CHAPTER 9

New Division of Labor between China and CLMV Region

Xingmin Yin

This chapter should be cited as:

YIN, Xingmin 2012. "New Division of Labor between China and CLMV Region" in *Industrial Readjustment in the Mekong River Basin Countries: Toward the AEC*, edited by Yasushi Ueki and Teerana Bhongmakapat, BRC Research Report No.7, Bangkok Research Center, IDE-JETRO, Bangkok, Thailand.

CHAPTER 9

NEW DIVISION OF LABOUR BETWEEN CHINA AND CLMV REGION

Xingmin Yin

INTRODUCTION

This report analyzes the major features of the new division of labour that has been taken place between China and the region of Cambodia, Lao PDR, Myanmar and Vietnam (hereafter CLMV) since the early 21st century and evaluates its impact on regional production networks. The new division of labour has involved major resource commitments to production outsourcing and changes in supply chains, reflecting China's effort to continued trade growth through new trade pattern and investment activities as implemented in the China-ASEAN (The Association of South-East Asian Nations) Free Trade Agreement, effective 1st January 2010.

The primary objective of this report is to investigate whether part of the explanation for the trade fall in bilateral trade, as well as the subsequent recovery in regional trade, may depend on the different cross country advantages. Along with their different manufacturing capacities, the roles played by wages, exchanges rates, and productivity in determining the new division of labour are also examined. The analysis attempts to answer these questions at the regional level by using data both from the United Nations Comtrade and China Statistical Yearbook, while an update analysis of the bilateral trade as well as the trade return is based on a more recent data set from The World Trade Organization (WTO) and the internet sources.

The main contribution of this study is that it uses empirical approach in order to arrive at an export specification of China to CLMV, which reveals the differential

effects of manufactured products upon exports in CLMV and finds that such a specification can explain the sharp rise in the regional exports of goods to the world during the global trade recovery, in contrast to the trade crisis in 2009. The bilateral trade recovery between China and CLMV can only be partially explained by differential production costs for their exports. There are more factors to trade recovery. For instance, many policy measures that were implemented to boost their trade at that time pushed the global trade recovery.

The rest of the report proceeds as follows. The next section briefly reviews the theoretical consideration on the new division of labour, which will be analyzed with special reference to China-CLMV trade patterns and is very different from the past division due to technological developments. Section 3 describes the stylized facts of the bilateral trade between China and CLMV. In Section 4, based on the determinants of the new division of labour, we examine the three factors that are usually regarded as major elements in determining the location of supply chains. Section 5 analyzes the special features of production networks with special focus on some respective categories between China and Cambodia and Vietnam. Section 6 provides brief conclusions and highlights some policy implications.

1. BRIEF DISCUSSION ON NEW DIVISION OF LABOUR

How to shape a comparative advantage for the CLMV region to China that has been rapidly growing both in exports and imports of manufacturing goods? It is widely discussed that the new division of labour between the relative industrialized and industrializing countries will provide more opportunities for global trade expansion, which benefited both sides. Should we draw some references from this new idea for the China-CLMV trade development pattern? It is important to understand that the new division of labour is very different from the past division due to technological developments that enable fragmentation of production on an unprecedented scale. The case of China's successful trade story in the adoption of new division of labour has

been analyzed in economic literature (WTO and IDE-JETRO 2011). Generally, this new consideration is reflected in complex organizational forms of production, which exploit cost advantages in different parts of the world, and for which labour costs represent only a fraction of the overall cost calculation. As long as we understand the mechanism of new division of labour between China and the industrialized economies such as the United States and Japan for the past two decades, the further question is what kind of division of labour between China and the CLMV region, in terms of their trade expansion and investment growth, can be drawn in the past ten or five years.

Before the empirical studies on the new division of labour between China and the CLMV region, it is necessary to illustrate the features of international production chain across different countries. The logic of new specialization pattern applies to final goods, capital goods, and intermediate inputs, as well as a variety of stages of production that can be separated from each other.

Why do firms organize in an international value chain? According to recent studies, there are two questions: Should the firm produce inside or outside the firm boundaries? Where should the firm locate production, at home or abroad? International outsourcing is a relocation of activity outside the firm to an independent input abroad. It is necessary to explain the difference between outsourcing and off shoring. “Outsourcing” can be reserved for sourcing from an unaffiliated supplier, be it a domestic or foreign firm, while “Off shoring” can be featured for imports of intermediate inputs or services from foreign countries (Helpman and Trefler 2006). There are, however, many different explanations from various economists on the new international division of labour. The following discussion should be very helpful for our understanding on this field related to China’s production networks with the CLMV region, instead of a couple of explanations.

First, the growth of trade in intermediate inputs has been widespread, reflecting fragmentation trends in many industries. Moreover, this trade expansion has taken place between subsidiaries of multinational corporations and their parents on one hand, and between unaffiliated firms on the other. It is widely recognized that

specialization within firms plays a role. Specialized suppliers of intermediate inputs may have a cost advantage over final good producers who supply their own inputs. And the extent of this advantage may depend on the match between the supplier and the final good producer; if the match is a good one, outsourcing is preferred, if it is bad, integration is preferred. Generally in the past decades, the removal of trade barriers discouraged integration and encouraged outsourcing (Helpman 2006).

Second, what is off shoring? Off shoring is a relocation abroad of an activity which remains inside the firm (Marin 2005, pp.2-3). Many countries may be manufacturing the same product, each working on a different step in the process (UNIDO 2010, p.19). The main tradeoffs emphasized in the literature are between lower product costs, particularly in less developed countries such as Cambodia and Vietnam. These tradeoffs in integration versus outsourcing and domestic sourcing versus off-shoring help in understanding the substitutability between foreign direct investment and arms-length imports of intermediate inputs. The case of China has been widely discussed. It is declared that almost half the activity takes place in foreign owned factories with inputs controlled by the Chinese factories (Feenstra and Hanson 2005). Moreover, China's outsourcing to the CLMV region relative to off shoring is more likely when the CLMV countries have a low level of wages and a favourable export-oriented strategy, and the input supplier in the local industry is more experienced.

This is just a simple two-by-two classification system for convenience. Obviously, theoretical insights should be further explained using more empirical evidence. We need to obtain a better understanding of the new international division of labour. Also the division of labour between China and the CLMV as well as the regional division of labour must be taken into consideration.

2. NEW SPECIALIZATION PATTERNS CROSS CHINA AND CLMV

As of 2010, we see that the increases in exports and imports significantly outweigh the contraction for virtually all the global economies in 2009. Exports in terms of volume were up 13% in developed countries, while the increase from developing economies was nearly 17% (WTO 2011, p.20). Therefore, the recovery of trade proceeded more rapidly in developing countries.

2.1. A Bilateral Trade Overview

Contrary to the world growth in exports and imports, nominal merchandise exports of China jumped 31% in 2010 to USD 1.58 trillion, or 10% of world exports, up from USD 1.20 trillion in 2009, while its imports also increased 38.7% to USD 1.40 trillion in 2010, up from USD 1.01 trillion in 2009. Within a single year, all CLMV experienced a double-digit growth rate in the dollar value of both exports and imports, thanks to the strong recovery in Asian developing economies led by China. Both Gross Domestic Product (GDP) and manufacturing value-added output grew 10.3% and 12.7% in 2010, respectively.

As a relevant background to the more detailed analysis later, we begin by describing the trade development across China and CLMV between 2008 and 2010.

Table 1 shows the detailed data for China's exports and imports with these four countries. The numbers are broadly characterized by substantially larger declines in exports while the imports appeared to be in rising for Laos and Vietnam, but not for Cambodia and Myanmar in 2009. China experienced a dramatic increase in its exports with CLMV across virtually the entire spectrum of manufactured goods. Bilateral trade flows between China and the four countries rebounded strongly in 2010 following the global trade collapse in 2009 due to the United States financial crisis. The rise in the value of goods exported in 2010 was the largest on record, enabling their trade to return to its pre-crisis level. Economic conditions continued to improve

in both China and CLMV, but recovery of Cambodia seems to be slow compared to other members of the region in terms of the total exports, which only rose by 12%. As shown in Table 1, China's total exports to CLMV grew from USD 19.84 billion in 2009 to USD 28.41 billion in 2010, increasing by 43%, while China's imports from CLMV continued to increase to USD 8.65 billion in 2010 compared to USD 5.81 billion in 2009, raising nearly 50% in a single year. China's trade surplus also increased from USD 14.03 billion to USD 19.76 billion in the same period.

Within the CLMV countries, Lao PDR stands out for its heavy dependence on production fragmentation for export dynamism. China's import/export ratio was 80% for Laos and 30% for Vietnam and 28% for Myanmar, while only 7% for Cambodia in 2010. With this background, let us turn to relative trade performance and trends of China's bilateral trade with the four countries.

Table 1. China's Merchandise Trade with CLMV between 2008 and 2010

USD million

Country	2008		2009		2010	
	EX	IM	EX	IM	EX	IM
Cambodia	1,095.54	38.83	907.26	36.89	1,347.34	93.63
Lao, PDR	268.11	134.26	377.17	374.63	483.62	601.49
Myanmar	1,977.77	647.55	2,253.99	646.13	3,475.52	966.55
Vietnam	15,122.13	4,336.32	16,297.65	4,747.53	23,101.54	6,984.54
Total	20,128.98	5,156.96	19,836.01	5,805.18	28,408.02	8,646.21

Source: China Statistical Yearbook, 2009-2011.

First, between 2008 and 2010, China's imports grew much faster than its exports to these four countries from USD 5.16 billion to USD 8.66 billion, increased by 67.83%. One striking feature of China's trade with CLMV is that its imports increased 12.57%, from USD 5.16 billion to USD 5.81 billion, while its exports dropped 1.55% in the time of global crisis (2008/09). Its import/export ratio with the four countries rose from 25% to 30%, which shows the four countries' expanding export capacities.

