6-2016

Growth Engine: Effects of China's Trade and Investment on the Economies of East and Southeast Asia

Xi Gao
Union College - Schenectady, NY

Growth Engine: Effects of China's Trade and Investment on the Economies of East and Southeast Asia

by

Xi Gao

****

Submitted in partial fulfillment

of the requirements for

Honors in the Department of Economics and Asian Studies

UNION COLLEGE
Schenectady, New York
March 12, 2015

Abstract

Gao, Xi

Growth Engine: Effects of China's Trade and Investment on the Economies of East and Southeast Asia

The emergence of China as an economic superpower through globalization and fragmentation of production has impacted global trade relations, particularly in East and Southeast Asia (ESA). China has become a major trading partner for ESA economies not only through exporting goods to ESA countries, but also importing goods to satisfy China's energy and consumer needs. This thesis studies the impact trade and investment relationships with China have on ESA economies. This study will include ten developed and developing ESA countries: Japan, Republic of Korea, Singapore, Thailand, Malaysia, Indonesia, Vietnam, Cambodia, Lao DPR, and Philippines. The results obtained include: 1) the effects that exports to China and inbound FDI from China have on ESA countries' real GDP per capita, 2) the impact of trade and investment with China depends on the countries' degree of advancement, 3) emphasis on the importance of regional cooperation in Asia.

Table of Contents

CHAPTER I

INTRODUCTION

A. Motivation

With the rise and further opening of the Chinese economy, China is playing an increasingly important role on global trade relations, particularly in East and Southeast Asia (ESA). Due to globalization and fragmentation of industrialization, China has become a manufacturing hub, attracting trade and foreign direct investments into ESA. As a result, China has grown to be an economic growth engine, with an average GDP growth of 10.3% in the decade between 2003-2013, ranking China as the seventh country with the highest average GDP growth at the time. Although China's growth rate is no longer in the double digits, China is still growing at 7.7% (IMF). China has significantly transformed into an economic power since its closed economy days, the question of whether China has become a growth engine for ESA remains. This thesis studies the impact of China's trade and investment on the economies of East and Southeast Asia (ESA). The value of China's impact on ESA is more than just economic gains, but also the strengthening of the Asian regional power.

B. Countries

The East Asian region includes developed countries such as Japan, Republic of Korea, Taiwan, and Hong Kong. Due to the complexity of Hong Kong's and Taiwan's political relationship with

China, my study will not include these territories. The Southeast region includes eight ASEAN countries: Singapore, Thailand, Malaysia, Indonesia, Vietnam, Cambodia, Lao, and the Philippines. Myanmar will not be included due to insufficient data.

C. Structure of the Thesis

I divide the thesis into six chapters. Chapter I and VI are the introduction and conclusion, respectively. Chapters II, III, IV, and V will study the following:

In Chapter II, I review the current literature related to the impact of China's growth as a manufacturing juggernaut on other countries' growth. Current perspectives on China's growth are generally divided into two arguments. On the one hand, China has led to an increase of other countries' growth due to shifts in trade patterns and China's increase need for resources. On the other hand, China with its large and thus cheap labor force is a competitor to other ESA countries. I find that China's economic relations differ with countries, based on each country's degree of advancement. Therefore, the literature review is organized through the categorization of ESA countries into Advanced, Dragons, and Tigers.

In chapter III, I explain the theories behind export-led growth and FDI-led growth, followed by the characterization of China as both a major importer and investor.

In Chapter IV, I introduce the econometric model used in this study:

$$GDP\ per\ capita = \beta_0 + \beta_1 export_{it} + \beta_2 FDI_{it} + e$$

This economic model is based on two main variables that impact economic growth, exports and inbound FDI from China. The importance of these variables, along with other growth contributors such as openness, human capital, and M2 are explained in this section.

In Chapter V, I analyze the results of fixed-effect regressions using a series of methods such as the lagged effect to reduce omitted variable bias and serial correlation.

Through such analysis, I wish to see whether China's growth has benefitted the other countries within ESA or is China regarded as a global competitor. This paper tries to provide answers to the following questions:

- Does China's rise in trade and investment have an effect on Asian countries' growth?
- Has the effect been positive? Or has China's global trade expansion been achieved at the expense of other economies in ESA?
- Will China's growth effects lead to increased regional cooperation?
- How does China's growth affect developed and developing countries differently?
- Does the host country's financial institutions, human capital, and openness determine an increase in GDP?

