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Whither Sub-Regional Cooperation? The CLMV Perspective[1]

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***Abstract*:** Recent debates advocate that closer sub-regional cooperation may be an excellent start to stronger regional cooperation. The study investigates this proposition for the case of CLMV countries that remain less integrated into the ASEAN region, based on their trade links with China. In this respect, the China-CLMV trade flows are examined, prior to detailing the role of China as a core trading partner to CLMV, within the context of intra-ASEAN regional and intra-GMS sub-regional synergies. The study points out that overall, the CLMV trade relations with China remain unbalanced in terms of volume and structure of trade. Nevertheless, sub-regional membership of CLMV in the GMS is found to be relevant for deepening China-CLMV trade ties for two reasons. First, China plays a greater catalytic role, along the dimension of an export destination, in enhancing intra-GMS trade relative to intra-ASEAN trade. Second, common border effects are found to be significant only for sub-regional trade, consistent with border trade as the modality of cooperation within the GMS.

***Keywords*:** ASEAN, China, CLMV, GMS, gravity model, sub-regional cooperation

***JEL classifications*:** F10, F14

1. Introduction

As the global economic recession weighs on trade, China seeks to further deepen her economic ties with the Association of Southeast Asian Nations (ASEAN). In China's economic relations with ASEAN, trade occupies the most important position, given China's unique potential to drive intra-regional trade (Guttal, 2006; ADB, 2009a). The less developed countries of ASEAN, Cambodia, Laos, Myanmar and Vietnam (CLMV), however have a much lower level of trade cooperation with China (Lwin, 2009) relative to that of Malaysia, Thailand, Philippines, Indonesia, Singapore and Brunei (ASEAN6). Imbalances

are also identified in the China-CLMV trade, which comprises the following: high import dependence of CLMV on China (Kudo, 2007); low degree of participation of CLMV in regional production networks (Kudo, 2007, 2009); broad industrial structure of China, coupled with quality advantage of Chinese products over those of CLMV; low complementary structures between China and CLMV; and small export base[2] of CLMV (Austria, 2004; Hao, 2008; ADB, 2007a; Zhao *et al*., 2008; Lwin, 2009). In addition, the average development gap[3] between China and CLMV has widened with time.

The imbalances in China-CLMV trade, also raise the prospects of CLMV to be bystanders in the overall process of regional integration (Chia, 2006; Sussangkarn, 2006; Poncet, 2006; Hao, 2008; Kimura and Obashi, 2009; Narjoko *et al*., 2009). There is already a clear divide between the richer core of original members (ASEAN6) and the poorer, under-developed CLMV members, giving rise to what is known as a two-tiered ASEAN. The complete phasing-in of the ASEAN-China Free Trade Area (ACFTA) in 2010, whereby provisions of the ACFTA on CLMV will apply only in 2015, raises concerns of a further destabilising rift appearing between the ASEAN6 and CLMV and between China and CLMV. In the enlarged regional ACFTA cooperation agenda, with China as the "core" to the "periphery" ASEAN economies, the importance of direct trade integration between the former and CLMV becomes somewhat more critical.

The CLMV countries, within the context of the regional economic system,[4] have another platform from which to enhance trade with China. This involves sub-regional cooperation under the Greater Mekong Sub-region (GMS) programme. The GMS[5] program, initiated by the Asian Development Bank (ADB) in 1992 to promote integrated development across the sub-region, comprises CLMV, Thailand and the Yunnan Province of China. In 2004, the Guangxi Zhuang Autonomous Region joined the GMS. Whilst some opine that CLMV should be considered within the broader context of their trade relations with other countries in the region (see also Poncet, 2006), and plausibly outside the region (see Tumbarello, 2007), progress in China-CLMV trade has already been noted within the GMS context over the past decade (ADB, 2008). Potentials for a higher degree of trade integration (Poncet, 2006) are cited, based on complementarities between China and CLMV arising mainly from differences in factor endowments and price structures (Kudo, 2007). Apart from those complementarities, China's (more specifically the Yunnan Province) foreign trade with CLMV is largely based on border trade (Zhu, 2009). In fact, the importance of border-trade is often underestimated in the official statistics, as informal trading remains widespread particularly along the China-Vietnam border (Thanh, 2010). In this respect, the plausible route for CLMV to increase trade integration with China, may involve different

modalities of economic cooperation under the auspices of GMS and ASEAN respectively. The China-CLMV sub-regional cooperation may therefore be relevant to increasing substantive intraregional trade[6] (ADB, 2007c, 2009a). These developments thus beg the following question: Is sub-regionalism a good means of deepening China-CLMV trade relations?

The paper first examines China-CLMV bilateral trade flows for the period 1992-2008, using a modified gravity model (Mulapruk and Coxhead, 2005). Second, it explores the role of China as a "core" trading partner of CLMV, within the context of intra-ASEAN and intra-GMS synergies. The basis for this, respectively, is that China has positioned herself at the core of the ASEAN region's production networks, while she is an active participant (Zhu, 2008) within the GMS area, with the strongest economic plan and economic growth rates (Hao, 2008). This places China in the lead position in regional and sub-regional cooperation (Hao, 2008). Specifically, the paper addresses the following two key questions: (1) Does the influence of China on CLMV differ from that of the ASEAN6? Furthermore, in trade with CLMV, does China's influence differ across trade in agricultural commodities *vis-à-vis* manufactured products? (2) Can China play a more catalytic role through bilateral trade with CLMV *via* ASEAN membership or the GMS area? It is worth mentioning at this juncture that the study employs trade data of China instead of the Yunnan and Guangxi Provinces for the intra-GMS analysis given the lack of provincial level statistics. Since the study seeks to compare CLMV's trade relations with China within the GMS (to represent sub-regionalism) from that of the ASEAN (to represent regionalism), it is considered more appropriate to use national trade data for China *vis-à-vis* data at the provincial level.

2. CLMV and Sub-Regional Cooperation

To frame the main theme of the paper, the following sub-sections address the general importance of sub-regional cooperation for CLMV within the confines of regionalism, followed by an elaboration on the GMS programme, focusing specifically on economic cooperation in trade and transport.[7] Finally, the importance of examining China-CLMV economic relations within the context of the GMS is explicated.

2.1 Why Sub-Regional Cooperation?

Those who oppose regionalism believe that preferential trade agreements (PTAs) are deleterious to multilateralism, are stumbling blocks to global free trade rather than building blocks, place small nations under the thrall of hegemonic powers, and possibly foster wars among trade blocs (Bhagwati, 2008). In short, the multiple (unilateral, bilateral and regional) trade deals result

in a 'spaghetti bowl' effect, a memorable turn of phrase coined by Bhagwati. Alternatively, proponents of regionalism consider it a building bloc toward multilateralism (Baldwin and Seghezza, 2010), and not a substitute for the latter. The standard arguments for regionalism are that it is far simpler, more efficient and provides for trade creation (Kim, 2003), based on preferential treatment accorded to members of the agreement. Recent debates explain that regionalism should not just be viewed as an economic domino effect, but more specifically is best understood as being a 'political domino' effect at work (Baldwin, 2006; Ravenhill, 2009). Though the debates on regionalism and its possible threats to multilateralism continue, regionalism is here to stay and remains important in Asia.