Second, in terms of import sources, China has been above Cambodia and Vietnam in terms of imports since the early 21st century, accounting for 21.1% and

19.8% of their total imports in 2009, respectively.[1] Furthermore, China continued to strengthen its presence in Cambodia and Vietnam's import growth in 2010, rising to 28.05% and 27.4% respectively.

Third, trade imbalance between China and CLMV widened from USD 14.03 billion in 2009 to USD 19.76 billion in 2010, as exports and imports bounced back from their depressed levels of 2009. For most countries, the gap between exports and imports did not grow so rapidly after the crisis as before, except for Laos. Our view is that, simultaneously with this widening trade imbalance, the region of CLMV expanded its industrial capacity and exports to other countries, particularly to the high income countries. Our next section will discuss this trend in details.

One key message from these stylized facts seems to be that it was especially China's imports from CLMV which experienced particularly marked increases. This increase was underpinned by China's high growth in domestic expenditures. As mentioned earlier, China's GDP and industry grew 10.3% and 12.7% in 2010, which clearly shows the strong demand in China's domestic market and a positive sign for the neighbouring countries growing exports to China.

2.2. A Difference in the Trade of Different Goods

The factors that contributed to the unusually large increase in regional trade in 2010 may be the new feature of ongoing specialization based on regional comparative advantages. The data summarized in Tables 2 and 3 helps us in understanding the major role played by the new division of labour within regional production networks in the expansion of manufacturing exports from China to the four countries. For instance, exports of electronic equipment rose more than 40% and machinery exports rose nearly 80% between 2008 and 2009. The exports of textiles and articles of clothing accessories also rose nearly 35%.

[1] http://stat.wto.org/Countryprofie.

2.2.1. Textile and clothing accessories

We have to provide the description of intermediate inputs analyzed in this study. Category 60 covers knitted or crocheted fabrics, accounting for roughly 30% of China's exports to Cambodia. The record expansion of this category in 2010 was certainly a welcome development, the exports rose by nearly 50% compared to the previous year from USD 268.47 million to USD 402.05 million. Overall, China's exports of textile and clothing accessories to Cambodia have not been fully recovered: one of the factors may be a much slower recovery in the developed economies, which have been the dominant destinations for Cambodia garments' exports. Category 52 refers to cotton that is the most important material for cloth-making industry, which has accounted for 15% of China's total exports to Cambodia. The 68.6% growth rate of cotton for 2010 from USD 114.75 million to USD 193.48 million is also more impressive than 11.66% in the previous years 2007/08. Category 55 refers to man-made staple fibres and Category 61 includes articles of apparel and clothing accessories, knitted or crocheted. These two categories accounted for a small share of China's total exports to Cambodia: about 11% in 2006 and 8% in 2010, respectively.

Interestingly, over the past five years, the share of Cambodia's imports from China has remained around 50% out of the total imports from China, showing the important role of China's supplier for the development of Cambodia's apparel industry until today, as a result of a large amount of trade deficits with China.

A notable development in the rapid growth of China's exports of category 55 to Myanmar in 2009/10 is evident. Exports of this category from China to Myanmar increased substantially from USD 113.37 million in 2009 to USD 175.71 million in 2010, rising by 55%. But, the man-made staple fibres only accounted for about 5% in China's total exports to Myanmar during the survey period. Therefore, the man-made staple fibres were not one of the main export goods. Considering the small share of its exports to the total, this study will not spend more time to discuss the production networks between China and Myanmar.

Table 2. China's Exports to CMV in Textile and Articles of Clothing Accessories

Category	2006	2007	2008	2009	2010
By Value, USD Million					
Cambodia					
52	114.81	127.32	142.17	114.75	193.48
55	50.69	50.53	50.13	53.38	74.70
60	207.72	252.16	287.72	268.47	402.05
61	27.75	30.52	45.29	25.70	32.16
Total	400.97	460.53	985.84	462.23	701.39
Myanmar					
55	76.31	91.75	91.29	113.37	175.71
Vietnam					
52	268.73	371.45	445.53	634.12	1167.21
CMV Total	746.01	923.73	1522.66	1209.72	2044.31
By Percentage (%)					
Cambodia					
52	16.45	14.41	12.98	12.65	14.36
55	7.26	5.72	4.58	5.89	5.54
60	29.77	28.54	26.26	29.60	29.84
61	3.98	3.45	4.13	2.83	2.39
Total	57.46	52.12	47.95	50.97	52.13
Myanmar					
55	6.32	5.40	4.62	5.01	5.06
Vietnam					
52	3.60	3.12	2.95	3.89	5.05

Source: UN Comtrade.

Turning to the largest economies among these four countries, Vietnam's imports of the cotton from China have a similar share with Myanmar in terms of import order: around 3 to 5%. However, its import value is absolutely much larger than Myanmar's. Actually, the value of Vietnam's imports reached USD 1167.21 million in 2010, up 84% from USD 634.12 million in 2009. As discussed earlier, Vietnam performed quite well in importing cotton from China, setting a record as high as USD 1167.21 million in 2010. Consequently, Vietnam enlarged its share in China's total exports to CLMV region, from 36% to 57% in textile and accessories of clothing goods. This comparison vividly demonstrates that Vietnam's imports in textile and clothing accessories account for a much larger share and it has increased its role in the regional apparel production networks.

Furthermore, in the exports of textiles and articles of clothing accessories, the exports of this product category increased from USD 746.01 million in 2006 to USD 2,044.31 million in 2010. Compared to other members of the CLMV region, Vietnam increased its imports of this category from USD 268.73 million to USD 1,167.21

million, surpassing that of Cambodia, which seems to be seriously affected by the global economic crisis during the same period. China's exports of this category to Cambodia dramatically decreased from USD 985.84 million in 2008 to USD 462.23 million in 2009. This is unimaginable because it reduced about 50%, but surprisingly recovered in 2010. The exports of this category to Myanmar have rapidly increased, from USD 76.31 million to USD 175.71 million, more than doubled within the past five years.

Given the fact that the production of assembly in this category of apparel accessories is generally more labour intensive than in that of textiles, these figures suggest that by and large China's exports to Cambodia and Vietnam have so far been due to differences in the labour productivity rather than due to pure labour costs in view of the different income levels between China, Cambodia and Vietnam. As we will see in the following discussion, rapid expansion of China's industrial capacity and the role of extended trade in the world have brought about a notable shift in the patterns of regional division of labour, particularly with Cambodia and Vietnam playing an increasing role in producing goods as rapidly growing final assembly countries.

2.2.2. Trade patterns of capital goods

As part of this study, we also examined data on capital goods exports to the four countries. This data shows that the sharpest increase in China's exports to the four countries has been as regards the machinery.[2] Generally, by the end of 2010, exports of these products had already returned to a level more than their pre-crisis maximum, while particular categories such as electric and machinery products were much higher than their 2008 peaks; only automotive products were a little slightly higher (6.25%) than that of 2008. It is worthy to note that China's exports in textiles, articles of clothing accessories fluctuated as much as other products in 2009, down nearly 20%; particularly in Cambodia, down more than 50%, and surprisingly up nearly 70% in

[2] Henceforth, we use "machinery" in place of "machinery and electric equipment", and "apparel accessories" in place of "articles of clothing and apparel accessories" for brevity.

2010. But China's exports to Vietnam and Myanmar increased 42.23% and 14.65% respectively. This is partly due to their relatively large share in diversified trade pattern, as also due to the fact that it is mostly made up of capital goods such as industrial machinery and electric equipment, etc., which is very closely linked to China's production.

Table 3 shows China's exports to the CLMV region in major capital goods - classification by products and components. China's exports of machinery goods, on the other hand show a much higher value than that of textiles and clothing accessories. Data on the exports and imports of machinery products and parts between China and CLMV are summarized in Table 3 based on the individual country level. Category 84 covers nuclear reactors, boilers, machinery and mechanical appliances and parts thereof. Category 85 refers to electric machinery and equipment and parts thereof, sound recorders and reproducers, television image and parts and accessories of such articles. The continued growth of bilateral trade in machinery products and parts between China and the four countries seems to have different performances at individual country levels. Therefore, some distinguished features can be analyzed as follows.

First, by the end of 2010, China's combined exports in machinery, electric machinery and electronic components to Cambodia had not only returned to a level of its pre-crisis maximum in 2008, but also had well exceeded its 2008 peaks, increasing by 26% in 2010. As for the percentage of these two categories in China's exports to Cambodia, the combined share has been less than 20% over this period, excluding 2009. The exports of electric machinery and electronic components did not match the total exports of manufactured goods to Cambodia. This is partly due to its relatively lower capacity in industry, but also to the fact that it is highly sensitive to global economic conditions.

Second, compared to Cambodia's import value in these two categories, the value of Lao PDR's imports from China was much smaller with its imports just returning to a level close to its pre-crisis maximum: USD 133.45 million in 2010, while their share (14%) in total imports from China was well below their 2008-peaks: around 27%.

Third, China's exports to Myanmar had continued to grow every year, from USD 254.20 million to USD 1,115.76 million between 2006 and 2010, increasing 3.4 times. The share (12.98%) of these two categories in Myanmar's imports was larger than that of Cambodia (2.86%) and Laos (1.55%), but lower than that of Vietnam (30.3%).

