omitted as they are irrelevant for CLM countries.

Table – 5

Actual and Predicted Trade Flows (2007)

(US$ Million, Percent)

	Cambodia	Actual Trade	Predicted Trade	Act : Est (%)		Lao, PDR	Actual Trade	Predicted Trade	Act : Est (%)		Myanmar	Actual Trade	Predicted Trade	Act : Est (%)
1	USA	2099.7	648.6	324%	1	Thailand	1564.3	1032.4	152%	1	Thailand	2637.0	3491.7	76%
2	Thailand	1281.8	3054.7	42%	2	Vietnam	253.6	146.2	173%	2	China	1834.5	2215.8	83%
3	Vietnam	1063.1	100.1	1062%	3	China	227.4	1540.7	15%	3	Singapore	760.7	297.0	256%
4	China	847.8	641.7	132%	4	Korea	104.5	35.1	297%	4	India	730.9	769.9	95%
5	Hong Kong	576.2	228.6	252%	5	Germany	64.9	20.8	312%	5	Japan	386.6	493.6	78%
6	Singapore	466.5	446.2	105%	6	Japan	43.9	65.7	67%	6	Korea	329.3	410.7	80%
7	Germany	274.6	121.1	227%	7	UK	41.4	15.9	261%	7	Malaysia	299.0	263.0	114%
8	Korea	265.1	399.1	66%	8	Singapore	36.8	22.5	164%	8	Indonesia	263.9	95.1	278%
9	Japan	207.7	279.3	74%	9	Malaysia	35.6	14.0	255%	9	Germany	140.6	111.2	126%
10	UK	181.4	91.1	199%	10	France	32.4	14.9	218%	10	Italy	125.4	58.4	215%
11	Canada	162.9	47.5	343%	11	USA	28.1	11.8	238%	11	Hong Kong	106.0	115.3	92%
12	Malaysia	139.3	188.8	74%	12	Australia	24.1	10.3	234%	12	Vietnam	77.2	72.4	107%
13	Indonesia	112.8	50.4	224%	13	Belgium	17.8	5.3	339%	13	UK	53.4	69.6	77%
14	France	111.3	81.8	136%	14	Hong Kong	12.4	17.9	69%	14	France	50.9	64.4	79%
15	Spain	98.4	45.3	217%	15	Netherlands	10.0	8.1	123%	15	Australia	42.3	27.8	152%
16	Belgium	70.1	15.0	466%	16	Poland	9.2	5.1	181%	16	Spain	37.8	31.8	119%
17	Australia	46.5	39.0	119%	17	Italy	7.7	13.7	56%	17	Bangladesh	27.8	17.5	159%
18	Italy	38.7	66.4	58%	18	India	6.7	12.7	53%	18	Ukraine	24.2	3.8	628%
19	Netherlands	32.6	29.2	111%	19	Sweden	6.1	5.8	104%	19	Netherlands	22.2	19.7	112%
20	India	29.1	48.6	60%	20	Canada	5.7	7.8	73%	20	Belgium	12.8	9.7	132%
21	Switzerland	23.2	14.0	165%	21	Indonesia	5.6	3.8	146%	21	Denmark	8.2	5.6	147%
22	Sweden	22.5	14.7	153%	22	Ireland	3.7	3.6	103%	22	USA	7.9	7.8	101%
23	Ireland	16.8	8.7	192%	23	Spain	3.6	9.5	38%	23	Canada	7.4	20.3	37%
24	Denmark	10.3	8.6	120%	24	Switzerland	3.5	5.1	69%	24	Sweden	4.6	10.7	43%
25	Poland	3.8	12.0	32%	25	Denmark	3.2	4.0	79%	25	Switzerland	2.8	9.3	30%
26	Ukraine	1.9	13.1	15%	26	Ukraine	0.4	0.6	73%	26	Poland	1.3	13.1	10%
27	Bangladesh	0.6	2.4	23%	27	Bangladesh	0.0	1.0	0%	27	Ireland	1.2	4.4	27%

As for Lao, the trade ratios of almost all top-ten trade partners including four ASEAN countries, Thailand, Vietnam, Singapore, and Malaysia, are higher than 100 percent which means that Laos is well integrated with its trade partners. High ratios of Thailand and Vietnam highlight their position as transit countries since Lao is landlocked country and all traded goods have to pass through the neighboring countries. The actual trade volume with the United States and some European countries such as Germany, United Kingdom, and France are more than two times of predicted trade volume. Among East Asia, the trade ratio of China and Japan are much lower than that of Korea, which records roughly 300 percent. In the case of China, although it is a neighboring country and its third largest partner, the trade volume is remarkably low as only 15 percent of trade potential in 2007, indicating some trade barriers as well as informal trade in border areas. It also highlights the very large unexhausted trade potential between Laos and China. By fully realizing the Free Trade Agreements between ASEAN and these East Asian countries the untagged trade potentials are expected to grasp in near future.