The leading regional trade agreement in Asia is the ASEAN Free Trade Area (AFTA). Intra-ASEAN trade has grown (albeit modestly), but it cannot be explained by regionalism[8] alone, as the crux of AFTA is the competitiveness of ASEAN countries in global trade (see also Cuyvers *et al.,* 2005; Pelkmans, 2009). With the enlargement of the AFTA membership to include the CLMV countries since the mid-1990s, the group has become diverse. Regionalism appeared more delusionary for ASEAN as a whole, and for the CLMV countries, as the latter remains less integrated (Gavin, 2006) with the bloc. Ironically though, the export patterns of Cambodia, Laos and Vietnam (CLV)[9] suggest that they [especially Cambodia, see Kagami, 2009; and to a lesser extent Laos (Kagami, 2009; Lwin, 2009)] are more integrated with the global economic system (Hoang and Liao, 2002; Chia, 2006; Sussangkarn, 2006; Hew *et al*., 2009; Davies, 2010).

The lack of integration of CLMV (more accurately CLV) into the region, with reference to their participation in production networks, is explained by poor infrastructure, apart from other factors (Lim, 2008; Bingham, 2010). This is not surprising as trade and trade facilitation are highly interlinked. In the area of trade facilitation specifically, coordination at the sub-regional level is considered crucial, as interoperability and harmonisation lie at the very heart of such initiatives. Sub-regional cooperation is therefore considered a pragmatic solution for CLMV to increase their trade momentum through other means.

The GMS, a sub-regional programme, comprises a number of initiatives that target trade and transport. Sub-regional cooperation under the GMS is based on specific and complementary activities that extend beyond national borders of participating countries. Most of the trade facilitation measures in this programme complement specific agreements under AFTA and ACFTA. Broadly speaking, sub-regional cooperation provides the means for CLMV to be lifted up in their basic level of development, to close the development gap with ASEAN6 and China (see also Hew *et al*., 2009; Narjoko *et al*., 2009), and subsequently take full advantage of AFTA and the ACFTA. Sub-regional

cooperation is therefore considered essential for the region to evolve into a centre of shared development (Sotharith, 2006).

2.2 The GMS Context

The GMS represents sub-regional economic cooperation in mainland Southeast Asia. It is based on market integration[10] (ADB, 2004; Menon, 2005, 2007; Guttal, 2006) unlike that of ASEAN which is institution based. It therefore does not render itself inconsistent with regionalism in relation to CLMV's membership in AFTA or ACFTA. The development of GMS is important for building closer ties between China and CLMV, as the latter constitutes 66 per cent of the total area of the Mekong basin. Specifically, the focused initiatives of the GMS allow for transformation of the economic geography of CLMV through improved connectivity and better trade opportunities with China. Increasing direct integration with Yunnan (and Thailand), provides the CLMV economies the avenue to further integrate with China, and with ASEAN6 (Menon, 2005; Sussangkarn, 2006).

While intra GMS trade represents only 12 per cent of total trade compared to the rest of the world (Pham, 2007), it has grown rapidly at 500 percent between 2000 and 2008, compared with 380 per cent for trade with the world (CIE, 2010). The GMS has indeed witnessed dynamic growth, and is considered the most effective development scheme in the region (Ishida, 2007) and the fastest growing sub-region in the world (ADB, 2004, 2006; Singh, 2007; Menon and Melendez, 2011). It has a combined population of 276 million (calculated from ADB, 2009a,b) and is predominantly agrarian[11] in nature (Sotharith, 2006; Zhu, 2008). The dynamism of the sub-region is its strategic location and diversity (Guttal, 2006), which provides opportunity to leverage economic complementarities. Specifically, differences in economic development and factor endowments between GMS economies imply opportunities for exchange.[12] At the extremes is Laos, the least developed of the GMS economies, and Yunnan, the most economically advanced (apart from Thailand, the most developed and largest market) of the GMS (ADB, 2004; Guttal, 2006). Alternatively, countries like Myanmar and Laos can also tap into the China-Thailand synergy, as both economies have expressed strong intention to develop their mutual relationship through Myanmar (Tsuneishi, 2009).

The main thrust of the GMS is to improve transport infrastructure (Ishida, 2005; Sotharith, 2006; Fujimura, 2008). This is critical to activate production networks (Lim, 2008) and capture trickle down effects by CLMV,[13] as intra-GMS exchanges are mainly that of border trade. Border trade, in turn, is promoted through economic corridors, which include the cross-border transportation agreement (CBTA). The CBTA is designed to facilitate cross-border movement of vehicles and special economic zones[14] (Ishida, 2007; Kudo, 2009), so as

to improve the business environment. The corridors comprise the East-West, North-South and Southern Economic corridors,[15] which connect major cities in the GMS area. The economic corridors provide additional transport option (roads) for companies to transport goods between China and ASEAN and within ASEAN (Sotharith, 2006; Ishida, 2009). The interconnection projects on infrastructure and transportation links, basically lay the groundwork for regional trade cooperation.

Further to transport infrastructure, the GMS also supports a range of other trade facilitation measures, from improving procedures for customs clearance, increasing transparency and enhancing technical skills, to improving the various regulatory systems (ADB, 2004; Menon, 2005; Strutt *et al*., 2008). Strutt *et al*. (2008) show proof from their CGE simulations that a reduction in trade time is essential to increasing exports within the GMS area and providing opportunities for the diversification of exports (see also CIE, 2010). There is therefore now greater emphasis on addressing trade and trade facilitation measures together, as both conditions are found to be necessary for CLMV countries to obtain benefits from trade expansion.

To some extent, the CLV countries have derived benefits from the sub-regional integration approach, as they have now developed greater linkages with China and Thailand[16] (Hoang and Liao, 2002; Sussangkarn, 2006; Ishida, 2009; Tsuneishi, 2009). An empirical study by Fujimura and Edmonds (2006) concludes that trade in major commodities within the GMS is positively influenced by the level of cross-border infrastructure (see also Fujimura, 2008; CIE, 2010). Furthermore, the Chinese and Thai trade with CLMV increased by 449 per cent and 371 per cent respectively, between 2000 and 2007 (Kagami, 2009). China has also emerged as a major supplier of consumer and capital goods to Myanmar through border trade, and a market for primary and agricultural products (Kudo, 2006). Clearly, Cambodia, Laos and Myanmar (CLM) require close proximity to promote bilateral trade (Lwin, 2009).

Leaving aside the positive developments in China-CLMV trade, there are some shortcomings in the GMS initiatives. In spite of the flexible arrangements and potential of the GMS area, China-LMV border trade is still characterised by small-scale and limited varieties. Small-scale border trade occupies 80 per cent and 66 per cent of the Myanmar and Laos trade with Yunnan respectively (Ishida, 2009). Furthermore, recent statistics reveal that the Yunnan Province has small trade shares with other GMS countries (Zhu, 2008), whilst the shares are considerably high for Myanmar and Laos (ADB, 2006, 2007a). Poncet (2006) notes that despite Yunnan's close and privileged trade relations with Myanmar and Laos, the former's export skew to Myanmar had declined steadily over the period 1988-1999. Further, development of the economic corridors is predicted to tip the trade imbalances in favour of China (Kudo, 2006), as the CLMV

economies are less diversified. In addition to this, Kudo (2009) explains that the enhanced transport connectivity may also not be equally beneficial to the individual CLMV countries, citing Laos' neglected position in the East-West Economic Corridor with increased traffic flow between Bangkok and Hanoi.

Apart from the above issues, Yunnan faces her own challenges, as pointed out by Zhu (2008). Amongst them is her weak economic strength, lack of coordination within the Province (Xiong and Wen, 2009) and competition pressure from inland and coastal areas. Other problems in GMS cooperation relate to policy frameworks, such as the CBTA. The CBTA, as pointed out by Ishida (2009), is yet to take effect at some borders for three reasons: first, the lack of dissemination of the documents to officials at border check points; second, the lack of coordination within related ministries of the countries concerned (see also Xiong and Wen, 2009); third, contradictions between the CBTA and domestic regulations. Overall, border administration still remains weak. This requires the attention of authorities of all participating countries, to ensure that trading activities are formalised for the promotion of a more credible form of cross-border trade (Thanh, 2010).