Table 3. China Exports of Capital Goods to the CLMV Region

	2006	2007	2008	2009	2010
By Value (USD Million)					
Cambodia					
84	53.26	66.21	94.41	72.68	125.40
85	36.28	74.36	113.13	122.31	120.66
Sub-total	89.54	140.58	207.54	194.99	246.06
Lao PDR					
84	30.66	40.96	66.87	53.06	63.37
85	34.68	24.08	68.93	118.01	70.08
Sub-total	65.34	65.04	135.80	171.07	133.45
Myanmar					
84	156.68	280.03	397.00	541.46	730.75
85	97.42	182.27	247.52	267.44	385.01
Sub-total	254.10	462.30	644.12	808.90	1115.76
Vietnam					
84	958.32	1714.71	2561.21	2588.21	3472.07
85	658.84	317.43	1868.03	2555.18	3529.06
Sub-total	1617.16	2032.14	4429.24	5143.39	7001.13
CLMV Total	**2026.14**	**2700.06**	**5417.10**	**6318.35**	**8596.40**
By Percentage (%)					
Cambodia					
84	7.63	7.49	8.62	8.01	9.31
85	5.20	8.42	10.33	13.48	8.96
Lao, PDR					
84	18.17	23.02	24.94	14.09	13.10
85	20.56	13.54	25.71	31.33	14.49
Myanmar					
84	12.98	16.47	20.07	23.95	21.03
85	8.07	10.72	12.52	11.83	11.08
Vietnam					
84	12.84	14.42	16.94	15.88	15.03
85	8.83	11.08	12.35	15.68	15.28

Source: UN Comtrade.

Finally, Vietnam is an interesting case to analyze in trade of capital goods and components. It imported USD 7,001 million in these two categories in 2010 from USD 5,143 million in 2009. The share of its imports from China in Categories 84 and 85 was up 34% and 38%, respectively. Besides, Vietnam's imports of these two categories from China have more than tripled between 2006 and 2010. It may reflect the fact that Vietnam's fabrication of machinery and electric equipment is greatly dependent on China's supply of components and parts.

Turning to the geographic profile of China's machinery trade, we observe a clear pattern of growing importance of Vietnam as a new industrializing power in production networks in this region. Vietnam has been the dominant player in imports of machinery goods and components from China, accounting for 80% in 2006 and 82% in 2010 respectively, compared to its peer members: 13% for Myanmar, 3% for Cambodia and 2% for Laos in 2010. Once again, this difference reflects the significantly important role played by Vietnam as a final product assembler for the industrialized country market using parts and components procured from China. By contrast, China's evolving export patterns in textile and apparel accessories exhibit a clear country-oriented bias: Cambodia and Vietnam. The latter has been playing a larger role in its trade position than the former. Overall, these differences among these four countries are consistent with their economies' competitive edge in industrial specialization based on their natural resources, labour supply and their cost advantages.

2.2.3. Summing up

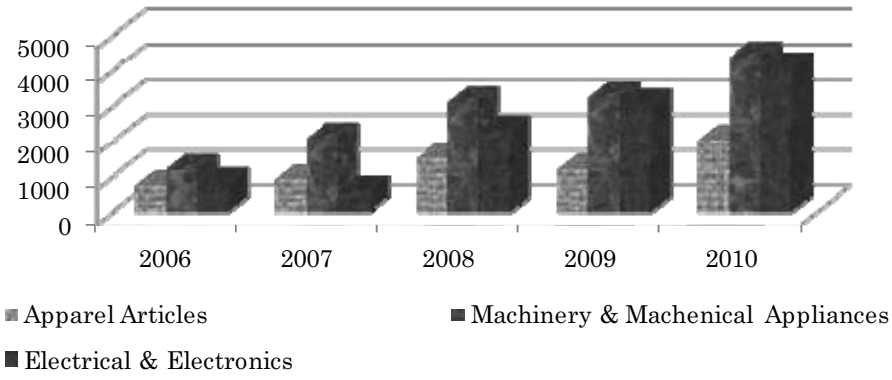
If these four countries are considered as a whole, significant differences in shares within the region have provided the basis for rapid expansion of regional production networks in the coming years, giving rise to increased cross-border trade in parts and components.

A comparison of export and import data reported in Tables 2and 3 points to an interesting development in the CLMV participation in China's machinery and apparel industrial networks. The share of China's exports of three categories in total exports to

CLMV increased from 11.91% to 34.05% between 2006 and 2010. This dramatic increase was led by a continuously increasing role in the export-oriented strategy in the four countries, particularly in Vietnam, in the past three years. When the two categories of machinery exports are disaggregated into machinery products (Category 84), electric and electronic products and parts (category 85), these market shares are more visible in China's exports. For instance, Vietnam has been the largest importer in these three categories, accounting for 81% in 2006 and 80% of the total of CLMV in 2010 respectively. Therefore, the market shares of other members of CLMV have shown remarkable resilience to Vietnam's rise as a major player, both in parts and components and in the final goods trade.

Figure 1 depicts the growing importance of China as a supplier of machinery and parts to the CLMV over the past five years. The combined value of exports to CLMV in categories 84 and 85 increased from USD 1,198.92 million to USD 4,391.59 million between 2006 and 2010, while the value of apparel articles and accessories increased from USD 746.01 million to USD 2,044.31 million. For the period 2006-2010, taking these three categories as a percentage of the whole, we see that the categories 84 and 85 account for 48% and 37% respectively.

Figure 1. China Exports to CLMV in Apparel Articles, Machinery and Electric Products and their Parts



Source: Author's calculation based on UN Comtrade.

However, as regards the specified category, the import share growth has been much higher in electrical machinery and parts (Category 85) than in machinery sector (category 84). The sharp increase of electrical products in Vietnam and Myanmar, 5.36 times and 2.95 times respectively, is noteworthy as compared to Cambodia (1.75 times) and Laos (1 times) between 2006 and 2010.

Overall, the data is consistent with the the CLMV's integration into the regional production networks in apparel industry, largely in Cambodia and Vietnam, and in machinery industry, largely in Vietnam and Myanmar under the division of labour between China and these countries, excluding Laos. As we will see in Section 4, a rapid expansion of China's role in world trade has brought about a notable shift in the pattern of regional division of labour, with the CLMV countries playing an increasing role in final assembly activities. At the individual country level, one striking feature of trade between China and the CLMV is the strong trade performance of Cambodia's apparel articles, and the high degree of concentration in Vietnam's machinery trade. Given this peculiarity of trade expansion between China and the CLMV, the relative importance of trade relations in the growth dynamism in the CLMV will be a country specific pattern.

2.3. A Growing Trend in Textile and Electric Equipment Exports

As discussed above, the key stylized facts relate to the impact of the downturn on specific categories across countries. In particular, it seems that trade in capital goods such as machinery and labour-intensive inputs such as articles of clothing accessories was badly hit, while the impact on trade in consumption goods was less severe, and even none in case of electric machinery and parts. Another stylized fact at the regional level is that bilateral trade in man-made staple fibres (category 61) and electric machinery (category 85) showed a strong increase in the global trade contraction in 2009.

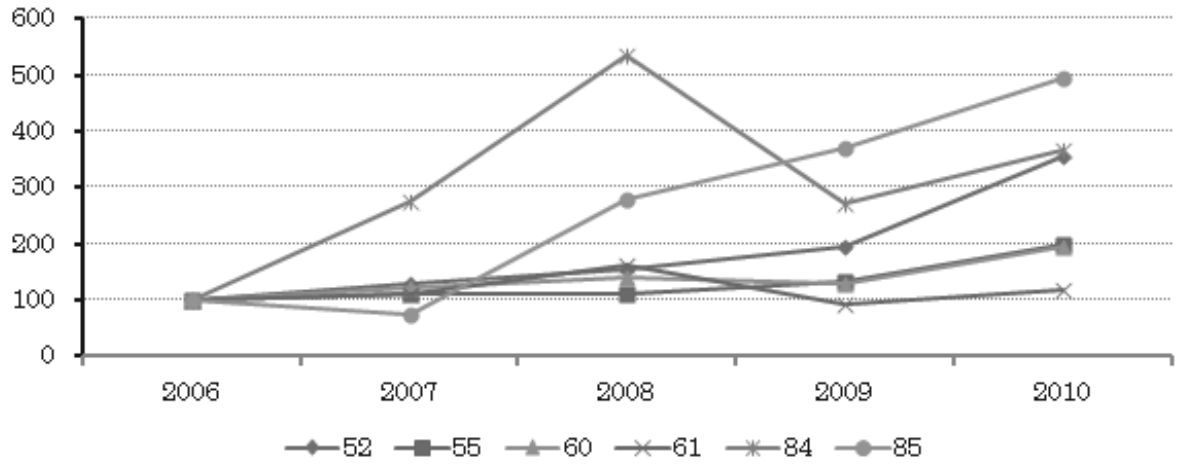
A comparison of cotton (category 52) and articles of apparel and clothing accessories (category 61) in Figure 2 points out to an interesting development in the CLMV participation in regional production networks. The increase in category 61 in

Cambodia and Vietnam on the import side has been accompanied by a dramatic drop in 2009.

Figure 2 reveals that the exports of machinery products and its parts which had a significantly rising trend between 2006 and 2008, declined dramatically in 2009 and further slightly recovered in 2010. Furthermore, articles of clothing accessories also declined, but more rapidly increased compared to the machinery products in 2010.

The stylized facts highlighted in this section regarding the declines in imports and exports of intermediate goods are also consistent with the fact that the growing importance of vertical specialization across China and the region of CLMV played a key a role in the trade downturn and recovery.

Figure 2. China's Exports of Manufactured Goods by Product, 2006-2010 (Indices 2006=100)



Source: Author's calculation based on UN Comtrade.

3. CHANGES OF COMPARATIVE ADVANTAGES IN REGIONAL PRODUCTION NETWORKS

An important part of the theory of comparative advantage is that each country exports something and no country exports everything. For this reason, a number of factors have been suggested as possibly causing the vertical specialization for new division of

labour, ranging from wage differentials, undervalued currencies, and labour productivity across countries. Three factors determine unit labour costs in the four countries relative to China. Let us examine each of these three factors.

