The Location Substitution Effect: Does it apply for China?[1]

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Abstract

The notion about China being factory of the world is changing recently. Factories in China are shifting their production base to neighboring Asia, primarily because of higher input costs in China, a volatile Chinese exchange rate, Chinese exports being increasingly targeted by its major trading partners, and a fall in price-competitiveness in producing in mainland China. We examine the location substitution effect for China: Chinese firms are exporting primary and intermediate inputs meant for producing final output elsewhere. Results suggest Chinese firms are increasingly shifting (that is, substituting) their production base outside China.

Key Words: Trade, Foreign Direct Investment, China, GMS

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1. INTRODUCTION

China is the second largest economy in the world after the US. Trade account for around seventy percent of gross domestic product (GDP) making it an important component in China's income accounting process. The reason for China's success, especially in trade, has to do with the fact that it imports primary and intermediate goods from neighboring Asia, assembles them in the factories of coastal provinces, like, Guangdong, and transports these assembled products through its port at Hong Kong and Shenzen, to destinations, like, the EU and the USA. Most of these intermediate inputs are manufactured in Thailand, Myanmar, and Viet Nam, which are finally used for producing Chinese made electronic items. China's trade pattern, which is, maintaining trade surplus with the EU and the US, whereas, maintaining trade deficits with Japan, Taiwan, South Korea, and the ASEAN – supports the proposition that China is the "factory of the world". In fact, studies have shown that there is increase in the foreign content in China's exports (Koopman et al., 2008; Hummels et al., 2001). Higher foreign content of its exports is due to vertical intra-industry trade[4] which has grown manifold in China (Fukao et al., 2003; Ando, 2006; Gaulier et al., 2007).

However, recently this notion about China being factory of the world is changing. Factories in China are shifting their production base to neighboring Asia, primarily because of higher input costs in China, a volatile Chinese exchange rate, Chinese exports being increasingly targeted by its major trading partners, and a fall in price-competitiveness in producing goods in mainland China. Pushed by these domestic disadvantages and external restrictions, and helped by change in government policy to circumvent such problems, there has been industrial restructuring in the form of diversification of production base of some of the products to cheaper overseas destinations. This has been part of 'going global' strategy that has lead to offshore equity investments and acquisitions. Such an effect relating to the shift in production location from home country to cheaper overseas locations, better known as 'location substitution effect', is possible for firms in China because their method of production – particularly the low-and

[4] Vertical intra-industry trade, as opposed to horizontal intra-industry trade, refers to the intra-industry trade where goods are differentiated by quality. It occurs when countries with differences in income distribution have different factor endowments or different technologies in the homogeneous product sector. According to Ando (2006) the explosive increase in vertical intra-industry trade in East Asia is largely due to the expansion of back-and-forth transaction in vertically fragmented cross-border production process, rather than trade of quality differentiated commodities.

medium technology products – can easily be replicated in other developing countries. If China were to shift its factories outside China, we would expect that China exporting intermediate and primary products to neighboring Asia and importing finished manufactured items from them. In this paper, we examine this hypothesis, that is, 'location substitution effect' with respect to Chinese investment in the Greater Mekong Sub-region (GMS).[5] Although Chinese companies are investing in countries around the globe, GMS is a natural choice given their geographical proximity to China, and free trade agreements that prevail between countries in the GMS and China. Data indicate China is exporting intermediate inputs and machinery, and in turn expanding manufacturing base in the GMS to produce final manufactured goods there. Similarly, if the 'location substitution effect' is at play, then China's imports from the GMS should ideally comprise of final manufactured items. Our result also supports this.

This aspect about examining 'location substitution effect' has not been considered before, and this study fills this gap. In the light of growth in the volume and direction of intra-GMS trade, and China's trade with GMS highlighted elsewhere (Banik, 2011), in this paper we focus on examining the 'location substitution effect' for Chinese firms. This study could help to understand changing nature of international trade and investment linkages. The rest of the paper is organized as follows. Section 2 documents reasons for China to relocate its production base. Section 3 talks about the data source and the methodology used for this study. The results are discussed in section 4. We conclude in section 5.

2. CHINA'S COMPETITIVE DYNAMICS

Before empirically examining the applicability of 'location substitution effect' for the Chinese firms we discuss what are the factors that are motivating the Chinese firms to relocate their production base outside mainland China.