CHAPTER II

LITERATURE REVIEW

My thesis specifically studies the impact of China's trade and investments on economic performances of ESA economies. China's rapid growth, success in world export markets, and heavy absorption of foreign direct investments (FDI) in the past decades are driven by international segmentation of production processes within Asia where China acts as a major partner in production networks, utilizing its large, cheap labor force. As a result, China's growth as a global manufacturing base has changed the global trade pattern, particularly affecting countries in the Asian region. Not only has China entered the Asian economy as a competitor, but also a contributor of economic growth within the region. China's open economy and growth has affected countries in Asia differently. These countries can be divided into three sectors: the advanced economy (Japan), the Dragons, which encompass the first tier of New Industrialized Economies (NIEs) (South Korea, Singapore, Hong Kong, and Taiwan), and the Tigers, which encompass the second tier of NIES (Malaysia, Philippines and Thailand). The two main opposing arguments characterized in many of the papers are: China is a growth engine for the ESA region vs. China is a competitor for other ESA countries, based on the nature of trade links between China and ESA countries.

In several papers (Li 2006, Fernald 2004, Lall 2004), China is claimed as the growth engine in ESA due to the benefits Chinese manufacturing has brought to ESA. ESA countries share mutual benefits from the growing incomes of Chinese consumers and from the potential of greater integration of product lines across the region, both of which are reflected in the expanding intra-regional trade in Asia. The growing needs and income of Chinese consumers

have transformed China into a major importer of the ESA countries. China's tremendous growth means export opportunities from the rest of Asia, particularly since WTO accession was completed in December 2001. In addition, as China continues its rapid development, other economies in the region have an incentive to try to move up the value chain as their comparative advantages shifts to higher-value added, less labor-intensive industries. Taiwan, for example, is attracting more investment in high-tech research facilities as opposed to pure manufacturing, and Malaysia is trying to broaden the scope of its manufacturing sectors to include biotechnology and other emerging technologies. Despite these benefits, China and ESA countries also compete for trade in the global market. Competition exists, particularly between China and other developing nations in producing goods that are substitute goods (Fernald 2004).

In this chapter, I will explain the change in global trade dynamics as China rises as a manufacturing juggernaut in ESA. This chapter is divided by China's relationship with the different tiers of economies in the ESA region and China's impact on FDI and trade relations.

A. Change in Advanced Economies: Japan

B. Change in First Tier NIEs: Dragons (South Korea, Taiwan, Hong Kong, and Singapore.

C. Change in 2nd Tier NIEs: Tigers (Thailand, Malaysia, and Indonesia)

D. China Attracting FDI and Trade to ESA

A. Change in Advanced Economies: Japan

China's integrated role in global trade as a manufacturing juggernaut has changed traditional trade between advanced economies from bilateral to triangular trade. Before China's participation, Japan's final goods were directly exported to North American and European markets. Now, Japanese products, particularly in parts and components and semi-finished goods

are first sent to China where they are processed and assembled and then re-exported to Western markets and also to Japan.

When China's market opened to the world, Western and Japanese firms chose to move high volumes of production to low-cost sites to China to take advantage of its growing domestic market and cheap labor costs (Sturgeon & Leister 2004). As a consequence, Japan's trade with China rapidly increased, while Japanese imports from advanced economies, and mainly from the US had decreased. Not only did Japan's trade shift to low-cost sites; U.S. markets also took steps in the same direction, imports shifted in favor of low-cost suppliers in the region (Mexico) and in China, and away from Japan and the Dragons. The share of imports from China in total manufacturing imports of the rest of the world (total world imports less imports of China) increased from 2.7% to 12.6% between 1992/3 and 2005/6. This increase contrasted with a persistent decline in world market share of Japan and other advanced industrialized nations such as Canada, U.S. and EU (Athukorala 2009).