Though the GMS area is a step in the right direction to deepen CLMV's trade integration with China, the challenges that remain, if not adequately addressed, may stall the complete realisation of trade potentials for CLMV.

2.3 China's Lead Role in the GMS

China is an active participant in the GMS area. In the Sixth China-ASEAN Summit, the former Chinese Premier Zhu Rongji put forward the idea that the Mekong River basin development should be listed as one of the focal points of cooperation under the ACFTA. The importance China attaches to the GMS is linked to the expanding role of China's relations with the CLMV, starting off as a trading partner, an investor and slowly taking on the role of a financier. The following discussion also points out the vested interests of China in establishing economic and trade relations with CLMV, *via* their participation in the GMS.

China's participation in the GMS is highly motivated by her strategy of opening up. This entails linking land passageways between underdeveloped Southwest China (particularly the landlocked Yunnan province) with Southeast Asia and South Asia. The connectivity provides China access to alternate means of trade that are more efficient and cost effective than traditional sea routes (ADB, 2008). The ultimate aim is to strengthen Yunnan's economic position through improved market access to Southeast Asia. Since the Yunnan province is strategically located in the upper reaches of the Mekong-Lancang River and borders on three countries (LMV) of the GMS, it is only natural to note China's support for the GMS program. It is therefore not surprising

that China's involvement in the GMS is largely confined to the North-South corridor (Lim, 2008).

As a trading partner, China has made concessions in the agricultural sector under the Early Harvest Plan (EHP), to make it possible for CLMV to increase her exports to China (see also Gavin, 2006). China has expanded the range of products eligible for preferential tariff from CLM as of 2006, to boost bilateral trade. An additional zero tariff treatment was also granted unilaterally by China on 83 products, 91 products and 87 products for Cambodia, Laos and Myanmar respectively (Xiong and Wen, 2009). The preferential treatment accorded to CLM reflects clearly China's demand for primary and agricultural goods. These preferences however have yet to result in any marked increase in CLMV exports to China.[17] China is now providing assistance to tackle non-physical trade barriers under the Vientiane Plan (2008-2012), which involves simplifying and standardising customs procedures to facilitate cross-border movement of goods and people.

China is also leading by example to encourage more inflow of investments to the GMS, namely CLM. It has now emerged as the largest foreign investor in CLM (Rutherford *et al*., 2008; CIE, 2010). China's investments in CLM are significant in the energy (hydropower, oil and gas) and mining (copper, bauxite and iron) sectors, apart from the agro industry (rubber and fishery). Investments in these sectors are driven by the rapid industrial expansion and limited natural resources in China, which has further incorporated the GMS as one destination in its "going global" overseas investment strategy. In addition, CLMV now make up approximately 35 per cent of total Chinese investments in ASEAN (Lim, 2008: 9). Again, most of the Chinese investments in the GMS are located in the North-South corridor, which connects these investment projects directly to China. Its investments in targeted industries also reflect the objective of using the GMS area as a platform to gain access to external markets. For example, China has shifted much of its garment production to Cambodia to access the preferential market privileges accorded to less developed countries (LDCs) in the post Multi-Fibre Arrangement (MFA) environment (Rasiah, 2009a, 2009b) and to bypass the re-imposition of quotas by the European Union (EU) and the United States (US) on China (ADB, 2007a; Beresford, 2009) in 2005 effective through 2008. Chinese (including Hong Kong) investment accounted for 59-61 per cent of approved investment into garment manufacturing in Cambodia for the period 2000-2005 (Rasiah, 2009a: 622; 2009b: 158). This has fuelled bilateral trade between Cambodia and China, as the largely Chinese-run garment industries in the former, import various inputs (such as fabrics and machinery) from the latter (Rutherford *et al*., 2008).

Greater trade with China is also linked to the aid contribution by China (see Kudo, 2006; Zhu, 2008) to the GMS area, providing aid for infrastructure development. For example, USD30 million was given by China for the construction of the Laos section of the Kunming highway and USD5 million for the navigation channel improvement project on the Upper Mekong River. The completion of the Kunming-Bangkok section particularly has eased commodity transfer transportation between China, Laos, Myanmar and Thailand (Xiong and Wen, 2009). Chinese aid is more prominent in Cambodia relative to Laos, Myanmar and Vietnam (LMV), which reflects the strong political ties between the two countries dating back to the Khmer Rouge period, the significant petroleum reserves in Cambodia, and her strategic geographic position (Davies, 2010).

Overall, China has managed to secure its border areas with the GMS economies through friendly relations, built on trade, investment and aid. Nevertheless, the relative importance of China to CLMV differs in terms of China's role as a trading partner, investor and financier. The increasing presence of China in GMS has however led some observers to call it a "Chinese invasion" rather than to view China as a catalyst for development (Lim, 2008). Notwithstanding the anti-Chinese sentiments and China's motives for supporting the GMS initiatives, it indeed has the economic capacity (the market and resources) to generate growth for the GMS area. The trade opportunities that China brings more specifically to CLMV are critical to the latter's integration at the regional level.

3. Trade Patterns Between China and CLMV

Trade with CLMV represents only a small share of total China-ASEAN trade (Table 1). External trade of CLMV rose steadily until the late 1990s, when the rate of expansion slowed down somewhat with the advent of the Asian Financial Crisis (ADB, 2007a). Trade in manufactures, characterised by production networks, was more vulnerable to the economic downturn which saw sharper contraction of China's imports from the region. This is reflected by a decline in the shares of China-CLMV imports of manufactures to 0.88 per cent and 4.07 per cent as a proportion of China-ASEAN trade and China-GMS trade respectively in 2000. Likewise, the share of CLMV imports of manufactures as a proportion of intra-GMS trade also declined substantially in 2000, as Thailand was badly hit by the crisis. External trade by CLMV regained ground only after 2002, when regional markets recovered and China's position in global trade increased.

Table 1: CLMV Trade Statistics

	Exports			Imports			Total Trade		
Product	1992	2000	2008	1992	2000	2008	1992	2000	2008
China-CLMV Trade Shares (% of China-ASEAN trade)									
All Products	8.76	12.86	16.19	2.31	2.84	2.25	6.81	8.49	10.25
Manufactures	12.10	12.93	15.74	2.96	0.88	1.92	8.85	6.79	9.59
Agricultural	3.82	12.53	21.30	5.71	13.77	10.91	4.96	13.41	13.21
China-CLMV Trade Shares (% of China-GMS trade)									
All Products	32.02	49.89	54.34	32.86	20.36	16.83	32.30	33.60	36.51
Manufactures	35.22	49.46	53.03	30.08	4.07	7.48	34.52	28.42	34.38
Agricultural	22.47	52.19	68.43	33.72	43.79	38.69	29.25	45.81	45.77
CLMV Trade Shares (% of intra-ASEAN trade)									
All Products	7.91	13.01	24.62	5.38	8.27	14.13	6.84	11.04	19.69
Manufactures	7.40	9.57	21.16	0.75	3.01	7.62	4.78	6.97	15.36
Agricultural	9.10	25.88	30.79	13.17	22.48	21.80	11.02	24.26	26.01
CLMV Trade Shares (% of intra-GMS trade)									
All Products	25.35	33.70	41.94	21.04	17.61	14.27	23.71	25.81	29.43
Manufactures	28.30	35.50	44.10	26.45	3.68	7.00	28.07	22.56	29.95
Agricultural	17.05	26.87	29.76	19.91	35.65	26.89	18.94	32.73	27.85

Note: The statistics on China-GMS and intra-GMS trade may underestimate the trade shares of China-CLMV as the data is not Yunnan Province specific.
Source: Calculated from UN COMTRADE.