Economic Crisis and the Chinese Exports

The financial crisis since 2007 has seriously affected world trade, with some governments resorting to protectionist measures such as antidumping and countervailing measures to protect

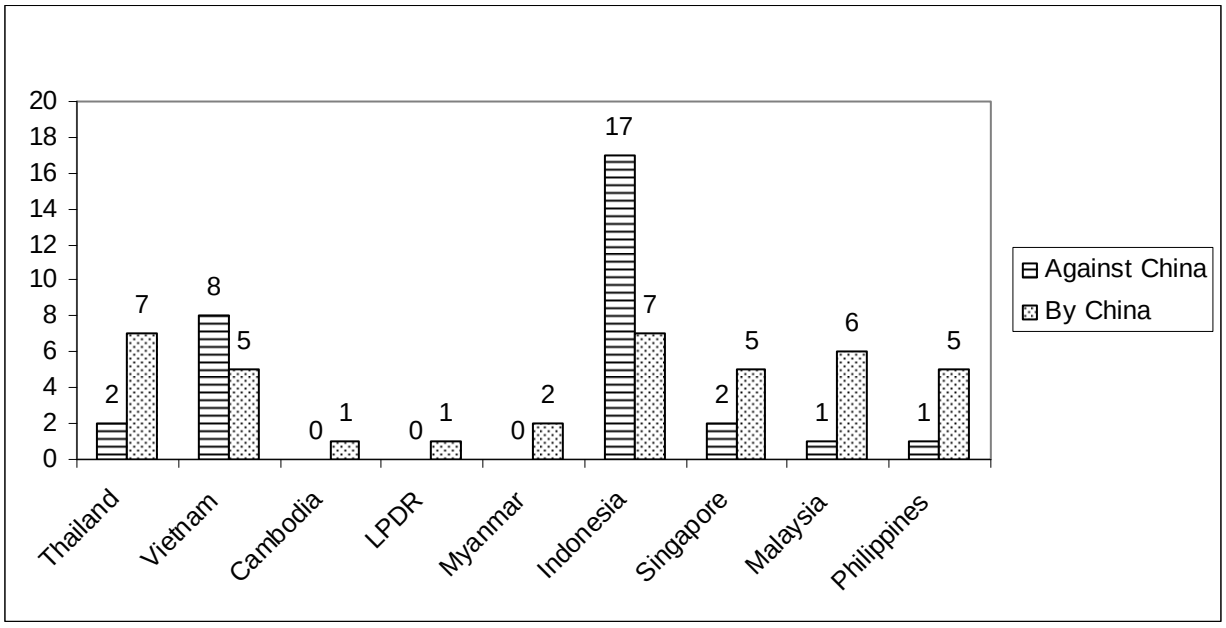
[5] GMS comprises of Yunnan and Guangxi province of Peoples Republic of China (PRC), Thailand, and CLMV (Cambodia, Lao People's Democratic Republic, Myanmar, and Vietnam) countries. These are countries that share the Mekong River.

their domestic industries. It is no surprising to see that such protectionist measures is hurting China the most, especially when for the year 2008 and 2009, Chinese exports value ranked highest in the world. During 2008, Chinese exports to the EU and the US fell by 19.4 per cent and 12.5 per cent, respectively.

Global Trade Alert database (a database tracking number of protectionist measures imposed around the world) has indicated that as many as 659 measures have been initiated against the Chinese exports (See also, Figure 1). Most of these measures (numbers of measures initiated are indicated in parenthesis) have originated from – Russia (31), Germany (18), France (16), United Kingdom (17), Spain (16), Italy (15), Netherlands (15), Sweden (13), Austria (13), Belgium (13), Finland (13), in Europe, and USA (9). China's trade surplus fell from US$ 298.12 billion in 2008 to US$ 195.84 billion in 2009.

Chinese firms are looking for an alternate production base to evade such protectionist measures. Given its geographical proximity to mainland China, the GMS member countries becomes a natural choice.

Figure 1: Number of Measures against (and by) China



Source: Global Trade Alert, November 2010.

Higher Input Cost

The China growth story is still intact making it the favorable destination among the foreign fund managers. Last year, China has received more foreign fund - much higher than any of the BRIC economies. The expectation about future appreciation of Chinese Renminbi has also been an influential factor in enhancing inflow of foreign funds. Chinese central bank has been frantically trying to keep Renminbi from appreciating further by actively intervening in the foreign exchange market. However, such active intervention in the foreign exchange market, and increase in income in China, have resulted the economy to heat-up. Wages of migrant workers, land, property rents, and power prices, have all registered an increase. Measured as year on year basis as of November 2010, labor costs have gone up by 21 per cent, and the home prices across 70 cities in China have gone up by 7.7 per cent. 2010 estimates suggest minimum annual wage rates for Cambodia, Laos and Viet Nam are US$ 600, US$ 434, and between US$ 1200-1500, respectively. If one were to add the mandatory welfare allowances to the minimum annual wage rates, then the Chinese labor costs are at least double compared to laborers in other regions in south-east Asia (Devonshire-Ellis, 2011). Property prices are also on the rise. What is worrisome is that property prices are rising despite the government having ownership right for land – indicating possible real estate bubble. China has also imposed stricter pollution control norms on its industries, raising the marginal cost of producing goods in China, further.