When China initially integrated into the global trade, it was not competing with advanced countries such as Japan, but rather their relationship can be interpreted as a shift in trade relations and specializations due to global production networks. For example, China's exports of machinery increased at a compound rate of 13.2 % during 1992-2006, shifting its world market share from a mere 1.3% to 11.3%. The corresponding market share losses have come solely from Japan and other developed countries. Japan's loss, however, can be defined more as its role shifting away from the export and import of final goods due to fragmentation of production. When total machinery exports are disintegrated into components and final products, it is clear that China's exports are heavily concentrated in final assembly (Athukorala 2009). Such as the case that although China has displayed a rapid increase in exports of high-tech products in recent

years, the actual value added in China is generally not in high-tech activities, but rather assembling.

China's new role in global trade relations brought about changes throughout ESA. The first change was that Japan's imports of final goods shifted from advanced economies to China. As a result, China has become Japan's largest supplier of consumption goods, accounting for 1/3 of its global imports in 2003 (against 17% ten years earlier). China's gain was at the expense of the Dragons, which lost most of their market share. Japan's imports of capital goods have also shifted to China, which increased its share from 4% to 26%, at the expense of NAFTA and Europe (the cumulated share of these two regions fell from 75% in early nineties to 45% in 2003). Most of the capital goods exported from China consisted of electronic products (telecommunication equipment and computers) that are part of the value-added chain. Japan's main importing partner changed from the US, Europe and the Dragons, to China, creating the strong trade relations between two major economies in ESA today (Gaulier et, al. 2005).

The above analysis has provided evidence that the major change in East Asia has been the declining role of major advanced economies, the US and Japan. The underlying factor of such a trend has been the massive production facilities created in China, which have led to a redistribution of the final stages of goods.

B. Change in First Tier of NIEs: China vs. Dragons

Similar to Japan's weakening relationship with the western market, the Dragons' trade relations with the North American market also fell. For example, in 2003 NAFTA had ceased to be the Dragons' major market. This trend is mirrored by the decline of the Dragons in NAFTA trade. Like Japan's, the Dragons' trade has been affected by the move of production to low cost

suppliers both in Asia and in America (Gaulier et al., 2005). At the disaggregated level, the China effect is clearly visible in traditional labor-intensive exports particularly in the clothing subcategory, corresponding to market share losses by Hong Kong, Korea, and Taiwan. Labor-intensive product lines in these countries rapidly shifted to China through strong investment links from the 1980s (Athukorala 2009).

Fernald (2004) studied classified exports in 48 industries at the three-digit l industry level, using data from the U.S. Department of Commerce's Bureau of Economic Analysis (BEA). In an analysis of competitiveness in the U.S. market, Fernald (2004) further supports the point made by Gaulier that China's main competitors were the Dragons rather than the Tigers. Overall, the results are suggestive of a "flying geese" pattern, in which China and the ASEAN-4 move into the product space vacated by the Dragons. This conclusion is reinforced in each of the largest industries ranked by the dollar amounts of U.S. imports in 2002: the shares of China and the ASEAN-4 have moved in the same direction. So contrary to some popular perceptions of China competing with Tiger economies such as labor-intensive ASEAN countries, China's gains in market share came at the expense of the Dragons' market share. Instead, China took the place where first tier NIEs in industries that these more advanced economies were relinquishing, particularly apparel, footwear, and household products. This mirrors a similar move in time, when the Dragons shifted into the industries that were left behind by the far advanced economy, Japan. Although Fernald (2004) focused on the U.S. market, similar patterns of displacement of the NIEs by China and the Tigers are also emerging in the major export markets of Europe and in Japan.

It would seem that Japan and other developed countries such as the western partners shift of imports from advanced economies to China leads the Dragon economies to lose out on global

market share, but on an aggregate level, their numbers have stayed the same. The analysis in Fernald (2005) study thus far has shown that the Asian NIEs are losing market shares in the U.S. (and other) markets in almost all categories of goods, but that their overall export growth has remained quite robust. This raises an obvious question: "Where are exports from the NIEs going?"

The answer is China's growing role as a major importing power in ESA, taking in products from the NIEs at robust rates of growth indicated earlier as one of the many benefits of China's growth. This evidence also indicates that the shifting of production facilities to China from the NIEs likely has boosted NIE exports of intermediates products to China for processing and export of the finished goods (Fernald 2004). Since the mid 1990s, Dragons' trade with China has skyrocketed, and in early 2000s, China had become their first largest market and first largest supplier (Gaulier et al., 2007).