The China-CLMV trade shares (particularly the import shares of agricultural products in total imports of China from CLMV) are higher for primary and agricultural products relative to manufactures based on the latest data. This is not surprising given China's insatiable demand for primary products, and the fact that agriculture accounts for 32 per cent, 42 per cent, 44 per cent and 20 per cent of Gross Domestic Product of Cambodia, Laos, Myanmar and Vietnam respectively, based on 2007 data (Lwin, 2009; see also Hew *et al*., 2009). However, China recorded deficits with CLMV in the case of primary and agricultural products. Yet athough China suffered deficits with the ASEAN6 (see also Hao, 2008), it retains an overall trade surplus with CLMV (see also Kagami, 2009). The unbalanced trade performance between China and CLMV in terms of trade volume and trade structure is even more pronounced with Myanmar (Kudo, 2006).

Amongst the CLMV, China's trade with Vietnam at USD11.8 million in 2008 is by far the largest. Bilateral trade grew by 1.3 per cent per annum between 1992 and 2008, and China has emerged as a leading trade partner of Vietnam's (see also ADB, 2007a; Rutherford *et al*., 2008; Do and Ha, 2009; Menon and Melendez, 2011). By product, China's exports to CLMV are mainly the heavy and intermediate goods of machinery, iron and steel and textiles, whilst imports from the latter consist of raw materials (Poncet, 2006; ADB, 2007a; Kagami, 2009). This reflects a vertical (inter-industry) type of trade expansion (Fujimura, 2008) between both parties.

In the context of China-GMS relations, agricultural products again dominate China-CLMV trade particularly from the import side. There is however a significant decline in the import shares of manufactures from CLMV within the GMS area. Conversely, China has substantially increased her export shares of both agricultural products and manufactures to CLMV between 1992 and 2008. China-CLMV bilateral trade reflects better trade integration from the export relative to the import perspective. The CLMV's contribution to trade at the sub-regional GMS level, though higher than that to the ASEAN region, still does not dominate intra-GMS trade. Despite the growing export shares of CLMV in intra-regional and intra-sub-regional trade, the share of manufactures is larger than that for agriculture at the sub-regional level. However, the opposite holds true when considering her intra-regional and intra-sub-regional import shares of manufactured products. In fact, the CLMV share of imports of manufactures from within the GMS has declined sharply.

Summarising, the above patterns imply that China-CLMV trade is operating on an unbalanced level on the following accounts. First, the trade shares of CLMV are small relative to the ASEAN6 in the Chinese market. The small trade shares of CLMV even as a proportion to sub-regional GMS trade, signify somewhat a lack of dynamism of these economies. Second, CLMV's trade integration with China is higher from the import side relative to the export side, reflecting overall deficits in trade with China (surpluses from the Chinese perspective). The reason for this is that China has emerged as an important market for CLMV imports, but not exports. Third, China's trade structure with CLMV is dominated by the former's imports of primary and agricultural products and exports of manufactures. This stands in marked contrast to the structure of trade between China and ASEAN6, whereby imports from the latter are less resource intensive. China's exports to CLMV are therefore more diverse than those from CLMV to China.

All three observations above on the China-CLMV trading relationship are consistent with the findings of Hummels and Klenow (2005) and Yi (2003). Their findings basically indicate that large economies (in this case China) export more in absolute terms than do small economies. The greater exports

of larger economies come from differences in the variety of products traded (whereby the scope product differentiation is greater for manufactures), or what is known as the extensive margin. For example, their calculations show that China's extensive margin is 0.704, relative to a low 0.018 for Myanmar. China's export expansion and export diversity also reflect her engagement in vertical specialisation (or trade in intermediate goods that also characterises much of intra-ASEAN trade), which accounts for large increases in international trade in recent times (Yi, 2003).

4. Regional and Sub-Regional Interdependent Role of China

The foregoing qualitative discussion compared China-CLMV trading relationships within the context of the GMS and ASEAN. The following section complements the qualitative description with an econometric exercise to investigate the influence of China on CLMV through sub-regional and regional trade flows. The model specifications are elaborated, and this is followed by a discussion on the findings of the estimations.

4.1 Modified Gravity Model

The gravity equation[18] is employed for analysing the evolution of China-ASEAN trade flows, and the role of China in influencing CLMV trade at the regional (intra-ASEAN) and the sub-regional (intra-GMS) levels. The first baseline set of estimations examine China's bilateral trade with the ten ASEAN countries. To measure the impact of China's influence on CLMV, a dummy variable[19] is introduced. It takes the value of one if the partner is Cambodia, Myanmar, Laos or Vietnam, or zero otherwise. To distinguish China-CLMV trade from that of China-ASEAN6, the trade flows are disaggregated between agricultural and manufactured products for CLMV and ASEAN6 respectively. A group of dummy variables are again introduced for this purpose. The China-ASEAN trade flows are estimated in log-linear form (except for the dummy variables):[20]

$$\ln X_{ijt} = \alpha + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 \ln N_{it} + \beta_4 \ln N_{jt} + \beta_5 \ln DST_{ij} + \beta_6 DUMADJ_{ij} + \beta_7 DUM_{\text{China-CLMV}ijt} + \varepsilon_{ijt} \quad (1)$$

$$\ln X_{ijt} = \alpha + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 \ln N_{it} + \beta_4 \ln N_{jt} + \beta_5 \ln DST_{ij} + \beta_6 DUMADJ_{ij} + \beta_7 DUM_{\text{China-CLMVAGRI}ijt} + \beta_8 DUM_{\text{China-ASEAN6AGRI}ijt} + \varepsilon_{ijt} \quad (2)$$

$$\ln X_{ijt} = \alpha + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 \ln N_{it} + \beta_4 \ln N_{jt} + \beta_5 \ln DST_{ij} + \beta_6 DUMADJ_{ij} + \beta_7 DUM_{\text{China-CLMVMANU}ijt} + \beta_8 DUM_{\text{China-ASEAN6MANU}ijt} + \varepsilon_{ijt} \quad (3)$$

where X_{ijt} is country *i*'s (reporter) exports to country *j* (partner) in year *t*. The other variables are defined below:

X = bilateral exports[21] between *i* and *j*. X is alternated with M (bilateral imports between *i* and *j*).
GDP = real gross domestic product
N = population. The variable N is alternated with PGDP (GDP per capita).
ADJ = common border between *i* and *j* (dummy variable equal to one if *i* and *j* share a border and 0 otherwise)
DST = distance between economic centres of *i* and *j*
$DUM_{China\text{-}CLMV}$ = dummy variable equal to one if the partner country is CLMV and 0 otherwise
$DUM_{China\text{-}CLMVAGRI}$ = dummy variable equal to one if it is agricultural trade with CLMV and 0 otherwise
$DUM_{China\text{-}ASEAN6AGRI}$ = dummy variable equal to one if it is agricultural trade with ASEAN6 and 0 otherwise
$DUM_{China\text{-}CLMVMANU}$ = dummy variable equal to one if it is manufactures trade with CLMV and 0 otherwise
$DUM_{China\text{-}ASEAN6MANU}$ = dummy variable equal to one if it is manufactures trade with ASEAN6 and 0 otherwise
ε = error term that picks up other influences on bilateral trade
α = constant term