3.1. Two Sides of Wage Rising

Wage levels have risen, particularly in China's coastal cities. Wage rates in China have historically been about 7-10% of those in developed countries. For instance, about USD 3,500 per worker in China's urban unit in manufacturing sector in 2009 compared to USD 40,000 in the United States. This year, however, 13 provinces in China, prompted by their respective governments, have raised the minimum wage level by an average of 20%. For example, as many as 12 employees of Foxconn, one of Apple's major suppliers, committed suicide in the space of a few months, forcing the company to announce two wage increases of 30% and 66% in 2010. Given these facts, it is important to understand the nature of wage increases in China and their impact on the unit cost of products.

Wages have been rising - this will reduce the competitiveness of China's exports even as it boosts demand at home that will increase its imports from lower-cost production countries in East Asia. Therefore, workers' wages are bound to go up in future; the Chinese government wants consumption at home to rise. As argued by many research studies, it could turn China from a low-cost exporter into the world's biggest market (Accenture 2011). Chinese wages seem to be on the rise, and salaries for skilled labour, especially engineers and technicians, are skyrocketing in coastal cities. What was the mechanism? Table 4 shows that China's manufacturing wages grew by a two-digit rate both in USD terms and in RMB terms over the period 2003-2010. On the contrary, dollar-denominated Vietnamese wages in 2003 were 66.45% to Chinese wages, and decreased to 56.19% by 2009.

Table 4. Wage Comparison between China and Vietnam, USD

	China	Vietnam	V/C	Growth Rate (%) in China	
	Urban Unit	State-owned	(%)	RMB	USD
2003	1,531	1,017	66.45	/	/
2004	1,722	1,177	68.32	12.47	12.48
2005	1,945	1,316	67.66	11.81	27.04
2006	2,286	1,510	66.07	14.38	17.53
2007	2,781	1,682	60.48	16.02	21.65
2008	3,514	1,993	56.73	15.42	26.36
2009	3,925	2,205	56.19	9.86	11.70
2010	4,567	n.a.		15.32	16.36

Note: Average year wage of labor in China's urban unit above-scale-size for manufacturing sector. Correlatively, Vietnam wage covers the state-owned units in manufacturing industry.
Sources: China Statistical Yearbook, various issues.

Two mechanisms drove these developments. First, wages in RMB terms increased 2.61 times from Yuan 13,969 to Yuan 36,539, while wages in manufacturing industry have been tripled in USD terms, from USD 1,531 to USD 4,567 between 2003 and 2010, as indicated in Table 4. Second, systematic Chinese trade surplus led to large revaluation of its currency. An appreciation of the RMB has been more than 23% since July 21, 2005, which was the first day of the RMB revaluation. It is widely estimated that a future appreciation of the RMB should be a long term phenomenon due to China's huge trade surplus.

Surprisingly, the wage gap between China and Vietnam has been getting wider since 2005. However, it is important to note that the wage differential may be lesser in labour intensive industries such as the apparel industry.

To obtain a broad perspective of the rising salary levels in the past years, we take the wage increases in some manufacturing industries in Jiangsu province as the common trends to show the actual condition for wage changes. Between 2003 and 2009, the salaries of workers in Jiangsu manufacturing industries increased 2.46 times in USD terms, from USD 1,632 per year to USD 4,007 per year. Table 5 shows that the salaries in labour-intensive sectors such as textile and apparel industries have been much lower than that of the average level in manufacturing industry. Column 3 of Table 5 shows that wages in textile and apparel sectors were USD 2,980 and USD 2,794 in 2009. Moreover, Column 5 of the Table reveals effective wage index in

different industries, taking wages in China's manufacturing industry as 100; textile and apparel wage index was 74 and 70 respectively.

If the annual salary (USD 4,000) in China's manufacturing industries is increased 10% annually in dollar terms, the salary level in 2016 will be doubled compared to that in 2009, which is higher than the salary of workers in Malaysia (USD 8,000), and equal to 30% of Singapore wages of 2009.[3]

Table 5. Average Wage of Labor in Jiangsu Manufacturing Industry

Sectors	2003	2009	Growth Rate, times	Index
Textile	1,109	2,980	2.69	74
Apparel industry	1,164	2,794	2.40	70
Ordinary machinery	1,652	4,369	2.64	109
Special purpose machinery	1,704	4,190	2.46	105
Transport equipment	2,043	5,344	2.62	133
Electric machinery	1,629	4,142	2.54	103
Electronics	2,061	4,283	2.08	109
Manufacturing industry				
USD terms	1,632	4,007	2.46	100
Chinese RMB terms, Yuan	13,512	27,372	2.03	/

Notes: Exchange rate was 8.277 RMB/USD in 2003 and 6.831RMB/USD in 2009, respectively.
M=100 means the average wage in manufacturing industry equals to 100%, which indicates the landmark of the wage level for individual industry.
Sources: 2004 Jiangsu Statistical Yearbook, p.114; and 2010 Jiangsu Statistical Yearbook, p.156.

3.2. Changes of Currency Values

Although China's output as measured by gross domestic product (GDP) grew 9.1% in 2009 compared to 9.6% in 2008, one positive development was the domestic stimulus package imposed by the Chinese government for the crisis, in spite of world output (GDP) falling by 23% in 2009.

The discussion of global trade imbalance in 2004/2005 led to an appreciation of the RMB against the dollar. This started the gradual and sometimes faster appreciation of the RMB against the dollar, and made China's domestic production relatively expensive for China's coastal manufacturers and thus drove them to a massive relocation of production bases in Chinese inland and neighbouring countries such as Cambodia, Laos and Vietnam. This movement was reinforced by the American financial crisis of 2008/2009, which brought about the dramatic contraction of global

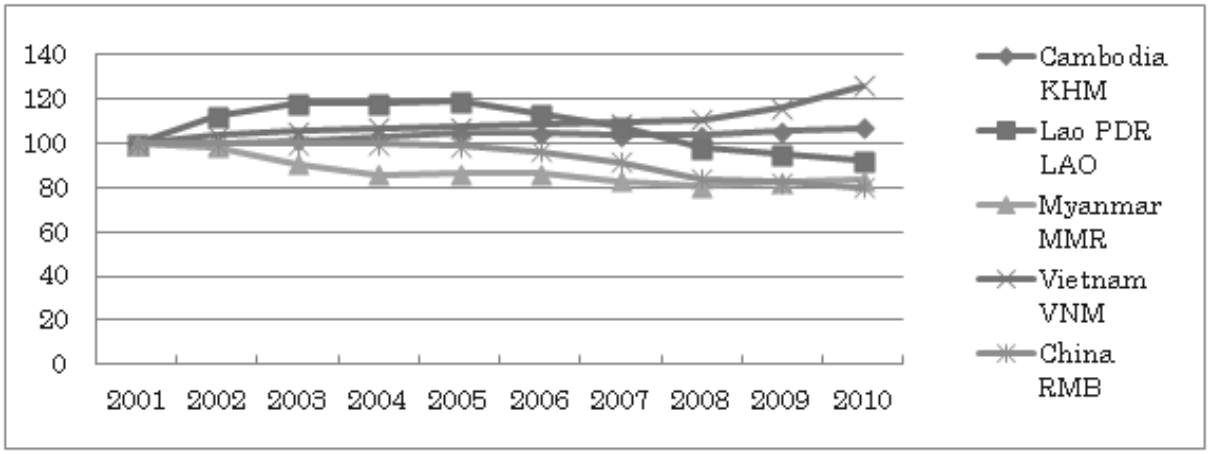
[3] http://asiancorrespondent.com.

trade. The dramatic decline in China's trade was unavoidable and was even greater in RMB terms (-17.3%) than in US dollar terms (-13.9%).

Although the nominal rate of China's currency (RMB) against the US dollar has appreciated over 23% since July 21, 2005, the RMB is still widely believed to be substantially undervalued (Goldstein and Lardy 2008). The majority of empirical studies find the RMB undervalued, the range of estimated degree of undervaluation is spanning from zero to over 50% in terms of the real exchange rate (RER) or real effective exchange rate (REER) (Qin and He 2011). The real value of China's currency has become a hot topic following the persistent surplus in its trade over the past decade. According to a recent study, the RMB remains undervalued vis-à-vis the USD and the euro in spite of the recession and the earlier undervalued misalignment estimates become much more pronounced as well (Qin and He 2011). However, the present study attempts to estimate the degree of RMB nominal appreciation against the US dollar compared to the value of currencies of the four countries against the US dollar over the same period. Consider Figure 3, which shows dollar-denominated effective exchange rate index (2001=100). The Chinese currency has been in the upside of appreciation since 2005. Laos' currency has experienced depreciation from 2001 to 2005 and appreciation from 2005 to 2010, and its effective exchange rate index reached 119 in 2005 and declined to 83 in 2010. However, Vietnamese currency kept its depreciation in this whole period. A large devaluation of Vietnamese currency contributed to its competitiveness in manufactured goods exports.

The resulting series are plotted in Figure 3. Interestingly, the evidence of RMB appreciation is now persistent and substantial, well exceeding Myanmar's NMR and Laos' LAO over the past two years. Owing to the use of differential degree of currency value estimates roughly in Figure 3, we have calculate the valuation changes for China and the four countries over the past decade. There are noticeable differences between the appreciation in three countries and the depreciation in two countries.

Figure 3. Effective Exchange Rate Index (2001=100)



Source: Author's calculation based on IMF database.

First, Myanmar currency appreciated between 2002 and 2008. However, it depreciated by 7.25% against the US dollar in nominal terms between 2008 and 2010. Second, the Laos' currency experienced a fluctuation of exchange rate against the US dollar in nominal terms. The strong nominal appreciation of the LAO against the dollar has been by around 14% since 2007. Third, the nominal depreciation of the Cambodia KHM (3.17%) and Vietnam VNM (15.57%) against the dollar between 2007 and 2010 emerged, which would have lowered the cost of goods for these two countries relative to other countries' exports.