China's accession into the WTO implied greater trade relations with its existing partners such as the Dragons. Ianchovichina (2005) dynamic GTAP model assessed the regional impact of WTO's accession against a baseline that depicts the growth of the world economy. Ianchovichina results show that China's growth after the accession will lead China to increase demand for metals and petrochemicals from Korea; electronics and other manufactures from Singapore; light manufactures, petrochemicals, machinery, equipment, and electronics from Taiwan (China); and metals, petrochemicals, and other manufactures from Japan. Overall, the Dragons benefit from China's increased trade as a result of the liberalization of cross-border trade in services due to WTO accession. Ianchovichina (2005) study was a prediction of the effects of WTO accession; my research will analyze the actual impact of the WTO accession through trade data.

In addition, Ianchovichina mentions that the model does not capture the liberalization of China's service sectors. Though not captured in the model, the benefits to the Dragons from liberalization of China's services sectors is expected to be substantial, including transport and communications, which these economies are well positioned to provide, and it will enhance the role of Hong Kong (China) as a financial center serving the mainland's investment needs and providing investment services (Deutsche Bank, 2001).

Moreover, new FDI investment is likely to flow into these expanding capital-intensive sectors, opposing views that China's rise will lead to a decline in foreign investment flows into the Dragon economies. The returns to capital in these countries will rise relative to the baseline because the NIEs supply semi-finished materials to China, rather than compete with China, and hence their export prices will tend to rise. Ianchovichina (2005) analysis suggests that with WTO accession, China will increase its demand for petrochemicals, electronics, machinery, and equipment from Japan and the NIEs.

Although China's markets have grown, it is important to keep in mind that the majority of China's imports are reprocessed goods owned by multinational corporations in the Western markets, particularly the U.S. As in the case of Japan, the sourcing strategy of multinational firms is at the core of trade expansion between the Dragons and China. According to China's Customs statistics, two-thirds of China's exports to the Dragons and 60% of its imports correspond to processing activities; foreign affiliates play a dominant part as they handle more than 60% of trade between the Dragons and China (Gaulier et al., 2005). In other words, China's growth and its partners' grow are still dependent upon the Western markets, contradicting China's acclaimed role as a "growth engine" in ESA. Although China depends on the U.S., its

rise has driven ESA into greater economic advancements and wealth. China's actions also reinforced greater interdependence within ESA.

In conclusion, the Dragons, at one tier above China's manufacturing specialty has been able to grow alongside China because Dragons' productivity has shifted to complementing China's growth needs. In a way, Dragons and China have grown to be partners in the global trade process rather than competitors unlike the presumed case between China and developing countries in ESA.

C. Change in 2nd Tier NIEs: Dragons

While advanced Asian economies have strong complementarities with China which have boosted investment and trade flows, the Tigers face a different scenario. China is seen less of a partner in the Tigers' perspective because they share similar comparative advantages in labor-intensive stages of production. This view, however, differs across various sectors. In Gaulier (2005) research of the electronics and higher industries market, the Tigers have been able to maintain their market share, proving China to not be a threat. On the other hand, in downward industries such as clothing, China has dominated the market. China's success in exporting goods has been underpinned largely by its comparative advantage in international production arising from labor abundance. When components are netted out, more than 80% of total Chinese manufacturing exports from China can still be treated as labor-intensive products (Athukorala 2009).

In Gaulier (2005) analysis, he refers to three ASEAN countries as the Tigers. Malaysia, the Philippines and Thailand belong to the second wave of "New industrialized economies," which have built up industrial capacities largely integrated in global or regional production

networks. Unlike the shrinking case with Japan and the Dragons' relationship with the West, in these Tigers' overall exports, the share of NAFTA has remained stable and large at about 25% since 1993 and it is still by far their largest market for final good exports, both for consumption and capital goods. Europe is their second export market for final goods, receiving with more than 20% of these exports. As mentioned earlier, Japan' exports to NAFTA changed; in 1993 (28% of their imports) declined abruptly to 20% in 2003. Japan lost ground in these markets for P and C, capital goods and consumption goods, while the other Asian suppliers such as the Tigers and China have strengthened their positions. According to Gaulier (2005) analysis, China plays an increasing but small part in the Tigers' trade, remaining below 10%, much smaller than in the trade of Japan and the Dragons. Gaulier (2005) research only extends to 2003, whereas my thesis will include data up to 2013.