The second set of estimations illustrates China's influence on CLMV through intra-regional trade and intra-sub-regional trade flows. A dummy variable (DUMCLMV) is introduced to separately identify the ASEAN6-CLMV trade flows from that of intra-ASEAN6 in the regional context. For the sub-regional perspective, DUMCLMV distinguishes Thailand-CLMV trade flows from that of intra-CLMV. The basic equation is augmented (see Mulapruk and Coxhead, 2005), and the following are estimated for intra-ASEAN and intra-GMS (excluding China's bilateral trade with other GMS members) trade flows:

$$\ln X_{ijt} = \alpha + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 \ln N_{it} + \beta_4 \ln N_{jt} + \beta_5 \ln DST_{ij} + \beta_6 DUMADJ_{ij} + \beta_7 \ln X_{CHINAit} + \beta_8 \ln X_{CHINAjt} + \varepsilon_{ijt} \quad (4)$$

$$\ln X_{ijt} = \alpha + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 \ln N_{it} + \beta_4 \ln N_{jt} + \beta_5 \ln DST_{ij} + \beta_6 DUMADJ_{ij} + \beta_7 \ln X_{CHINAit} * DUMCLMV + \beta_8 \ln X_{CHINAjt} * DUMCLMV + \varepsilon_{ijt} \quad (5)$$

Finally, the intra-GMS (including China's bilateral trade with other GMS members) trade flows are estimated as follows:

$$\ln X_{ijt} = \alpha + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 \ln N_{it} + \beta_4 \ln N_{jt} + \beta_5 \ln DST_{ij} + \beta_6 DUMADJ_{ij} + \varepsilon_{ijt} \quad (6)$$

where

X_{CHINAi} = exports of country *i* to China

X_{CHINAj} = exports of China to country *j*

DUMCLMV = dummy variable equal to one for ASEAN6-CLMV bilateral pairs and 0 otherwise for the regional case. For the sub-regional context, dummy variable equal to one for Thailand-CLMV and 0 otherwise.

All other variables are as defined above.

The GDP, PGDP, N, DST and ADJ are standard arguments of the gravity model. The GDP variable is a proxy for country size (market size and production/ trading capacity) (see Tinbergen, 1962; Pöyhönen, 1963). The postulated signs for β_1 and β_2 are positive since a large country is more likely to achieve economies of scale, increase exports and simultaneously possess the capacity to absorb imports. All equations use N and PGDP[22] interchangeably. Generally, the coefficient of N is expected to bear a negative sign as a large country is considered to be less open to trade. Further explanation for this is that, a country with a large population implies a large domestic market, and a more diversified range of output that would result in less dependence on international specialisation. Conversely, a country with large population may be able to capture economies of scale in production and therefore trade more. Hence, the expected sign of the coefficient of N is ambiguous (Brada and Mendez, 1983; Garman *et al*., 1998; Cheng and Wall, 2005). PGDP[23] measures the income level and/or purchasing power of a country and is expected to relate positively with bilateral trade volumes. Broadly speaking, PGDP also captures well trade-related infrastructure and trade facilitation measures.

Though DIST is no longer an issue with technological advancement, geographical distance remains important for considerations of transport costs, transaction costs (Bergstrand, 1985; Edmonds *et al*., 2008) and timeliness in delivery (see also Rojid, 2006; Athukorala, 2008), and is therefore included in the estimations. Similarly ADJ captures additional advantages of proximity. The expectations are for $\beta_5 < 0$ (Tinbergen, 1962; Pöyhönen, 1963) and $\beta_6 > 0$.

The important explanatory variables for the second set of estimations on intra-regional and intra-sub-regional trade flows are X_{CHINAi}*DUMCLMV and X_{CHINAj}*DUMCLMV respectively. Following a similar reasoning to that of Mulapruk and Coxhead (2005), but with a different interpretation, the study considers the partner country *j* as ASEAN member countries themselves and not third markets outside ASEAN. The inclusion of these variables in the study captures the role of China in influencing CLMV trade *via* two confounding

effects: (a) expansion in export supply to China by the exporting country *i* (ASEAN6 countries); and (b) expansion in import sourcing from China by the importing country *j* (CLMV countries). If an increase in exports from *i* to China crowds out exports from *i* to *j*, then $\beta_7 < 0$. However, if an increase in exports from *i* to China promotes exports from *i* to *j*, then $\beta_7 > 0$. The variable X_{CHINAj}, in turn, indirectly measures the comparative advantage between China and *i* through the exports of the former to *j*. If China has a comparative advantage over *i*, then exports from China to *j* will bear a negative impact on exports from *i* to *j* and $\beta_8 < 0$. Conversely, $\beta_8 = 0$ when country *i* possesses a comparative advantage over China.

For a detailed description of the construction of variables and the various data sources, see Appendix 1. The above estimations are conducted in a panel setting for the bilateral trade flows as listed in Appendix 2, spanning the period 1992-2008. There is missing data[24] for some bilateral pairs and the study does deal with zero trade values in logs by using $\ln(1+ X_{ij})$ for some bilateral pairs. The analysis is conducted for the full sample of aggregate exports [agriculture (SITC 0-4) and manufactures (SITC 5-8)] and aggregate imports (for the baseline estimations only).

4.2 Does Sub-Regional Membership Matter for CLMV?

Table 2 reports the regression estimates[25] for China-ASEAN trade flows. For all specifications, the Breusch-Pagan Lagrangian Multiplier (LM) tests indicate that the Generalised Least Squares (GLS) Random Effects (RE)[26] model is more appropriate than the ordinary least squares (OLS) pooled model. The two basic explanatory variables (GDP and N)[27] in terms of exports, in Table 2, have the expected signs and are statistically significant at the 1 per cent level. From the import perspective, only the population size of the partner country matters for China. However, distance and border are found to be insignificant for all specifications.

For equations (1a) and (1b), the coefficients for $DUM_{China\text{-}CLMV}$ are negative and significant (albeit weak) for both export and import flows respectively. This illustrates negative effects of China-CLMV collaboration. China's exports to CLMV are significantly lower than the normal level at 13 per cent [exp(-2.018) = 0.13], whilst her imports from the latter are 5 per cent lower than the normal. The export and import potentials are clearly underexploited in the China-CLMV case.

Not surprising is that Chinese exports of agricultural products to CLMV [see equation 2(a)] are also underexploited, given her deficits in agricultural trade with the latter (as discussed in the previous section). This is less critical when compared with agricultural exports from China to ASEAN6. China's exports of agricultural products to CLMV are only 6 per cent lower than the

Table 2: Panel Gravity Estimates for China-ASEAN Trade Flows

	Dependent Variable: lnX_{ij}			Dependent Variable: lnM_{ij}		
Variable	(1a)	(2a)	(3a)	(1b)	(2b)	(3b)
$lnGDP_i$	0.599***	0.597***	0.597***	0.836	0.831	0.833
	0.204	0.205	0.205	1.008	1.013	1.011
$lnGDP_j$	0.106**	0.122***	0.124**	0.166	0.286	0.245
	0.046	0.046	0.046	0.221	0.214	0.212
lnN_i	7.401**	7.311**	7.296**	12.114	11.555	11.755
	3.011	3.022	3.026	13.896	13.968	13.94
lnN_j	0.681***	0.683***	0.687***	1.360***	1.320***	1.331***
	0.171	0.131	0.134	0.279	0.28	0.272
lnDST	1.147	1.688	1.852	2.051	2.945	2.532
	1.846	1.34	1.375	2.606	2.58	2.495
DUMADJ	0.863	-0.090	-0.360	1.112	-0.933	-0.058
	1.216	0.74	0.76	1.726	1.393	1.345
$DUM_{China-CLMV}$	-2.018*	-	-	-2.920*	-	-
	1.129			1.643		
$DUM_{China-CLMVAGRI}$	-	-2.738***	-	-	0.614	-
		0.687			1.298	
$DUM_{China-ASEAN6AGRI}$	-	-1.378**	-	-	0.724	-
		0.577			1.087	
$DUM_{China-CLMVMANU}$	-	-	1.560**	-	-	-2.217*
			0.705			1.253
$DUM_{China-ASEAN6MANU}$	-	-	2.164***	-	-	0.344
			0.592			1.05
No. of observations	340	340	340	340	340	340
Groups	20	20	20	20	20	20
R^2 overall	0.567	0.707	0.693	0.556	0.544	0.567
Breusch-Pagan test (P value)	0.000	0.000	0.000	0.000	0.000	0.000

Note: 1. The above estimations are based on the GLS random effects model, corrected for AR1disturbances.

