



The impact of the Renminbi real exchange rate on ASEAN disaggregated exports to China



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ABSTRACT

Previous studies that focused on the impact of the Renminbi (RMB) on China's trade performance have not paid much attention to how the RMB affects China's main supply chain countries, the Association of Southeast Asian Nations (ASEAN). Our paper fills this gap by addressing the nexus of production fragmentation and product technology based on a panel dynamic ordinary least square (DOLS) estimator. We documented three findings. First, income elasticity is positive and significant in all export categories and increases with higher technology products. Second, consistent with the literature, we find that the RMB real exchange rate has a significant positive impact on ASEAN total exports to China and that the exports of high-tech and medium-tech finished goods, as well as the parts and components exports, contribute to this effect. Third, the RMB effect on disaggregated exports by technology level is mixed: For finished goods exports, higher technology exports are more sensitive to RMB depreciation, which is consistent with the income effect, while for parts and components exports, the lower technology exports actually have greater exposure to RMB depreciation, which is possibly due to the price effect and the recent production relocations of MNCs in the ASEAN region to China and Vietnam.

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1. Introduction

International trade has been the engine of economic growth for the Association of Southeast Asian Nations (ASEAN henceforth) region for a long time. In terms of trade openness, the ASEAN region has been on top in Asia, while in terms of export size, the ASEAN region was also the largest region in Asia until China took over the lead in 2004. Although the ASEAN economic growth has deteriorated significantly as a result of the 1997 Asian financial crisis, trade linkages between ASEAN and China have been growing significantly in the new millennium. As indicated in Table 1, China was not in the top-10 list of the core ASEAN export destinations prior to 1990, with the exception of Thailand, where China was ranked no. 8. Nevertheless, after the 1997 Asian financial crisis, China has become a top-5 export destination for all five core ASEAN members, namely, Indonesia, Malaysia, the Philippines, Thailand and Singapore (in the rest of this paper, ASEAN refers to ASEAN5), and recently, China has become the top export destination for Malaysia and Thailand. In fact, a few scholars have investigated the effect of China's trade expansion on the trade performance of its East Asia counterparts, and a common consensus is that China has played a

complementary role rather than crowding out the trade potential of its neighbours, including those from ASEAN; see, for example, Fernald et al. (1999), Eichengreen et al. (2007), and Athukorala (2009).

Since joining the WTO in 2001, the rise of China's economic power in the global arena has become increasingly evident. As China has made steady progress in its economic development and growth, it has launched the pilot Renminbi (RMB, henceforth) internationalization scheme in July 2009 to position the RMB as an international trade settlement currency alongside the US dollar.¹ In this context, the ASEAN has played a significant role in the internationalization of the RMB. With the role of the US dollar weakening due to continued issues with its fiscal and debt policies and the progress of the euro weighed down by the mounting debt concerns, ASEAN business and banking communities are expecting the RMB to be further developed as an alternative trade and investment currency in the region as well as in the global stage. In

¹ The starting point of RMB internationalization occurred in early 2004 when RMB retail deposits were authorized to launch in local banks in Hong Kong. In July 2009, importers from Shanghai, Guangzhou, Shenzhen, Zhuhai and Dongguan were allowed to settle their trade payments with Hong Kong, Macau and ASEAN countries in RMB. The major step taken by China on the RMB internationalization was to declare Hong Kong as an offshore RMB settlement in June 2010. After that the RMB settlement arrangement has been extended to 20 China provinces in the same year, and later throughout all provinces in China in August 2011 (ASIFMA, 2014).

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Table 1
Ranking of China in ASEAN export.

Country	1985		1995		2005		2010		2011	
	Value	Rank	Value	Rank	Value	Rank	Value	Rank	Value	Rank
Indonesia	84	14	1742	5	6662	5	15,693	2	22,941	2
Malaysia	161	15	1889	9	9303	4	24,912	2	29,853	1
Philippines	81	11	209	11	4077	3	5702	4	6102	3
Singapore	333	14	2759	10	19,752	5	36,496	3	42,764	4
Thailand	271	8	1642	6	9105	3	21,479	1	27,113	1

Notes: the values of export are all in million USD. Rank denotes the ranking of China based on value comparing all ASEAN bilateral export destinations. All calculations are based on the data extracted from the IMF Direction of Trade Statistics from DataStream.

fact, China and ASEAN started to strengthen their trade settlement arrangement many years ago, with Singapore dominating RMB trade financing in the region. In late 2014, Malaysia also agreed to set up a clearance bank for RMB-Ringgit business deals in Kuala Lumpur. The off-shore RMB debt market has also expanded exponentially over the last few years.

As the ASEAN-China free trade agreement (ACFTA) went into effect in January 1, 2010, this trading bloc has become the third largest FTA in terms of volume, after the European Union (EU) and North America Free Trade Area (NAFTA). Many studies have concurred that Chinese economic growth and export demand have been the driving forces behind the trade patterns between ASEAN and China; see, for example, Chirathivat (2002), Ng and Yeats (2003), Ianchovichina and Walmsley (2005) and Coxhead (2007). One of the important facts highlighted is that trade in processed goods has been growing significantly because of the increasing vertical production fragmentation of multinational corporations (MNCs) from both inside and outside the ASEAN region and China, especially MNCs from Japan.² According to Kimura and Ando (2005), this is likely to lead to great incentives for intra-firm trade, arms-length transactions and outsourcing activities between firms in China and ASEAN.