Looking at the ten-year-episode, in terms of nominal exchange rates, on one hand, China's RMB against the dollar appreciated by 23%, about 16% for Myanmar MMR and by 8% for Laos' LAO. On the other hand, real depreciations of Cambodia and Vietnam currencies against the dollar happened over the survey period.

In terms of exchange rates, by February 2011, the RMB appreciated against the US dollar in nominal terms by around 3.8% from its previous level. However, real appreciation against the dollar is happening at a faster rate due to higher inflation in China. This suggests that the RMB appreciation may hurt the competitiveness of Chinese goods in the world market, if the labour productivity growth cannot match the pace of currency appreciation. Under the circumstance of effective exchange rate changes, the relative rate of Chinese currency against the US dollar has been significantly appreciated as compared to the four countries during the five year period.

On the other hand, the strong nominal appreciation of the Myanmar's MMR and Laos LAO against the dollar was matched by real effective rises that would have raised the cost of goods from these two countries relative to Cambodia and Vietnamese exports.

Next, we examine the effect of RMB appreciation on China's trade in 2010/2011. In spite of these impressive appreciations, China continued to increase its exports and imports in the past five years except for the global trade downturn in 2009. We calculate China's trade performance. Its exports increased 31% and imports were up 39% in 2010. Furthermore, the rise in the volume of goods exported in the past three quarters of 2011 was the largest on record, enabling China's trade to not only return to its pre-crisis level, but also its long-term trend. Both exports and imports grew faster in the previous ten months, exports in USD terms were 1,549.71 billion, up 22.0%, while imports rose to 1,425.68 billion, up 26.9%. It is estimated that the total exports and imports will increase to USD 1,925 billion and USD 1744 billion in 2011 respectively, which reinforces China's strong position in world trade. More generally, we believe that China's trade growth dynamics during the past five years is to a large extent, the improvement of labour productivity. It is important to understand how far this factor has influenced and what overall difference has it made with respect to the four countries in determining the new division of labour.

3.3. Chinese Productivity Relative to Vietnam

Labour compensation (wages plus benefits) is only one factor affecting the cost effectiveness of labour. To determine the real cost of labour, we need to factor in labour productivity. In other words, manufacturing competitiveness is not just wages, but also productivity. In this sub-section, we compare the labour productivity with special focus on Vietnam. It is useful to choose a good candidate for our analysis due to available data.

Labour can be paid better and indeed, rising productivity is by far the most important cause for rising wages. Dollar-denominated wages adjusted for productivity are called "unit labour costs". Unit labour costs are the dollar-denominated wages needed to produce one dollar of output. Productivity is often measured as value-added

per hour worked. Chinese manufacturing value-added has been growing dramatically while wages have not risen dramatically, reflecting the strong competitiveness in its manufacturing industry. Overall, labour productivity in China surged ahead of Asian economies, expanding by 8.72% between 2007 and 2009, as per a report by the International Labour Organization (ILO). Much of the productivity gains in China can be attributed to its exceptionally strong GDP performance in the past two years. In the same period, average labour productivity contracted by 0.3% in the 10-member Association of South East Asian nations (ASEAN), which includes major apparel production nations such as Cambodia and Vietnam. Between China and CLMV, there exist large productivity gaps. For example, China's average output per worker in the manufacturing sector (measured in PPP adjusted current US dollars), was USD 22,500 in 2008. Conversely, Vietnam and Cambodia, were USD 8,100 and USD 4,200, respectively, a fraction of China's.[4]

In analyzing the characteristics and performance in productivity, I use the Chinese data and the Vietnamese data and check the trend of unit labour costs for China and Vietnam under the possibility of rearrangements of regional production specialization. As we reiterated, Vietnam is a suitable case for this productivity comparison. In terms of GDP per capita, Vietnam grew much faster than its counterparts in CLMV region, from USD 310 in 1997 to USD 1,169 in 2010. This evidence provides us a reasonable argument to use Vietnam's labour productivity as a compatible indicator to measure the gap between China and CLMV.

Table 6 reports differences in value-added output per worker and gross value of industrial output (GVIO) per worker between China and Vietnam in the manufacturing industry over the past seven years.

First, the labour productivity in Vietnam's manufacturing sector, which had been rising at less than 0.1% per year throughout 2003-2009, has been very stable. . However, Chinese manufacturing labour productivity has been doubled from USD 8,830 to USD 19,550 between 2003 and 2007 for which data is available.

[4] Is Low Wage Manufacturing in China Disappearing?- Who will be the World's Next Workshop? March 24, 2011. http://blog.english,caixin.cn/article/228/.

Table 6. Labor Productivity Comparison between China and Vietnam, USD 1,000

	Value-added per Worker			China-Growth Rate (%)*	GVIO per Worker		
	China	Vietnam	V/C (%)		China	Vietnam	V/C (%)
2003	8.83	1.01	11.44	22.21	31.51	3.58	11.36
2004	10.00	1.04	10.40	13.30	37.79	3.89	10.30
2005	12.78	1.07	8.37	27.80	44.80	4.22	9.42
2006	15.53	1.10	7.09	21.50	53.51	4.59	8.58
2007	19.55	1.16	5.93	25.89	67.84	5.09	7.50
2008	n.a.	1.17	/	/	82.20	5.43	6.61
2009	n.a.	1.10	/	/	90.87	5.29	5.82

Notes: *China growth rate refers to its manufacturing labor productivity. The value of industrial output per worker is in current US dollar price. V/C is Vietnam's ratio to China both in value-added and industrial output per worker.
Sources: http://www.windinformation.cn ; China Statistical Yearbook, various issues.

Second, Vietnam labour productivity ratio to China's has decreased from 11.44% to 5.93% in US dollar terms over the same period. Why has this happened, given that China has experienced rapid productivity growth? To explain it, I will discuss the important factors in determining the productivity increase in China in the following paragraphs and the next section.

Third, the indicator of industrial output per worker has been chosen to show the different growth rates for industry in the past seven years. Chinese gross value of industrial output (GVIO) per worker has been nearly tripled from USD 31,510 thousands to USD 90,870 between 2003 and 2009, while Vietnam has increased 48%, a much lower growth rate than that of China. As a result, industrial output per worker in Vietnam as a ratio to its counterparts in China dipped from 11.36% to 5.82% over the survey period.

Fourth, the slowdown in labour productivity in Vietnam and the widening gap between Vietnam and China's manufacturing industry in this discussion suggests that Vietnam has slacked in raising labour productivity, at least for the period we surveyed.

Indeed, China's productivity growth in manufacturing has outstripped Vietnam's productivity growth, 121% in China against 15% in Vietnam. However, dollar-denominated Chinese wages have grown much faster than Vietnam's, 82%

growth rate in China against 65% in Vietnam, over the same period, so the difference is the rise in unit labour costs for China, which had influenced China's comparative advantage in manufacturing exports.

Since the focus of this section is to explore the relationship between unit labour costs and division of labour, we need to provide more evidence of China's real comparative advantage as compared to Vietnam. Obviously, any observations on differences in characteristics and performance could bias the estimates of productivity comparison and overlook China's progress in value-added growth. To overcome this, I use two major statistical indicators to show the causes of labour productivity rising in the past decade. Actually, the rapid pace of Chinese productivity growth is fuelled by the adoption of new technologies and the supply of human capital based on the new high education policy that was implemented in 1999. First, the number of undergraduates from higher education has increased from 1.04 million in 2001 to 5.31 million in 2009, while the number of post-graduates increased from 67,809 persons to 371,273 persons, increasing by 5.5 times over the same period. Therefore, the transformation in China's higher education has involved major new resource commitments to tertiary education and significant changes in organizational forms, reflecting China's commitment to continued high growth through quality upgradation and the production of ideas. China's transformative strategy differs from that of most low-wage developing economies, such as Cambodia and Vietnam, which focus on primary or secondary rather than tertiary education. This radical change has a strong impact on relative supplies of skilled labour and trade in idea-related products, which raised total factor productivity (Li, Whalley, Zhang and Zhao 2011). Second, China's R&D expenditure to GDP ratio also experienced a significant growth, from 1.07% to 1.71% during the same period. Total R&D spending in 2005, reached USD 29.4 billion, increased steadily from USD 11.13 billion in 2000, and rapidly to USD 58.0.2 billion in 2009, which became the third largest country in terms of R&D investment all over the world, after the United States and Japan.

3.4. Brief Summary

Two points of view can be drawn from the above discussion. First, one does not expect RMB-denominated Chinese wages to grew at such a fast pace, but it is possible that an appreciation will lead to rapid dollar-denominated Chinese wage growth. Second, Chinese productivity in manufacturing industry has grown much faster than its wage growth, therefore, China can continue to increase its job in manufacturing industry even in the face of labour costs rising in dollar terms. Most influential result is revealed from the data in *2011 China's Statistical Yearbook* that the number of manufacturing labour increased 8.7% from 77.19 million to 83.91 million between 2009 and 2010.[5] In another words, 6.72 million new jobs have been created in a single year.

Furthermore, changes in the supply of human capital had exerted powerful influence in China's labour productivity over time. The degree of mass-high education in China has been raised since 1999. As the growth of tertiary education continues China's rate of labour productivity must also be higher than that of the region of CLMV. These results are consistent with the fact that the CLMV region is human capital poor relative to China and thus the skill intensive stages of production are arranged by Chinese firms. The recent case of China seems to follow the Japanese and Korean production in the vertical specialization of industrial networks based on country-specific comparative advantages.