2. Statistical significance is denoted as ***1%, **5% and *10%.

normal level relative to that of ASEAN6 at 25 per cent. The opposite however holds true in the case of China's exports of manufactures to CLMV and ASEAN6 [see equation (3a)]. The results indicate overall positive effects of export collaboration between China and ASEAN, at 4.8 times and 8.7 times greater than the normal level for CLMV and ASEAN6 respectively. From the import side, China's agricultural imports from CLMV do not yield any significant effects from trade collaboration. Conversely, China's imports of manufactures are found to be significantly lower than the normal level at 11 per cent [see equation (3b)].

The findings on China-ASEAN trade flows point to some noteworthy implications. The overall results imply that China's trade integration with CLMV is non-effective, as there is scope to expand trade ties both from the import and export sides. By product, trade integration of China with CLMV appears more successful in terms of exports of manufactures relative to exports of agricultural products,[28] consistent with the industrial development of the former relative to the latter. In contrast, only the Chinese import potential of CLMV's manufactures is underexploited. The results regarding China-ASEAN imports by products imply the following: first, CLMV with their abundance in natural resources, have yet to tap significantly into the growing market for primary products in China; second, CLMV have not linked with the regional supply chain to achieve export gains in manufactures trade with China.

At the outset, the empirical findings concur largely with the main observations of the China-CLMV trade trends, as illustrated in the previous section. China's trade ties with CLMV appear to involve cooperation that is tipped in favour of China, as import integration lags behind export integration. As Davies (2010) aptly points out, China has yet to become a significant export market for CLMV, despite the latter's import dependence on the former. More importantly, the export emphasis of CLMV in primary and agricultural products is not sufficient for integration at the regional level. Davies (2010) asserts that export expansion of CLMV in manufactures *per se* is needed for these countries to catch up with their ASEAN peers. Focusing on manufactures is therefore necessary to provide CLMV with opportunities for export expansion *via* vertical specialisation (Yi, 2003) and product diversity (see Hummels and Klenow, 2005).

To scrutinise China's integration with CLMV, the influence of the former on the latter is examined in the regional and sub-regional contexts, as shown in Table 3. From the regional perspective, the coefficients of exports from *i* to China are positive and significant in equation (4a), suggesting that an increase in exports from a member country of ASEAN (*i*) to China does not crowd out intra-regional exports between ASEAN countries (*i* to *j*). Instead, the results imply that China's integration in the region increases the size of the ASEAN

member economies export market. This result is consistent with newer theories of international trade, which emphasise the important effect of economies of scale. The coefficient for $\ln X_{China jt}$ though negative, is insignificant. There is therefore no indication that import sourcing from China by ASEAN countries reduces export expansion within the latter. The results indicate that though China has become an important export destination and an import source for individual ASEAN countries, this has not reduced intra-regional trade.

When China's regional influence on CLMV is further considered along the dimensions of an export destination, the variable of concern, ($X_{China it}$*DUMCLMV) in equation (5a) of Table 3, consistently indicates that an increase in exports from a member country of ASEAN6 (*i*) to China does not crowd out exports between ASEAN6 and CLMV (*i* to *j*). Nevertheless, the magnitude of the coefficient is smaller, implying less of an export expansion of ASEAN6 with CLMV, following an increase in exports of the former to China. Instead, import sourcing from China by CLMV reduces export expansion of CLMV with ASEAN6. This implies that China has a comparative advantage over ASEAN6, and there could be some form of trade diversion from sourcing of imports within the region to that from China. In fact, China is now the largest source of imports for the GMS (Davies, 2010). This again reflects CLMV's growing import dependence on China.

The above results for China's regional influence are compared with her sub-regional influence on CLMV. In the sub-regional context, again export expansion between any GMS member with China increases intra-GMS exports [see equation 4(b) of Table 3]. The larger magnitude of the coefficient implies a more catalytic role for China, along the dimension of an export destination, in inducing trade within the GMS area. This finding lends particular support to the earlier result that Chinese imports from CLMV remain largely unexploited, especially in manufactured goods. The importance of China in this aspect reflects the role of a large domestic market in encouraging exports through scale effects (see Krugman, 1980), which CLMV needs to tap into *via* their direct partnerships with China through the GMS. From this perspective, the GMS presents opportunities for CLMV to deepen their ties with China.

The export expansionary effects of Thailand-China synergy are instead found to be non-significant in boosting Thailand-CLMV exports. The importance of Thailand-China direct synergies to increase the export market size of the other GMS economies is not realised, plausibly since China's growing influence in the sub-region is generally deemed to be in direct competition with the traditional economic "hub", Thailand (Guttal, 2006). Furthermore, Sotharith (2006) asserts that the development gap between Thailand and the other GMS countries has posed significant problems for economic integration. Unlike that for the regional context, there is also no significant diversion of

Table 3: Panel Gravity Estimates for Intra-Regional and Intra-Sub-Regional Trade Flows

	Intra-Regional (Intra-ASEAN)		Intra-Sub-Regional (Intra-GMS)		
	(4a)	(5a)	(4b)	(5b)	(6)
$lnGDP_i$	1.468***	2.323***	1.498**	0.208	0.798
	0.370	0.336	0.564	0.667	0.567
$lnGDP_j$	0.403**	0.473**	-0.427	0.444	-0.030
	0.175	0.179	0.517	0.503	0.349
lnN_i	0.501*	0.434	-1.662	7.302***	3.591***
	0.264	0.316	2.339	2.309	1.168
lnN_j	0.170	0.132	2.389*	-0.708	1.903**
	0.254	0.278	1.419	1.523	0.930
lnDST	-0.527	-0.164	2.486	18.436**	-6.364***
	1.060	1.203	7.781	7.812	2.264
DUMADJ	1.612	1.643	5.734**	10.137***	0.311
	1.302	1.501	2.811	2.710	1.953
lnX_{Chinai}	1.001***	-	2.058***	-	-
	0.184		0.400		
lnX_{Chinaj}	-0.127	-	-0.313	-	-
	0.190		0.625		
lnX_{Chinai}*DUMCLMV	-	0.481**	-	0.593	-
		0.243		0.570	
lnX_{Chinaj}*DUMCLMV	-	-0.524**	-	-0.244	-
		0.268		0.623	
No. of observations	748	748	153	153	238
Groups	44	44	9	9	14
R^2 overall	0.620	0.556	0.598	0.653	0.553
Breusch-Pagan test (P-value)	0.000	0.000	0.424	0.653	0.000

Note: 1. The above estimations are based on the GLS random effects model, corrected for AR1disturbances [except for equations (5a) and (6)].

2. Statistical significance is denoted as ***1%, **5% and *10%.

trade from Thailand, following import sourcing by individual CLMV countries within the sub-region. This is not surprising as the GMS programme does not offer the potentials for trade diversion since it is not a preferential trading arrangement (Menon, 2007).