Hence, Chinese firms stand to as shifting production base to the neighboring south-east Asian region means goods can be produced at a cheaper cost. Also, as Chinese currency has been appreciating since 2005, and with an expectation about future appreciation there is a feeling that price of Chinese exports will become costlier. Chinese firms can gain by importing raw material (as imports become cheaper when currency appreciate), and use this imported raw material to produce finished goods outside China.

Access to a bigger market

Trade and investment measures undertaken in the south-east Asian region are non-discriminatory and complementary in nature. These nations are increasingly driving down differences among each other in the form of tariff barriers and other border costs. Most of the items are traded at zero tariffs among the member countries. Thailand, Laos, Cambodia, Viet Nam, and Myanmar are all part of ASEAN. As on 1 January 2010 duties on 99.65 per cent of all tariff lines under the Common Effective Preferential Tariff Scheme for the ASEAN Free Trade

Area have been eliminated. For the newer ASEAN Member States – Cambodia, Laos, Myanmar and Viet Nam – 98.96 per cent of total tariff lines are within the tariff of 0 to 5 per cent range. Since October 2003, China and Thailand have taken lead in implementing zero tariffs on agricultural products, covering 200 types of fruit and vegetables. China has also granted zero tariffs treatment to Cambodia (83 products), Laos (91 products) and Myanmar (87 products). Free market access for Chinese exports into this region means a larger market for their manufacturers.

Inflation, Exchange Rate Appreciation and External Price Competitiveness

Rapid economic growth in China over the last two decades has been accompanied by a surge in foreign capital inflows both in current and capital accounts (the 'twin surpluses'), causing a massive accumulation of foreign exchange reserve (US$ 2.65 trillion by September 2010).[6] Accumulation of such a huge foreign exchange reserve has its own risks, including the cost of holding in low yielding financial assets of foreign governments. Before the global economic crisis started, China has invested a major portion of their trade surplus in US dollars and Euro-denominated assets, value of which is now falling. Federal Reserve is printing too much money making the US dollar lose value further. In fact, USA is investing in assets in China, and other emerging economies in Asia through FDI route, thereby exporting inflation (Banik, 2011). The EU and the US still remains some of the largest investors in China. China has actively intervened in its foreign exchange market and accumulating foreign exchange reserves. Such accumulation continues to increase, making it difficult for the monetary authority to prevent growth of 'excess liquidity' for the domestic market leading to resurgence of inflation that results in rise in commodity, and factor prices affecting competitiveness of firms. A part of this excess liquidity found its way into the Chinese stock market further contributing to the inflationary trend (Li and He, 2007).

The People Bank's of China (PBC) wanted to curb this inflation by formulating contractionary monetary policy, raising the interest rates. The rise in interest rates in China relative to the US in recent years accentuates the inflow of capital further. The appreciation of Chinese Renminbi coupled with increase in inflation has hurt Chinese external competitiveness. Following goods market approach of determining the value of exchange rate, we define external competitiveness

[6] China's entry into WTO in 2001 led many MNCs to view China as an attractive place for their foreign subsidiaries (He and Lyles, 2008). As a result there has been outpouring of research on FDI flows to China. Nevertheless, there is less effort aimed at investigating the China's outward investment including in the GMS in South-East Asia.

of any country, as the difference between domestic inflation and movement in exchange rates. As is evident from Table 1, China's external competitiveness fared reasonably well against many of the GMS countries until 2006 but started to fall thereafter, especially, since 2007. For example in 2007, Vietnam and Cambodia have shown better external price competitiveness. In particular in 2009, Thailand, Myanmar, and Cambodia, did well relative to China in terms of price competitiveness. The fall in price competitiveness also motivated Chinese to relocate their production base outside China.