In the case of Myanmar, among top-ten trading partners, the actual trade volumes of many Asian countries such as Thailand, China, India, Japan, and Korea are lower than trade potentials predicted by the model. Among ASEAN, Singapore, Malaysia, Indonesia and Vietnam record high trade volume with more than 100 percent. There are several reasons for significantly high ratio at Singapore. Main reasons are the import-export transactions of the branch offices located in Singapore, which are set up by the many Myanmar business firms to facilitate their trades and the convenience of bank transactions between Singapore banks and stated-own Myanmar Foreign Exchanged Bank (MFTB) and Myanmar Industrial and Commercial Bank (MICB). Another reason is Myanmar's reliance on logistic services of Singapore. As there are very few cargo ships and container services in Myanmar, most exporters and importers normally use Singapore's logistic services.

Although Thailand and China are two largest trade partners as well as sharing the same border with Myanmar, the trade with these two partners has yet to be exploited to the full potential predicted by the gravity model. The low ratios of Thailand and China also suggest the existence of some trade barriers and the extent of unrecorded informal trades and smuggling in the border area. And the bilateral trade volumes with India, which is the second largest export destination of Myanmar, also left far behind the potentials estimated by the model, indicating the latent trade potential. Even though the United States and European Union have imposed the investment restrictions and trade sanctions on Myanmar, their actual trade volume are generally higher than the potential predicted by the model as an indication of reaching full trade potential. On the other hand, the actual trade volumes with all East Asia countries: China, Japan and Korea are lower almost by 20

percent than their potentials projected by the model, highlighting an urgent need to further liberalize the trade with them in order to realize the full potential.

Overall, CLM countries have already reached the trade potential with almost all ASEAN countries except for Thailand in the case of Cambodia and Myanmar. CLM's trade volumes with the United States and most European countries are much larger than the forecasted trade volumes of the gravity equation highlighting their well-integration with these economies. On the other hand, the trade relations with East Asian countries, namely China, Japan and Korea, have yet to reach their full potential albeit ASEAN+1 FTAs have being implemented. Since it is an indicator for the existence of substantial trade barriers between trade partners, CLM countries should endeavor to promote bilateral trade through elimination of trade barriers, thus each country can enjoy large benefits from unexhausted trade potential.

5.   Findings and Policy Recommendations

Generally, the economies of CLM countries are similar in factor endowments and cost structures. However, at the present, the low level of industrialization and, hence, insufficient diversification of their production base creates mainly dependence of their exports on very few commodity groups based on different factor endowments. In the case of Cambodia, garment products mainly knitted apparel, woven apparel and footwear take up 90 percent of total exports. Even though garment industry is classified as a manufacturing sector, it is greatly labor-intensive and low technology involvement, accordingly, limited opportunity for technology transfer and industrial development. When looking at Laos and Myanmar, they are more far behind than Cambodia in industrialization process as their exports mainly depend on natural resource-base sectors. About 35 percent of Lao's exports are occupied by copper products while roughly 40 percents of Myanmar exports are dominated by natural gas. And then, wood products share almost 14 percent and 19 percent in exports of Lao and Myanmar, respectively. Aside from wood products, garments and footwears are important export items in both countries. These figures highlight the high dependence on natural factor endowments and low level of industrialization in their economies.

Regarding the direction of trades, Cambodia mainly orients toward western countries for its exports while major imports sources are ASEAN and East Asia countries. The trade relation of Lao and Myanmar mainly concentrates on ASEAN countries and with lesser extent East Asia countries. For Myanmar, the trade sanction of the United States and economic restriction of European countries are apparent reasons for concentration of its trades on Asia countries.

The empirical results of the analysis highlight the fact that major determinants of trade flows between CLM countries and their trading partners are partner country's GDP, GAP, distance, FTA and adjacency. It implies that their trade volumes grow up with an increase in economic size of trade partners and larger differences in per capita income between them. However, Myanmar's trade pattern is more affected by its trade partner's overall economy size than their consumers' purchasing power and vice versa in Cambodia and Lao. In fact, GAP represents the different level of income with different production and consumption pattern, rising GAP lead to increase in inter-industry trade rather than intra-industry trade. Moreover, geographical distance is an important resistance factor for bilateral trade flows especially for small landlocked countries like Lao. At the same time, FTA has a significant impact on increasing bilateral trade flows between CLM countries and their partners. For Myanmar, the trade sanction also has large impact on Myanmar trades. It can be envisioned that improving political process in Myanmar will lead to increase in its international trades.