Finally, it is only in the case of intra-GMS, that common border significantly matters for trade flows. This is expected for the land-locked Laos for example, whereby cross-border trade is synonymous with its trade with neighbouring countries. More than 60 per cent of Laos's trade occurs with the GMS (CIE, 2010), and hence is considered cross-border trade, whilst Myanmar accounts for 80 percent of border trade by China (more specifically the Yunnan Province). Likewise, more than 90 percent of Cambodia's imports from Thailand are cross-border (ADB, 2007a). ADB (2008) contends that there remain potentials for growth in cross-border trade, particularly with the full implementation of CBTA. At the sub-regional level, though common border facilitates trade, geographical distance[29] does not appear to be a barrier for intra-GMS trade.

The empirical results reveal that the membership of CLMV in GMS does matter for the following reasons. First, bilateral exports from GMS economies to China induce a significant positive influence on intra-GMS exports. Though China is also found to be a catalyst for intra-ASEAN exports, her influence as an export market on intra-regional trade remains less than that on intra-GMS trade. Therefore, CLMV is most likely to benefit in trade relations with China within the GMS context. Second, border effects are only influential for intra-GMS trade, but not for intra-ASEAN trade. This reflects the nature of cross-border trade that largely takes place within the GMS. The GMS is therefore important to enhancing CLMV trade, given its focus on initiatives (transport infrastructure and trade facilitation measures) that promote cross-border trade.

5. Conclusion

Sub-regionalism is considered a catalyst for regionalism (ADB, 2004, 2007c; Menon, 2005, 2007; Chia, 2006). This proposition is examined in the context of China-CLMV trade relations within the GMS (to represent sub-regionalism) and AFTA (to represent regionalism). The focus on China's partnership with CLMV is based on concerns of a possible destabilising rift between China-CLMV trade, given the distinct development divide between ASEAN6 and CLMV, amidst the enlarged regional ACFTA cooperation agenda. The study finds that though the China-CLMV relations have come a long way toward establishing a strategic trade partnership within the GMS, the China-CLMV trade relations remain unbalanced in favour of China, both in terms of trade volume and trade structure. The theoretical arguments of the paper drawn from the potentials of sub-regional cooperation, and the estimation approach

based on an augmented gravity model, bring to the fore the following lesson. There is still scope for further trade integration of CLMV with China, whereby export integration of CLMV with China generally lags behind that of import integration. More specifically, CLMV has yet to tap significantly into China's market for agricultural products. In terms of manufactures, CLMV has also not experienced gains from the export perspective in trade with China.

The empirical findings however suggest that the GMS sub-regional cooperation remains promising for deepening China-CLMV trade relations, for the following two reasons: (a) the greater catalytic role of China, along the dimension of an export destination, in fuelling sub-regional trade (intra-GMS) relative to regional trade (intra-ASEAN); and (b) the significance of common border effects as trade facilitators within the GMS area, reflecting the importance of border trade as the modality of cooperation at the sub-regional level.

Overall, it can be concluded that sub-regional cooperation is indeed a significant means of deepening CLMV trade links with China. The emphasis on physical infrastructure, trade facilitation measures and border trade at the sub-regional level has profound implications for trade and investment between the GMS countries. It may be inferred from the empirical results that sub-regional cooperation allows for China to assume a broader role as an export market for ASEAN by deepening her trade ties through *direct* partnerships with the CLMV. In turn, membership in the GMS *vis-à-vis* the AFTA helps the CLMV become more visible to China, as the only other member in this sub-regional arrangement is Thailand. Further, as connectivity improves within the GMS, the linkages between CLMV and the region as a whole may also be enhanced. It thus may be argued that closer sub-regional trade cooperation may be an excellent start to stronger regional cooperation, not only between China and CLMV but also between ASEAN and CLMV.

Notes:

[1] This is a revised version of the paper presented at the International Applied Business Research Conference (IABR), Orlando, Florida, 4-6 January 2010.

[2] For example, in 2006, the export product range for Cambodia was only 45 as opposed to 1,023 for Singapore (Kimura and Obashi, 2009).

[3] In 2011, the constant Gross National Income (GNI) per capita of China was $7476, whilst those for Cambodia, Laos, Myanmar and Vietnam were $1848, $2242, $1535 and $2805 respectively. The recorded figures in 2003 were $5003 for China, whilst those for Cambodia, Laos and Vietnam were $2078, $1759 and $2490 respectively (data not available for Myanmar in 2003) (online database: http://hdr.undp.org/en/statistics/)

[4] In this paper, sub-regional is defined to include GMS members, whilst regional refers to AFTA (ASEAN Free Trade Area, born in 1992), conceived

under the ASEAN (born in 1967) framework. It should also be noted that the CLMV countries are latecomers to AFTA, with Vietnam's accession in 1995, followed by Laos and Myanmar in 1997 and finally Cambodia in 1999.

[5] Though the GMS was inaugurated in 1992, the impacts of the cooperation are still unfolding as the period 1992-1996 (First Stage) saw the creation of GMS principles, fact finding and project formation while the period 1994-2001 (Second Stage) was the implementation stage of the listed projects (Ishida, 2007).

[6] Apart from that, the extensive margin (newly exported products) is overwhelmingly large for latecomers with limited number of exported products and small value of exports. Within the CLMV, the importance of extensive margin growth has been observed for Cambodia and Vietnam (Kimura and Obashi, 2009).

[7] The GMS programme involves cooperation in other areas such as agriculture, energy, environment, human resource development, investment, telecommunications and tourism.

[8] A vast majority of intra-ASEAN trade is conducted on a most-favoured nation (MFN) and not preferential tariffs (Cuyvers *et al*., 2005; Gavin, 2006; Baldwin, 2006; Ravenhill, 2009) basis and the bloc remains export-dependent on external markets. Thus intra-ASEAN trade has not occurred at the expense of extra-ASEAN trade (Tumbarello, 2007). Some studies even attest to the negligible and non trade-creating effects of AFTA [Soloaga and Winters, 2001; Clarete *et al*., 2002; Dee and Gali, 2003: cited from Tumbarello, (2007)], notwithstanding other findings of a significant increase in intra-regional trade resulting from AFTA [Frankel and Wei, 1997; Elliott and Ikemoto, 2004; Ghosh and Yamarik, 2004: cited from Tumbarello (2007)].

[9] Myanmar is not included as her share of intra-ASEAN trade in total trade is now approximately 50 per cent of both exports and imports (Lwin, 2009; see also Davies, 2010). Myanmar has shifted her trade focus to the neighbouring countries with the imposition of trade sanctions by the United States and European countries. However, it should be noted that in the recent past, the other GMS members have also increased their trade dependence on themselves (Fujimura, 2008).

[10] Market integration relies on non-official institutions that provide regional public and quasi-public goods, which reduce transaction costs associated with the international movement of goods, services and other production factors.

[11] However, there is growing diversification with the rise of commercialised agriculture and the expansion of labour intensive agro-processing activities

(ADB, 2004, 2007b). Further, some CLMV countries have shifted into labour intensive commodities (light consumer goods and resource based industries). The shift is palpable for Cambodia given her garment industry (ADB, 2007c).

[12] Vietnam and Thailand are said to have a similar trade and industrial structure (Nguyen, 2002; Kagami, 2009), as the former's exports have gradually shifted from raw materials to light manufacturing, agricultural and aquacultural products.

[13] Kimura and Kobayashi (2009) explain the expected dispersion, sometimes known as linked agglomeration, when the agglomeration leaps out of the network to connect with remote places *via* an efficient logistic network, of activities from the core to the periphery of Cambodia with improvement in infrastructure and trade facilitation based on a Geographical Simulation Model (see also Kimura and Obashi, 2009; Kudo, 2009).