In fact, Thorbecke and Smith (2010) reported that in 2006, 41% of China's world imports consisted of processed goods, nearly half of which came from ASEAN. These imports are the reason why China tends to run trade deficits with its ASEAN supply chain counterparts but trade surpluses with Europe and the US, the consumers of China's final goods. Table 2 illustrates the value of ASEAN manufacturing exports to China by various technology categories and the percentage of parts and components export (P&C exports, henceforth), comparing 1995 and the recent profile in 2008. Examining Panel A, we observe sharp increases in all categories of exports to China, particularly in categories of high-tech goods; however, the lower the level of technology, the smaller is the magnitude of the increase. The panel indicates that prior to the 1997 Asian crisis, 70–90% of high-tech exports to China were P&C exports. The ratio has improved for Malaysia and the Philippines, declined for Indonesia and Thailand, and remained stable for Singapore. However, the ratio of P&C exports in medium-tech exports to China has increased sharply for all of these countries except for Malaysia, which has remained stable. In contrast, regarding low-tech exports, ASEAN clearly experienced a sharp reduction in the percentage of P&C exports to China; however, the pattern in resource-based exports is quite mixed. Therefore, the production fragmentation between ASEAN and China is strongly related to the technology upgrade in China's export sector.

Thorbecke and Smith (2010) indicated that the increasing production fragmentation between ASEAN and China could have implications for the factors influencing the trade performance of these countries. One outcome has been the dilution of the impact of the real exchange

rate on the trade flows of these countries. The reason is that P&C exports have high fixed costs and thus do not respond as strongly to exchange rate changes as finished goods (see Arndt and Huemer, 2004; and Jones and Kierzkowski, 2001). The IMF (2005) claims that the exchange rate is expected to have a relatively small or no impact on P&C exports because most of the demand is contracted and these goods have few substitutes. Many believe that since joining the WTO in 2001, China had a great trade expansion thanks to its strategic exchange rate policy. In fact, empirical evidence suggests that the Renminbi (RMB, henceforth) devaluation played a significant role in adjusting China's international price competitiveness and led to its success in international trade; see, for example Bahmani-Oskooee and Wang (2006).³ However, the impact of RMB devaluation on trade flows can go in either direction depending on the interaction between the price and the volume effect. In the case of RMB devaluation, the price effect implies that imports into China will become more expensive, whereas Chinese exports will become cheaper, leading to a current account improvement in China. Given the strong production fragmentation between China and ASEAN, if China's exports to the Western hemisphere increase, Chinese demand for P&C exports from ASEAN is likely to increase as well because the percentage of P&C exports from ASEAN to China has been growing significantly in recent years (see Table 2).

What does the empirical evidence indicate about the effect of RMB changes on China's trade performance, particularly on China's P&C trade with her ASEAN counterparts? This question is a vital research issue for ASEAN given that the ASEAN region is increasingly reliant on China's trade performance (as indicated in Table 1). We only found two related empirical studies in this context. Rahman and Thorbecke (2007) find that a unilateral RMB appreciation would not significantly reduce China's aggregated exports, in contrast to a joint appreciation of the RMB and the currencies of China's supply chain countries (East Asia and ASEAN). In contrast, Marquez and Schindler (2007) investigated the impact of RMB changes on China's world export and import shares and noted that an RMB appreciation would lead to inelastic changes in China's world export share but that response of China's world import share would be negligible and lack precision.⁴ There are more studies focusing on processed goods.⁵ Thorbecke and Zhang (2009) report that when the RMB appreciates against a weighted

³ We are aware that early literature using aggregate data failed to document a significant or sizeable effect of the RMB on China's trade balance; see, for example, Zhang (1998, 1999a, 1999b), Weixian (1999); however, it is generally believed that China has wisely managed the RMB to its trade advantage.

⁴ Much of the literature on the RMB focuses on the effect of RMB changes in the US. For example, Mann and Plück (2007) documented that RMB changes do not affect US disaggregated exports to China in a dynamic panel regression; however, Cheung et al. (2010), using a dynamic OLS method, find that an appreciation of the RMB significantly increases US exports to China but not Chinese exports to the US.

⁵ According to Thorbecke and Zhang (2009), processed exports, as classified by the Chinese customs authorities, are goods that are produced using intermediate goods that have been imported duty free. On the other hand, Haltmaier et al. (2007) define parts and components as intermediate goods, i.e., manufactured items that are combined with other items and materials to produce finished goods. There is slight difference between the two definitions based on different authorities, but this is beyond the scope of this paper. A consensus in the definition is that both processed goods and parts and components are intermediate goods. This paper follows the definition of the latter, and hence, we use P&C exports throughout the paper.

² Network trade in East Asia was the result of a sharp appreciation of the Japanese yen against the dollar between 1985 and 1995, which led Japanese firms to shift their labour-intensive assembly operations to other Asian countries and newly industrialised economies (NIEs), i.e., Hong Kong, Singapore, South Korea and Taiwan, and to ASEAN in the late 1980s and the mid-1990s (Thorbecke, 2011b).

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