Contrary to studies that show China overtaking Tiger's share in world market, Gaulier (2005) results show that from 1993 to 2003, the Tigers succeeded in increasing slightly their share in world exports of manufactured products (from 3.0% to 3.5%), despite the surge of China's exports in this period. Moreover, the three Tigers have maintained their export share in dynamic and high-quality/price products. When looking at their position in world exports of the most dynamic products, which is in electronic goods, it stands out that they have not lost market share to China up to 2003. The Tigers were responsible for 10% of world exports of electronic products in 2003 against 6.6 % in 1993. Their exports to the US slowed down but this was more than compensated by the rise of exports to China, and also the Dragons and Europe. In these sectors, the rise of China implied more trade creation than trade diversion. In world exports of electrical goods, their share was almost stable from 1993 to 2003.

Looking at their position by market segments, it appears that from 1995 to 2003, the Tigers gained share in the upper-market segment of world trade. By contrast, in down-market products, the Tigers have slightly lost ground while China's exports have significantly increased. This supports the argument that upgrading the quality of Tigers' exports is crucial in challenging China's growth and dominance. As seen in the cases of Japan and the Dragons, trade specializations and comparative advantages must shift in response to China's growth.

Supporting this argument, Li and Song (2006) study concluded that the commodity composition of ASEAN's export to China has shifted toward more toward high quality and high tech products over the past two decades In the early 1990s, ASEAN's exports to China were mainly composed of agricultural products and mineral products. Ranked from highest to lowest in shares of exports to China, they are agricultural, mineral, capital-intensive and labor-intensive products. However, capital-intensive products had become a major component in ASEAN's exports to China by 2000, (similar to Gaulier (2005) results), followed by agricultural and mineral products. ASEAN's share of capital-intensive products to China continued to rise to 72.1% in 2003, while shares of agricultural products were falling. Malaysia, Thailand, and Philippines have experienced such a shift.

The growing bilateral trade relations between China and ASEAN indicate that a new trade pattern has begun to emerge between China and ASEAN, which has been driven primarily by seeking economic scale and product differentiation through multinational corporations similar to the cases of China and the Dragons. The formation of the bilateral Free Trade Arrangement (FTA) will further strengthen bilateral trade between China and ASEAN. Through a simulation analysis carried out by employing the computable general equilibrium (CGE) model based on GTAP, examining how China's imports from the regional economies will change after the

realization of free trade between China and ASEAN. The stimulation results show that the trade liberalization between China and ASEAN will enhance considerably ASEAN's exports to China especially Philippines and Thailand (Li and Song 2006).

Ianchovichina (2005) study provides a more current observation of the shift in Southeast Asia, predicting that the Tiger's growth in the other sectors such as agricultural that will benefit from China's growth and thus need for importing goods. Given China's agricultural reforms, there is also room for expansion of agricultural exports to China, such as oil-seeds and sugar, as well as basic raw materials, such as timber and energy products. The high intensity of trade between individual East Asian developing countries and China in 2001 (Ng and Yeats, 2002) suggests that the planned reductions in the protection of China's markets offer some good opportunities for exporters in developing economies.

It can be concluded from Gaulier (2005), Li (2006), and Ianchovichina (2005) that researches on the Tiger economies that the Tigers will benefit from the rapid expansion of China's economy due to China's increasingly demand for foreign resources, including energy and raw materials, to meet domestic demand, as is clearly demonstrated by the surge in demand in China in products in recent years. Moreover, in the global trade market, the Tigers will maintain current market share if they move up the industrial ladder, specializing in technological goods similar to the Dragons rather than labor-intensive goods. Therefore, the integration of trade between China and other regional economies largely depends upon their respective underlying comparative advantages. For example, China relied more upon imports of the most capita-intensive products and upon exports of labor-intensive products. This is consistent with findings that China has been importing more and more capital intensive products from other economies in the region.

Moreover, China relies mostly upon Malaysia for meeting her demand for timber and Thailand for rubber.