We have argued that rising wages in China is actually accompanied by much higher growth in manufacturing productivity. Thus, measured in relative terms, the Chinese trade surplus with Vietnam and other members of the CLMV region is deeply rooted in its rapid productivity growth. And over time, it is estimated that successful low wage countries such as Vietnam and Cambodia will become successful under the support of rising productivity, and not from rising labour costs.

[5] *2011 China Statistical Yearbook*, pp.502-503.

4. NEW DETERMINANTS OF DIVISION OF LABOUR BETWEEN CHINA AND CLMV

What forces are driving the new division of labour which is emerging between China and the CLMV region? In Section 2, I briefly summarized the factors determining the choice of organization illustrated by economists. The data from China's State Statistical Bureau shows some striking features. Chinese firms do more outsourcing when they are in export-oriented production.

The apparent growth in vertical specialization across China and CLMV is therefore consistent with rising ratio of imports to exports. Generally, each country's exports are becoming more dependent on imports partly because of the increasing use of imported intermediate inputs; hence, the whole global trade chain has become increasingly interconnected (Anderton and Tewolde 2011, p.745). It seems, therefore, a reasonable judgment that a rapid growth in vertical specialization and widespread regional production chain are associated with the country's comparative advantages. We have seen the data on the size of value added production paints a very different picture than the data on trade between China and the CLMV region in the past five years. In this Section, we derive an import sophistication regarding major categories that may capture the important characteristics in the ongoing division of labour across China and CLMV countries.

To understand, one must recognize that China's major export to the CLMV is intermediate goods. For example, China produces very sophisticated parts of electric machinery products to Myanmar and Vietnam, while exports knitted or crocheted fabrics, articles of apparel and clothing accessories to Cambodia. China's net exports to Cambodia are also growing, from USD 1.06 billion in 2008 to USD 1.28 billion in 2010. These parts are then assembled in Cambodia and shipped to North America and Europe as finished garments. Thus, part of the value of the finished products is generated in China while part is generated in Cambodia. China's net exports to Vietnam are also growing, from USD 10.79 billion in 2008 to USD 16.12 billion in

2010. As a special case, this vertical specialization, combined with the fact that input is measured as a ratio to exports in the same category, seems to be part of the reason for the much faster speed of the growth relative to bilateral trade in the past five years.

Moving to consider the country's position within the regional production networks, we also see some relevant changes in the apparel industry between China and Cambodia as well as in the machinery between China and Vietnam over the past five- year period.

4.1. China's Imports in Apparel Production from Cambodia

We have shown above that the value of intermediate inputs that China imported increased substantially over the survey period. Information on the exports makes it possible for us to study the import/export ratio of articles of apparel and clothing accessories at a country level as well.

It is necessary to review the specific features of some categories in China's imports from Cambodia. Category 61 refers to articles of apparel and clothing accessories, knitted or crocheted. Category 62 covers articles of apparel and clothing accessories, not knitted or crocheted. Category 63 covers other made up textile articles; sets; worn clothing and worn textile article, rags. All these three categories are classified into textile and apparel parts for further processing in cloth-making production.

With this in mind, Table 7 provides the import data on apparel accessories in order to argue that there is a sense in which the new division of labour between China and Cambodia has developed over the survey period. To make this point, as already analyzed in Table 2, note that China's exports of apparel accessories approximately tripled between 2006 and 2010, from USD 746.01 million to USD 2,044.31 million.

Table 7. China's Imports and Import/Export Ratio in Apparel Articles with Cambodia

	2006	2007	2008	2009	2010
By Value (USD million)					
61	1.36	3.66	8.03	7.81	16.49
62	1.67	0.81	2.30	2.97	5.18
63	0.72	1.35	1.21	0.76	2.31
Sub-total	3.75	5.82	11.54	11.54	23.98
By Percentage (%)					
61	3.87	7.17	20.68	21.17	17.61
62	4.77	1.58	5.94	8.05	5.53
63	2.06	2.65	3.12	2.06	2.46
Import/Export Ratio					
Category 61	4.90	11.99	17.73	30.40	51.28

Source: UN Comtrade.

In Table 7, we present the growing importance of trade in parts and components in clothing production networks between China and Cambodia. China's imports from Cambodia in Category 62 and Category 63 increased from USD 1.67 million and USD 0.72 million to USD 5.18 million and USD 2.31 million between 2006 and 2010 respectively. As in the case of imports of articles of apparel and clothing accessories (Category 61), the volume increased seven times between 2006 and 2008. However, it decreased only a small margin by 2.74% in a single year, from USD 8.03 million in 2008 to USD 7.81 million in 2009, and surprisingly doubled to USD 16.49 million in 2010. For other intermediate inputs in apparel industry such as Categories 62 and 63, the value of China's imports from Cambodia was relatively stable for the period 2006-2008, and tripled for other made up textile articles, and nearly increased 75% for Category 62.

The significant increase in the import/export intensity can be observed in the above table. It is evident that China's imports of components in apparel industry only accounted for 10.7% of the total imports from Cambodia in 2006, and this share increased significantly in the following four years, reaching 31.28% in 2009, and down to 25.6% in 2010. The detailed information reveals that China's ratio of import/export in Category 61 increased from 4.90% in 2006 to 30.40% in 2009 and further to 51.28% in 2010. The structure of China's trade with Cambodia in Category

61 has shown a palpable shift towards components over time, with Cambodia catching up with the regional production patterns over the past five years. Overall, China's imports in apparel articles and accessories have accounted for 25~30% of the total in 2009/2010. Obviously, Category 61 has been in the dominant share of imports in apparel and clothing accessories from Cambodia. With the January 2005 expiration of a WTO Agreement on Textiles and Clothing, Cambodia textile producers were forced to compete directly with lower-priced countries such as India and Bangladesh and made a great progress in integration into the global production chain.

4.2. China's Imports of Machinery Goods and Components from Vietnam

Over time, we see a clear increase in the imports of machinery and electric products from Vietnam. Overall, the bulk of imports in 2010 consisted of machinery equipment and parts (16% of the total), as well as textiles (6.3%).[6] The import turnover structure changed little compared to last year, with capital goods remaining the largest import category.

Table 8 summarizes the growing importance of import/export ratio in machinery and components between China and Vietnam. Within the capital-intensive manufacturing products and components, particularly the two categories of machinery and electric equipment and electronic goods, in which fragmentation is concentrated between China and Vietnam, have played a pivotal role in this structure shift. The import/export ratio in Categories 84 and 85 in the trade structure of the other three countries with China has been much smaller compared to Vietnam.

In view of the import/export ratio to Vietnam, this ratio in Category 84 increased from 6.90% to 18.42%, except for 9.46% in 2009, and for Category 85, stood at 20.41% and 33.05% between 2006 and 2010, respectively.

[6] http://www.hktdc.com/info/mi/en/1X0010GK/1/Market-Profiles/vietnam.htm.

Table 8. China's Imports and Import/Export Ratio in Machinery with Vietnam

	2006	2007	2008	2009	2010
By Value (USD million)					
Category 84	66.17	176.36	336.57	244.74	639.62
Category 85	150.06	226.16	381.33	611.61	1166.18
By Percentage (%)					
Category 84	2.66	5.47	7.76	5.16	9.16
Category 85	6.04	7.01	8.79	12.88	16.69
Import/Export Ratio					
Category 84	6.90	10.29	13.14	9.46	18.42
Category 85	22.78	71.25	20.41	23.94	33.05

Source: UN Comtrade.

The combined ratio of China's imports to exports in Categories 84 and 85 has significantly increased, from one-third in 2006 to more than 50% in a short span of five years. Therefore, over half of China's exports to Vietnam in machinery have been compensated in Vietnam's exports to China. The significant increase in the relative trade performance in Vietnam is observed to be consistent with the development of new division of labour.

These two cases show that the relative export performance of Vietnam has been inevitably linked successfully to integrate into the global networks in these product lines.

4.3. A Rising Import/Export Ratio between China and CLMV

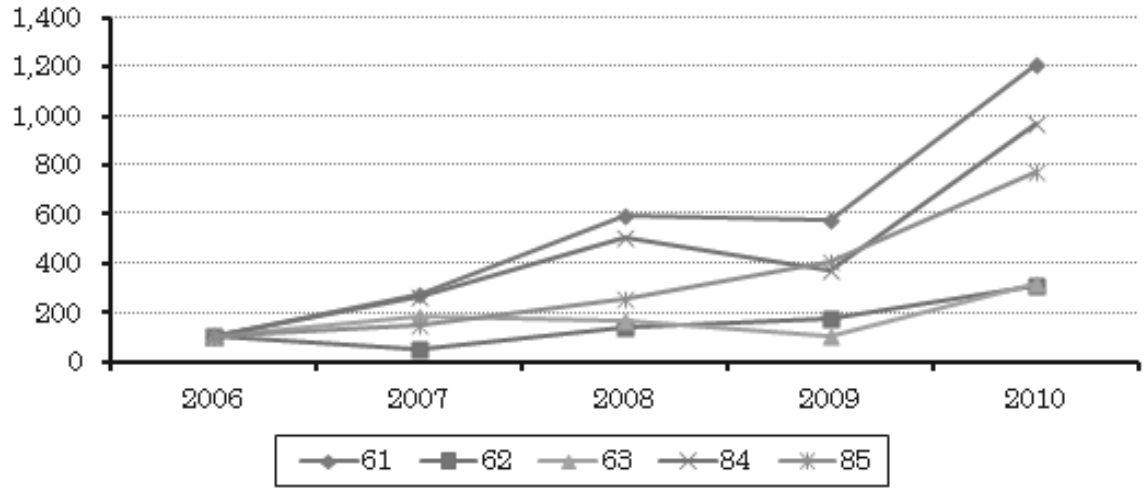
The bilateral trade balance is expressed as the difference between special manufacturing exports and its imports with another economy. It is not to say that deficits are bad news for an economy and good news for another. Actually, the goods exchanged between China and CLMV countries, particularly the manufactured ones, will result from regional production chains and have an impact on the industrial development through the imports of manufactured parts and components. Therefore, attributing the entire export or import value to the CLMV countries should be assessed carefully. Obviously, the analytical relevance of the trade surplus or deficit observed between China and CLMV will be discussed with special emphasis on Cambodia and Vietnam, for which data is available.