[14] As at November 2007, 18 special economic zones were approved by the Cambodian government, many of which are located in border areas (Kudo, 2009).

[15] New economic corridors have been added (i.e. Southern Coastal Sub Corridor, Northern Sub Corridor and New Route of the North-South Economic Corridor) while some parts of the North-South Corridor have changed (Ishida, 2007).

[16] Lwin's (2009) study indicates that Cambodia and Myanmar have not reached their trade potential with Thailand whilst Laos and Myanmar have not reached their trade potential with China. This however implies that trade within the GMS is yet to be exploited to the full potential.

[17] Ravenhill (2009) cites that the provisions under the EHP yield limited results as it only covers trade of a total value of less than USD1 million (see also Sotharith, 2006; Hao, 2008).

[18] Tinbergen (1962) and Pöyhönen (1963) were the first authors applying the gravity equation to analyse international trade flows. Until the 1970s, theoretical support for this model remained weak. Thereafter, various theories emerged to explain the model based on solid microeconomics foundations such as constant elasticity of substitution preferences and product differentiation (Anderson, 1979), monopolistic competition and the Hecksher-Ohlin model of inter-industry trade (Bergstrand, 1985, 1989) and increasing returns to scale (Helpman and Krugman, 1985).

[19] The interpretation of the dummy variable for specific partners is as follows (Poncet, 2006). A positive and statistically significant coefficient for a dummy variable implies that trade flows exceed the normal level, that is, the level predicted by the countries' economic sizes and the distance between

them. Conversely, a negative and statistically significant coefficient implies that the trade flows fall short of the predicted level.

[20] Since the equations are linear in logarithms, the estimated coefficients of the continuous variables are elasticities.

[21] Exports and imports are used as the dependent variable, rather than total bilateral trade because it permits to identify export and import diversion separately (Tumbarello, 2007) and is a more direct performance indicator for trade reforms. However, the gravity model is reported to perform consistently better with export data than with import data as the former is reported fob (freight on board) with the latter including cif (cost, insurance and freight) (Fitzpatrick, 1984).

[22] The specification with PGDP is often used to estimate aggregate exports whereas that which includes N is often used to estimate bilateral exports for specific sectors (Martinez-Zarzoso and Nowak-Lehmann, 2003).

[23] All specifications are also estimated using PGDP and N (apart from the combination of GDP with PDGP and GDP and N). Breuss and Egger (1997) point out that using PGDP instead of absolute GDP avoids high co-linearity often present between absolute GDP and N (see also Garman *et al*., 1998; Smith, 1999; Sandberg *et al*., 2006).

[24] Where possible, the partner country records are used. The missing values for intra-CLMV trade particularly poses challenges for the estimation and thus the results should be interpreted with caution.

[25] Given the macroeconomic nature of the dataset, the issue of non-stationarity is also considered. The unit root panel test on the levels and first differences are investigated using the Im, Pesaran and Shin (IPS, 2003) test. The IPS is chosen since it allows for a higher degree of heterogeneity in cross-section dynamics and also has a higher power than the Levin and Lin (LL) test. The results confirm that the null of a unit root is rejected for most variables in levels. Thus, most variables are found to be of I(0) process, which is stationary in levels.

[26] The RE model is chosen since the distance variable (lnDST*ij*) and contiguity (DUMADJ*ij*) are invariant across time periods.

[27] The results are robust to the use of various specifications (combinations of GDP and N; GDP and PGDP; PGDP and N), thus the results are reported only for the GDP and N combination.

[28] CLV countries are found to have substantial untapped potential in attracting resource seeking investors (ADB, 2006).

[29] The positive results on distance for intra-GMS trade flows may plausibly indicate that geographical proximity is not a pressing issue given that Thailand shares the border with CLM while China shares with LM (more specifically Yunnan borders LMV).

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Appendix 1: Variable Construction and Data Source

Variable	Variable Construction	Data Source
X	Value of bilateral exports in US$ measured at constant (1990) price. Exports are deflated by the US consumer price index.	Exports (at fob price, US$) compiled from UN COMTRADE database.
GDP	Real GDP (at 1990 price). GDP is deflated by the US consumer price index.	International Financial Statistics, IMF. Asian Development Bank.
PGDP	Real GDP per capita (at 1990 price). Real GDP divided by population.	International Financial Statistics, IMF. Asian Development Bank.
N	Population.	International Financial Statistics, IMF. Asian Development Bank.
DST	Bilateral great-circle distance between major cities of each country.	CEPII database.
ADJ	A binary dummy variable which takes the value 1 for countries which share a common land border and 0 otherwise.	CEPII database.
RER	$RER_{ij} = NER * (P_j/P_i)$ where NER = nominal bilateral exchange rate index P_j = price level of country j proxied by the producer price index P_i = price level of country i proxied by the GDP deflator RER is at 2000 price.	International Financial Statistics, IMF.

Appendix 2: Bilateral Country Pairs

China-ASEAN	Regional (ASEAN)		Sub-Regional (GMS)
China-ASEAN6	Intra-ASEAN6	Intra-CLMV	Intra-CLMV
China-Malaysia	Malaysia-Singapore	*Cambodia-Laos*	*Cambodia-Laos*
China-Singapore	Malaysia-Thailand	*Cambodia-Myanmar*	*Cambodia-Myanmar*
China-Thailand	Malaysia-Philippines	*Cambodia-Vietnam*	*Cambodia-Vietnam*
China-Philippines	Malaysia-Indonesia	*Laos-Myanmar*	*Laos-Myanmar*
China-Indonesia	Malaysia-Brunei	*Laos-Vietnam*	*Laos-Vietnam*
China-Brunei	Philippines-Singapore	*Myanmar-Vietnam*	*Myanmar-Vietnam*
	Thailand-Singapore		
China-CLMV	Thailand-Philippines		Thailand-CLMV
China-Cambodia	Thailand-Indonesia		Thailand-Cambodia
China-Laos	Thailand-Brunei		Thailand-Laos
China-Myanmar	Philippines-Indonesia		Thailand-Myanmar
China-Vietnam	Philippines-Brunei		Thailand-Vietnam
	Indonesia-Singapore		
	Singapore-Brunei		China-CLMV
	Indonesia-Brunei		China-Cambodia
			China-Laos
	ASEAN6-CLMV		China-Myanmar
	Malaysia-Cambodia		China-Vietnam
	Malaysia-Laos		China-Thailand
	Malaysia-Myanmar		
	Malaysia-Vietnam		
	Singapore-Cambodia		
	Singapore-Laos		
	Singapore-Myanmar		
	Singapore-Vietnam		
	Thailand-Cambodia		
	Thailand-Laos		
	Thailand-Myanmar		
	Thailand-Vietnam		
	Philippines-Laos		
	Philippines-Myanmar		
	Philippines-Vietnam		
	Indonesia-Cambodia		
	Indonesia-Laos		
	Indonesia-Myanmar		
	Indonesia-Vietnam		
	Philippines-Cambodia		
	Brunei-Cambodia		
	Brunei-Laos		
	Brunei-Myanmar		
	Brunei-Vietnam		

Note: There is missing data for 12 bilateral pairs (in italics): (a) Intra-ASEAN6: Indonesia-Brunei;
(b) ASEAN6-MV: Philippines-Cambodia; Brunei-Cambodia; Brunei-Laos; Brunei-Myanmar; Brunei-Vietnam. (c) Intra-CLMV: Cambodia-Laos; Cambodia-Myanmar; Cambodia-Vietnam; Laos-Myanmar (no data); Laos-Vietnam; Myanmar-Vietnam.