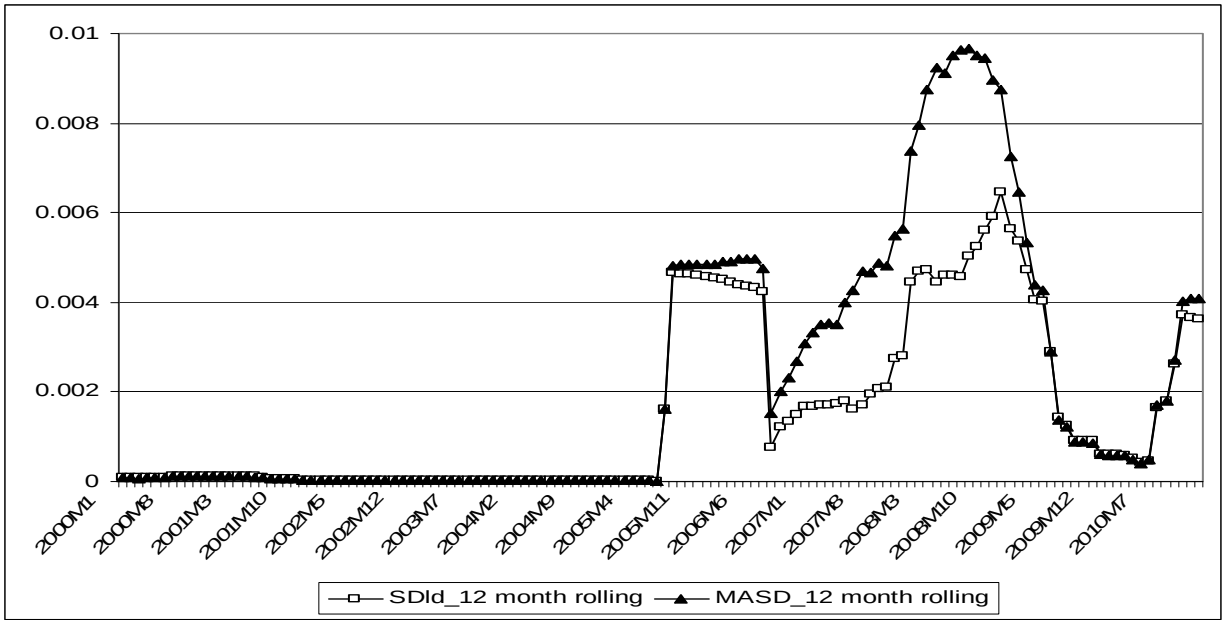
Table 1: External Competitiveness (change in price – change in nominal exchange rate)

Year	China	Thailand	Vietnam	Cambodia	LPDR	Myanmar
2000	0.25	-4.49	-3.32	-1.66	14.02	-3.36
2001	0.74	-9.14	-4.37	-2.57	-5.71	17.08
2002	-0.76	4.01	0.07	3.33	-1.67	58.73
2003	1.15	5.24	1.71	-0.36	10.39	44.15
2004	3.89	5.80	6.23	2.84	10.31	9.97
2005	2.82	4.55	7.56	4.45	6.51	9.11
2006	4.16	10.45	6.53	5.88	11.45	19.60
2007	9.34	11.16	7.61	8.82	10.00	38.90
2008	14.53	8.89	21.89	25.05	16.57	29.90
2009	0.98	-3.77	2.38	-2.76	2.64	-0.98

Note: higher values indicate fall in competitiveness. LPDR refers to Lao People's Democratic Republic
Source: Calculated from International Financial Statistics, IMF.

Also, in addition to higher inflation rates and interest rates, the Chinese Renminbi has also become more volatile. In case of China too the volatility of Renminibi-dollar exchange rate shot-up once the longstanding peg to the US dollar was abandoned in July 2005 (Figure 2).

Figure 2: Volatility of RMB-dollar Exchange Rate



Source: Calculated from International Financial Statistics, IMF.
Note: Volatility is calculated using (a) the standard deviation of the first difference of the log of monthly exchange rate (SDld), (b) the moving average standard deviation (MASD) of the log of (monthly) exchange rate. Such measures have been used for studying the impact of exchange rate volatility on exports (See Tenreyro, 2007; Chit et al., 2010). In particular, SDld = $\sqrt{\sum_{t=1}^{m}(\Delta e_t - \Delta \bar{e}_t)^2/(m-1)}$ where, e is the log of monthly exchange rate and m is the number of months, and MASD = $\sqrt{\sum_{k=1}^{m}(e_{t-k-1} - e_{t-k-2})^2/m}$, where e is the log of monthly exchange rate and m is the order of moving average.

However, the global financial crisis induced the Chinese government to (unofficially) return to