4.3.1. A persistent growth of imports from CLMV

In Figure 4, we see that the recovery in category 62 and category 63 seems to be very smooth, while high growth in articles of clothing accessories (category 61) contributed to the recovery in labour-intensive components trade, and may be related to the close integration of the production chain between China and Cambodia at this time.

China's share in Vietnam's imports of machinery and electric appliances shows a rapid increase from 17.14% to 28.16% between 2006 and 2009. The regional production networks are further enhanced in terms of China's share of Vietnam's total import ratio. In 2006, Vietnam's exports to the world were only USD 3.71 billion in machinery products, and rose to USD 6.33 billion in 2008. Unsurprisingly, the exports contracted 25% in 2009. It is worth noticing that Vietnam's imports in machinery (Category 84) from China only declined 2.24% compared to its exports in this single year. This seems to be explained in the role of China's production connection with Vietnam, which can be seen not only as a supplier of machinery and electric appliances for the assembler, but also of an important supplier for the establishment of manufacturing capacity in Vietnam.

Figure 4. China's Imports of Manufactured Goods and Components by Product, 2006-10 (Indices 2006=100)



Source: Based on data compiled from UN Comtrade database.

A comparison of China's import data and import/export ratios in previous Tables (6-8) points to an interesting development in Cambodia and Vietnam participation in world production networks. The increase in the import side from China both in apparel accessories and machinery components has been accompanied by a rapid growth in the export side. It seems that Cambodia is becoming increasingly specialized in the production of apparel accessories, and Vietnam in the production of machinery components.

The above data shows that the degree of dependence of Cambodia and Vietnam on this new regional division of labour is much larger in trade in apparel products and machinery goods compared to the manufactured goods and components. Networks-related trade in parts and components has certainly strengthened economic interdependence between China, Cambodia and Vietnam. Clearly, China has quickly become the major destination for Cambodia and Vietnam exports of components in apparel articles and machinery products as well in this new development of the regional cross-border production networks in the past five years.

One key message from these stylized facts seems to be the different behaviour of the high import/export ratio of components of production chain. In particular, imports of capital goods rose substantially during the recovery period and were therefore a strong driving force behind the rise in imports, while labour-intensive intermediate components still kept their smooth growth pace.

4.3.2. China's position in Cambodia and Vietnam's trade

From China's global trade perspective, nominal merchandise trade between China and the four countries as the share of China's total trade jumped from 1.85% to USD 25.29 billion to 2.36% to USD 37.06 billion between 2008 and 2010. However, the increase of their imports from China in relation to their trade on the export side has been accompanied by a significant increase in their exports to the world on the export side.

To do that, we make a comparison between China's share in Cambodia and

Vietnam's total exports to the world.

First, it is revealed in the WTO data set that the value of total exports from Cambodia and Vietnam grew significantly between 2006 and 2008, from USD 3.57 billion to USD 4.35 billion in the case of Cambodia and from USD 39.68 billion to USD 62.26 billion in the case of Vietnam.

Second, latest development shows that Vietnam exports grew 26% to USD 71.63 billion in 2010, while imports gained 20% to USD 84 billion, reversing negative growth in 2009. Cambodia's international trade has increased tremendously in 2010 to reverse the negative growth in 2009. The country's exports gained 12.2% to USD 5.59 billion in 2010, while imports grew 25.5% to USD 4.90 billion.

Third, because of the growth dynamics, trade in components between China and the two countries based on assembly activities, eventually depends on demand for final goods. The following brief discussion helps to illustrate this important point. Cambodia's contribution of exports to the United States and the European Union increased considerably from USD 3.07 billion in 2006 to USD 3.50 billion in 2008, increasing by 13.96%. The composition of China's exports to Cambodia increased from 13.04% to 33.62% in the same period, while this composition declined dramatically to 15.76% in 2009 and significantly rebounded to 20.66% in 2010.

For a quick judgment on the rising position of China to these four countries, we highlight several different features of trade growth figures. China's merchandise exports in dollar terms rose 22% in 2010, while China's exports to the CLMV region were up 43.2%, rising from USD 19.84 billion to USD 28.41 billion in a single year, while its exports of machinery products rose 33.39%, and 68.98% for textile and clothing accessories respectively. The increases were driven to a large extent by rising import demand on the export sector recovery in some CLMV, particularly in Vietnam. The two largest export markets for Cambodia and Vietnam in garments in 2010 were the United States and the EU. Cambodia's garment exports to the US and the EU increased 19.2% to USD 2.34 billion and 8.7% to USD 1.04 billion, while Vietnam exports to the US and the EU stood at 18.5% to USD 8.0 billion and 3.2% to USD 4.6 billion.

The combined share of Cambodia and Vietnam in world merchandise exports rose to 0.5%, its highest level ever. This rising share may be explained mainly as a result of the integration of its economies into the global production networks.

We are not saying that the exports of China's machinery and its components will be a longstanding feature, or that it is something that is not changeable. We are only saying that its real impact has dramatically changed the fragmentation of the machinery value-chain in regional production networks as well as the industrial capacities. As already mentioned in Section 4, both the ratio of import/export in the two given years and trade growth between China and the two countries are significantly higher in terms of estimates based on components trade. Given this peculiarity of export expansion in Cambodia and Vietnam, our explanation based on reported trade data is that Cambodia and Vietnam have increased their degree of division of labour through learning by importing and exporting, and continued to export more components in apparel articles and machinery goods to China, which has traditionally been the major supplier of these kind of components to the two countries.

In addition to providing another angle for trade analysis, the division of labour approach based on value-added production raises questions about the relevancy of bilateral trade balances evaluated through industrial statistics survey.

5. A COMPARISON OF INDUSTRIAL SIZE AND PRODUCTIVITY

China's dramatic trade expansion since the early 21st century has been the most important impact on the global economy. Total merchandise exports from China increased from USD 266.10 billion (4.41% of world exports) in 2001 to USD 1577.9 billion (10%) in 2010. China's industrialization is an important part of the explanation, and it is helpful to understand how far this process has gone and what its source is. The phenomenal export expansion has been dominated by manufacturing goods that accounted for nearly 95% in China's total merchandise exports in the past decade. It is

well known that the export composition has undergone a palpable shift away from the standard light manufactures and towards seemingly more sophisticated products, in particular various products classified under the category of machinery and electronic goods.

5.1. Different Size of Manufacturing Capacity

We examine the size and dynamics of manufacturing capacities and their implications for regional integration trends. China's share in world manufacturing output did not change much between 1980 and 1998, while after 2000 China's share increased substantially, in terms of value-added output, its share increased from 6.43% to 18.58%, while the value increased from USD 374.46 billion to USD 1,691.15 billion between 2000 and 2009. In the same period, it accumulated foreign exchange reserves from USD 165.57 billion to USD 2.4 trillion, further increasing to nearly USD 3.4 trillion at the end of October 2011. Those are the world's largest reserves in absolute terms and in relative terms, they are astonishing.

Value-added is the sum of wage and profits. The sum of value-added across all sectors of the economy is "GDP". With this background, let us turn to the four countries' relative size in manufacturing capacity compared to China both in output and growth performance. In 2009, it can be estimated from the data available that the cross-national comparisons show the contraction for Cambodia (-6.3%), and slight increase for Lao PDR (4.4%) and Vietnam (6.3%), respectively. In 2010, however, the recovery in manufacturing value-added has been observed across countries.

Table 9 shows that the relative size the manufacturing value-added outputs of Cambodia, Laos and Vietnam as compared to China that has become the largest manufacturing producer all over the world in 2007/2010.[7] Consider manufacturing value-added outputs, there are three points worth making. First, there has been a common trend of an increase in the manufacturing value-added for the following three countries: Lao PDR's manufacturing value-added has nearly doubled, and that of

[7] According to the author's study, the industrial output values of China and the United States are similar in 2007 (Yin 2009).

Vietnam gained 56% over the period 2006-2010.,. Relatively, Cambodia has been lagging behind Laos and Vietnam. Second, China's industrial capacity continues to be strengthened, while its manufacturing value-added more than doubled, from USD 1,145.42 billion to USD 2,376.35 billion. Third, and perhaps the most significant, is the fact that the size of Chinese manufacturing capacity in terms of value-added has been so absolutely large as compared to Vietnam or Cambodia.

It is apparent from Table 9 that the degree of industrialization differs significantly between countries, revealing sharp industrial diversity in the region.

Column (3) of Table 9 shows the annual growth rates for five countries and reveals a statistically significant one for Cambodia, Vietnam and China, and a negative rate for Laos in manufacturing growth over the 2000-2009 period, thereby demonstrating that growth rates in manufacturing production can partly capture the individual country's position in the global production networks.

Table 9. Manufacturing Capacity Changes between China and CLMV

Country	Structure of Output Industrial VA of GDP		Growth Rates 2000-2009		VA of M 2009	% of Labor Productivity
	2000	2009	GDP	M	USD billion	2005-08
Cambodia	20	23	9.0	11.3	1.4	6.5
Laos, PDR	23	28	6.9	-1.9	0.5	..
Myanmar	9	11	..	..	..	5.8
Vietnam	37	40	7.6	11.3	18.0	5.6
China	51	46	10.9	11.4	1,691.2	10.6

Notes: M: Manufacturing industry; VA: Value-added; Labor productivity: GDP person employed.
Sources: China Statistical Yearbook, various issues; World Bank: World Development Indicators, 2001-2011, Washington DC.