D. China Attracting FDI and Trade

Through analyzing China's trade with Japan, the Dragons, and the Tigers, it is evident that China's dominant role in manufacturing has impacted trade relations in ESA. Although there exists competition in certain sectors, most countries have been able to benefit from China's growing demand in goods and work along with China in value-added chain processes. China's growth, however, has also indirectly affected the Asian region's growth by attracting trade and investments.

Becoming the largest recipient of FDI in Asia, there were concerns that if the number of FDI to Asia were a fixed sum, then higher inflows of FDI to China would be at the expense of other economies (Weiss 2004). Studies have shown (Lee and Plummer (2004) and Busakorn, et al 2005), however, that China's growth in FDI does not negatively impact other ESA countries.

Lee and Plummer (2004) use a gravity model and are able to reject the hypothesis that China has had any statistically-significant bearing on outward investment from these OECD countries outside of the usual channels (i.e. those stipulated in the traditional gravity models, such as size, wealth, distance, and trade). In addition, Busakorn, et. al. (2005) found that FDI flows to China were positively related to FDI in other Asian countries; they find that a 10% increase in the former will lead to a 2-3 percent increase in the latter. This finding can be explained by the argument that the emergence of China as a major player has created a pivot toward Asia. As a result, multinational corporations have been using ASEAN to complement its investments in

China. It can be inferred that China's success in attracting FDI has helped ASEAN countries by attracting complementary FDI rather than act as a competitor.

In another study, Chantasasawat et al., (2003) set up a regression model that explained FDI to eight East and South East Asian economies (1981-2001) by a number of conventional variables (including measures of market size, tax rates, wage levels, human capital stock, infrastructure quality and government stability), plus FDI inflows to China. The key result of interest is that when the level of FDI investment in the eight neighboring economies is examined, it is positively related to FDI in China. A 105 increase in FDI to China raised FDI in the region by 5-5% depending on specification. Rather than finding evidence of FDI diversion due to competition, it appeared that China's growth led to more FDI in the Asian region. The authors' result is linked to production networking amongst international firms in the region, investment in China are connected with investment elsewhere in the Asia to supply parts and components to plants located in China. Although China's pull is not a significant factor in explaining FDI inflows as compared to measures of trade openness and taxations, it is a contributing factor. Moreover, China is also increasingly expanding its outwards FDI into other ESA countries.

Conclusion:

The integration of China into the world market has resulted in significant competitive pressures upon other East Asian economies, but it has at the same time offered enormous opportunities to ESA economies. These opportunities and the success of trade depends on both China and her regional trading partners to continue adjusting their industrial structures in the face of intensifying competition in the regional economies to complement each other's growth demands.

Although Asian's growth still depends on the export of its final products to western countries, it is undeniable that China's growth has shaped regionalism and trade in ESA both as a major manufacturing base and importer. The existing literatures, however, all focus on China and ESA countries competing in the global market share, my thesis specifically emphasizes on China's investments and trade directly affecting individual ESA countries' growth as measured by GDP growth using trade data and China's OFDI data. Has China's growth directly impacted GDP growth of ESA economies? Moreover, my thesis will also analyze China's impact on current developing countries such as Laos and Vietnam that are not mentioned in many as the existing literature because their economic growth and openness had just begin. These developing countries' growth will further extend the argument of whether China is a competitor for countries that specialize in labor-intensive goods or has China's played a supporting role in their growth. Due to the importance of China's WTO accession, it is necessary to examine its impact on the ESA economies which most of the available research has not. Unlike Gaulier, Ianchovichina and Fernald, my research extends beyond 2003.

In the next section, I will explain the importance of export and FDI in determining growth.

Chapter III

Growth Theories

The goal of this thesis is to evaluate the impact of China's rising growth on other ESA countries through their economic relations. The two main channels of economic relations are trade and investment. Within trade and investment, this thesis will focus on the importance of ESA countries' exports to China and the inbound FDI that ESA countries receive from China. Section A will explain the Export-Led Growth theory and describe China's growing role as an importer in ESA. Section B will explain the relationship between FDI and economic growth and characterize China's activeness in outward FDI.