CLM countries have already reached the trade potential with almost all ASEAN countries except for Thailand. Although Thailand is sharing the border with all CLM countries and China has the common border with Lao and Myanmar, their trade volumes are far behind the trade potential predicted by the model. Large extent of unrecorded informal trades and smuggling in border is likely to be one of the reasons for lowering the ratio of actual trade to trade potential. On the other hand, high trade ratio of Singapore indicates its entrepôt position in ASEAN and a hub of the financial and business services. The trade volumes with the United States and most European countries are higher than the forecasted trade volumes, reflecting their well-integration with these economies. However, the trade relations with East Asian countries mainly China, Japan and Korea have yet to be exploited to their full potential even though ASEAN+1 FTAs have being implemented.

The outcomes of the study highlight the need for a set of development and reform policies for CLM countries. Given different factor endowments and the importance of resource-based sectors, in the short-term, industrialization process in CLM countries should focus on the value-added natural resource-based products and labor-intensive manufactured goods for exports with the purpose of conserving capital and providing as much employment as possible. However, since natural resources-based sector has a limited opportunity for intra-industry trade whereas technology-intensive structures offer better prospects to realize economic benefits associated with intra-industry integration, CLM countries should move upward in the development ladder by shifting from primary sector to secondary sector in the long-term. For this purpose, they need to speed up foreign trade liberalization, financial sector reforms, improvement in investment regime, privatization of state-owned economic enterprises and private sector development especially the promotion of small and

medium enterprises, infrastructure development, and intensification of domestic savings mobilization.

Having large extent of informal trades and smuggling in border areas, CLM countries need to take possible measures to formalize these trade activities, thereby, the government can enjoy the custom duty to improve their revenues at least in the short-term before full realization of implementing FTAs while consumers benefits from wider varieties of safety products at a lower price. At the same time, there is an urgent need to promote bilateral trades between CLM countries and their East Asian trade partners through elimination of trade barriers in order to enjoy large benefits from unexhausted trade potential. For this purpose, CLM countries need to accelerate the pace of trade liberalization by speeding up the elimination of tariff and non-tariff barriers and simplification of trade facilitating procedures under the context of ASEAN+1 FTAs.

However, for CLM economies, the import tariffs have been used not only for protecting domestic producers but also as a major source of government revenue. It is clear that all CLM countries stand to lose substantial amounts of customs revenue due to tariff reduction in the short-term. Nevertheless, in the long-term, the regional trade liberalization will lead domestic industries to increase efficiency, improve quality and lower costs through competition of imports. Moreover, by being able to import raw materials, intermediate inputs, capital machinery and technology from major partner countries, which are seemingly cheaper sources of supply, CLM countries may develop significant manufacturing capacity. By adding more value to its products, export potentials will be enhanced and thus, it would be able to not only get back the revenues lost from tariff concessions but also to enhance the growth of new industries and ultimately development of the whole economy.

6.   Conclusion Remarks

CLM countries, latecomers of ASEAN, endeavored to integrate their economies to the region through several institutional and economic reforms. Since their membership in AFTA, trade volumes of CLM countries have grown rapidly while the patterns and directions of trade of CLM countries have significantly changed with the several reasons. Recognizing the importance of international trade in CLM economies, this study attempted to analyze the trade patterns of CLM countries based the gravity model, one of the most efficient models in explaining international trade. This paper also seeks to identify the determining factors of each country's bilateral trade flows and policy implications for promoting their trade.

According to the results of this study, CLM's trade patterns are mainly affected by partner country's GDP, the difference between per capita GDPs of two countries, distance, adjacency, and presence in particular FTA. Thus, it can be conjectured that CLM countries need to promote their bilateral trade with countries in close proximity and having large economic size and high consumers' purchasing power through accelerating their trade liberalization efforts in FTAs in progress with those countries. In case of Myanmar, since the trade sanction has large impact on its trade flows, improving political process is expected to increase its trade volumes and ultimately lead to development of the whole economy.

Moreover, according to the results of comparison between actual trades and potential trades, CLM countries have already reached the trade potential with the United States, most European countries and almost all ASEAN countries except for Thailand while the trade relations with East Asian countries mainly China, Japan and Korea have yet to be exploited to their full potential even though ASEAN+1 FTAs are in progress. This finding highlights again the urgent need to promote bilateral trades between CLM countries and their East Asian trade partners by hastening the elimination of tariff and non-tariff barriers and simplification of trade facilitating procedures under the context of ASEAN+1 FTAs in order to enjoy large benefits from unexhausted trade potential.

This paper has attempted to identify empirically the underlying trade patterns and to provide applicable trade policy implications under the framework of basic gravity model without analyzing the corresponding theoretical basis. The empirical outcomes might differ if such omitted explanatory variables as tariffs, NTBs, and other trade restrictions are included in the model or if bilateral trade volumes are disaggregated into commodity level. Although this study used total trade volumes (sum of exports and imports) as a dependent variable, the separated analyses for exports and imports might also have more specific implications for trade policy of respective countries. Nonetheless, this study is believed to have significant implications for promoting bilateral trades in CLM countries and more detailed researches on this topic are expected to continue in the near future.

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