The degree of specialization is attained by measuring the extent to which an industry's share of economy deviates from China, which has seen the highest ratio of industry to the GDP. Comparing the ratio of CLMV with that of China, the difference is apparent. First, China's industrial ratio to GDP has been around 40% during the survey period, while Vietnam and Cambodia's ratio were around 20% and 15% respectively. But Laos' ratio has been lower than 10%. Cambodia and Laos have a prominent position in the transformation from primary-based to manufacturing-based

stages. These four countries exhibit a similar pattern, with high dependence on agriculture, for both output and employment. The information in Column (2) of Table 9 suggests that China's industry value-added to GDP ratio has decreased from 51% to 46%, while CLMV, as a whole, experienced a rising ratio, which provides a strong evidence that their industrialization was very rapid and also has more years to catch up with China's position as regards the industrial role in the economy.

There are two important messages here. First, CLMV will expand their manufacturing capacities as done by China in the past three decades, while the impact on China will not be overwhelming due to their relatively much smaller size of production. Second, the international organization of production is now much more flexible than in the past, which has been playing a great role in global production networks based on division of labour. Column (4) of Table 9 shows the comparison of manufacturing value-added output across countries. As expected, the value-added in Vietnam accounted for about 1% of China's, and even less than 0.1% for Cambodia in 2009. In terms of the manufacturing size, CLMV countries are statistically insignificant. This comparison demonstrates that CLMV economies can increase their penetration of exports in components into the Chinese market by enhancing their participation in regional production networks for their growth dynamism.

5.2. Growth of Labour Productivity

Our next step is to analyze the growth of labour productivity. Examining labour productivity growth in the manufacturing sector in recent years, we find similar results as mentioned in Section 4. China's labour productivity has grown much faster than that of its neighbouring countries. The most striking feature is observed in Column (5) of Table 9 which shows that China's manufacturing productivity growth is quite high, having averaged 10.6% annually, a much higher rate than that of any member of the CLMV region, with 6.5% for Cambodia, 5.87% for Myanmar and 5.6% for Vietnam over the period 2005-2008 respectively.

These observations are rather straightforward illustrations of two statements. On the structure of development, when the per capita income of an economy rises, the

share of its industrial output shifts from primary to secondary, such as CLMV region in the past decade. On the other hand, China's industrial structure will shift from labour-intensive to capital-and-technology-intensive industry, and further to tertiary industries. Consequently, it is reasonable to expect that the capacity of Chinese manufacturing industry will gradually shift to relatively lower cost places such as Myanmar and Vietnam, when Chinese economy goes to the category of a "mature" industrial structure.

6. CONCLUSIONS AND POLICY IMPLICATIONS

The present study provides the broad picture of the new division of labour between China and CLMV countries over the past five years. There is clear evidence that new division of labour has emerged as a growing role in the regional production networks. Trade in parts and components in manufacturing sector have been expanding more rapidly than conventional final goods trade. Moreover, the degree of development on this new form of international specialization is proportionate to the country's manufacturing capacities and levels.

Building on the empirical results obtained from a detailed statistical analysis and the explanation of a sample of categories, the main conclusions and policy implications can be highlighted again as follows.

First, a notable recent development in the new division of labour in fragmentation of apparel and machinery production has been the rapid integration of China into the CLMV region production networks. On one hand, China's exports in machinery continued to expand rapidly to the South East Asian region, in particular Vietnam and Myanmar, on the other hand, China's imports in machinery from Vietnam have grown significantly in line with the rapid expansion of machinery exports from China. Besides, China's imports in clothing and apparel accessories (categories 61, 62 and 63) from Cambodia has grown greatly, from USD 3.75 million to USD 23.98 million between 2006 and 2010. The share of these clothing and apparel accessories reached

25.60% of China's total merchandise imports from Cambodia, up from 10.70% in 2006.

Second, one key finding is that booming trade in parts and components has been reflected in a rapid increase in intra-regional trade between China and the four countries. Put simply, growing trade both in machinery parts and apparel accessories has made the CLMV region increasingly dependent on global markets for its growth dynamism.

Third, what impact would an economically feasible solution for China's rising wages have on its comparative advantages in the export growth wave? We find the diminishing effect of wage increases in China's manufacturing industry has been compensated by a much higher growth rate in labour productivity than that of a wage increase. Transition from labour-intensive to capital-intensive products is the rule for most countries' development. China is no exception. The recent year's rapid expansion of manufacturing exports shows that most of the contribution has come from higher productivity which has been largely originated in the growth of capital investment and human capital investment. Therefore, an immediate suggestion from our finding is that in terms of benefiting from the new opportunities from trade expansion between China and the CLMV countries through the new division of labour, the policy choice for these countries seems to be, as a priority, a consideration of a growing role of manufacturing productivity by increasing the supply of human capital and physical capital.

Fourth, we also recognize that the pattern observed from the data is compatible with a structural change from trade in final goods to trade in tasks. The statistical analysis in this report shows that a region consisting of labour-intensive and capital-intensive industries will have a division of labour with respect to comparative advantages in different countries. In fact, our findings emphasized that all participants can benefit from their current production costs, which will promote more trade in intermediate inputs across countries. Accordingly, from the early 21st century onwards, the internationalization of production has caused a shift from a steady state to a new one with export/import ratio rising in Cambodia and Vietnam for the respective

components trade. From the perspective of import/export ratio in bilateral trade between China and CLMV, the increasing complexity trade has a positive effect of deepening regional production networks. At a new trade pattern, trade represents a higher share of GDP and a much higher import/export ratio as well as export/import ratio.

Fifth, the direct observation of manufacturing size and growth rates between China and the four countries, using value-added and gross output of industrial value terms, tends to support our point of view that promoting the development of manufacturing industries, particularly the mechanical sectors is the major way for the CLMV region to increase their exports of value-added products to China and the world. In this sense, the establishment and development of machinery and electric industries is an important policy in enhancing CLMV's productivity, particularly in Vietnam.

Generally, our results are conclusive. This initial analysis, however, opens up a number of related research topics for the future, including China's production dependence on Cambodia's articles of apparel accessories and on Vietnam's components and parts of machinery industry. A more detailed analysis of South-South model of division of labour cross China and neighbouring countries will be further studied.

REFERENCES

Accenture. 2011. "Wage Increases in China: Should Multinationals Rethink their Manufacturing and Sourcing Strategies?"

Anderton, Robert and Tadios Tewolde. 2011 "The Global Financial Crisis: Understanding the Global Trade Downturn and Recovery," *The World Economy* 34(5):741-763.

Athukorala, Prema-Chander. 2008. "Singapore and ASEAN in the New Regional

Division of Labor," *The Singapore Economic Review* 53(3):479-508.

De Benedictis, Luca and Lucia Tajoli. 2011. "The World Trade Network," *The World Economy* 34(8):1417-1454.

Escaith, Hubert, Mannette Lindenberg and Sebastien Miroudot. 2010. "International Supply Chains and Trade Elasticity in Times of Global Crisis," WTO Staff Working Paper ERSD-2010-08, February.

Feenstra, Robert C. and Gordeon H. Hanson. 2005. "Ownership and Control in Outsourcing to China: Estimating the Property-Rights Theory of the Firm," *Quarterly Journal of Economics* 170:729-761.

Goldstein, Morris and Nicholas R. Lardy. 2008. *Debating China's Exchange Rate Policy*, Peterson Institute for International Economics, Washington DC., April.

Hayakawa, Kazunobu. 2007. "Measuring Barriers to International Division of Labor in East Asia," *Asian Economic Journal* 21(2):139-153.

Helpman, Elhanan. 2006. "Trade, FDI and the Organization of Firms," *Journal of Economic literature* 44(3):589-630.

Helpman, Elhanan and Daniel Trefler. 2006. "The New World Division of Labor," Conference Paper on Offshore Outsourcing in University of Toronto, October 26-27.

Keller, Wolfgang, Ben Li and Carol H. Shiue. 2011 "China's Foreign Trade: Perspectives from the Past 150 Years," *The World Economy* 34(6):853-892.

Li, Yao Amber, John Whalley, Shunming Zhang and Xiliang Zhao. 2011. "The Higher Educational Transformation of China and Its Global Implications," *The World Economy* 34(4):516-545.

Marin, Dalia. 2005 "A New International Division of Labor in Europe: Offshoring and Outsourcing to Eastern Europe," Munich Discussion Paper No. 2005-17, University of Munich.

Qin, Duo and Xinhua He. 2011 "Is the Chinese Currency Substantially Misaligned to Warrant Further Appreciation?" *The World Economy*, 34(8):1288-1307.

Rajan, Ramkishen S. 2010. "The Evolution and Impact of Asian Exchange Rate Regimes," ADB Economics Working Paper Series, No.208, July.

State Statistical Bureau, China Statistical Yearbook, various issues, China Statistical Publishing House, various issues.

United Nations Industrial Development Organization (UNIDO). 2010. *Industrial Development Report 2009----Breaking In and Moving Up: New Industrial Challenges for the Bottom Billion and the Middle-Income Countries*, Vienna.

World Trade Organization (WTO). 2011. *World Trade Report 2011: The WTO and Preferential Trade Agreements: From Co-existence to Coherence*, Geneva.

World Trade Organization (WTO) and IDE-JETRO. 2011. *Trade Patterns and Global Value Chains in East Asia: From Trade in Goods to Trade in Tasks*, WTO, Geneva.

Yin Xingmin. 2009. "China Catches up with the U.S. as the World's Largest Manufacturer," *China Economist* 23:20-30.

Is Low Wage Manufacturing in China Disappearing?- Who will be the World's next Workshop? March 24, 2011. http://blog.english,caixin.cn/article/228/

http://stat.wto.org/Countryprofie

http://blog.english,caixin.cn/article/228/

http://asiancorrespondent.com