A1. Export-Led Growth Theory

The neoclassical export theory states that exports lead to economic growth, claiming exports to be the "engine of growth"(World Bank 1993). The main argument of the export-led growth theory (ELG) is whether a country benefits more through trade policies that are shifted towards export or through import substitution (Giles and Williams 2000). World Bank (2003) concludes that export growth and trade-oriented policy are attributed to rapid economic growth in the "High Performing Asian Economies" (HPAEs)[1]. All HPAEs, but Taiwan and Hong Kong are included in our ESA study.

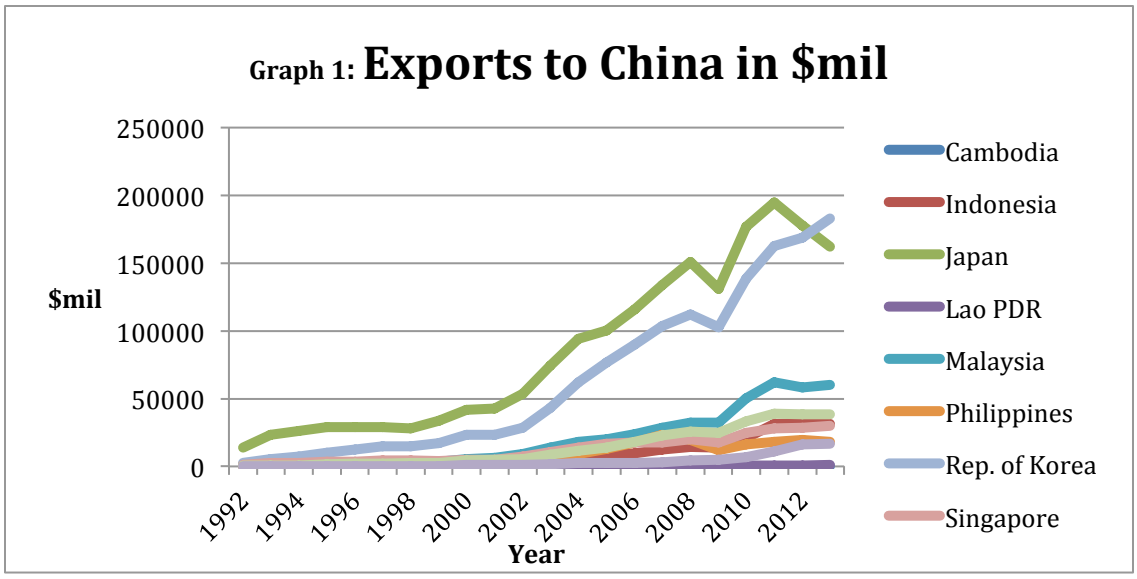
Several components of the trade theory support the ELG proposition. Trade between two countries can benefit both countries if each country exports the good in which it has a comparative advantage. Export goods based on the specific good that the country has a comparative advantage in allows for the exploitation of economies of scale, leading to increased

[1] HPAEs include Japan, Hong Kong, the Republic of Korea, Singapore, Taiwan, Indonesia,

growth. Moreover, expansion and specialization in export productions increase productivity level and may increase the general level of skills in the export sector. This leads the country to switch resources such as labor and machines from inefficient non-trade sectors to higher productive export sectors (Giles and Williams 2000). The industry lifestyle hypothesis describes the economic growth as a cycle that begins with exports of primary goods. Overtime, economic growth knowledge changes the structure of the domestic economy, including consumer demand, which propels exporting more technology intensive products.

A2. China as a Major Importer

As depicted in Graph 1, exports to China from the ten countries of ESA in this study have all increased since 1992. Developed countries such as Japan and Korea export the most to China. The 2009 Financial Crisis caused a slight drop in number of exports but by 2010, exports resumed back to its growth pattern. China's emergence has had a major positive impact on the trade of other East Asian countries. For example, over 1995-2001 East Asia's exports to China grew at an average annual rate of 11.5 percent, which was far above the corresponding 3.8 percentage growth rate for world trade (Ng and Yeats 2003). China's success as the manufacturing machine of the world has resulted in China's increased economic wealth and power. In turn, China is increasingly a linchpin of demand. ESA countries benefit from an increase in Chinese consumption. Increase in GDP per capita of a Chinese citizen has not only led to increased spending and sophistication of Chinese consumers, but also the opening of a bigger share of higher-margin marketing and customer service for ESA firms. Chinese demand strengthens Asian supply chains.



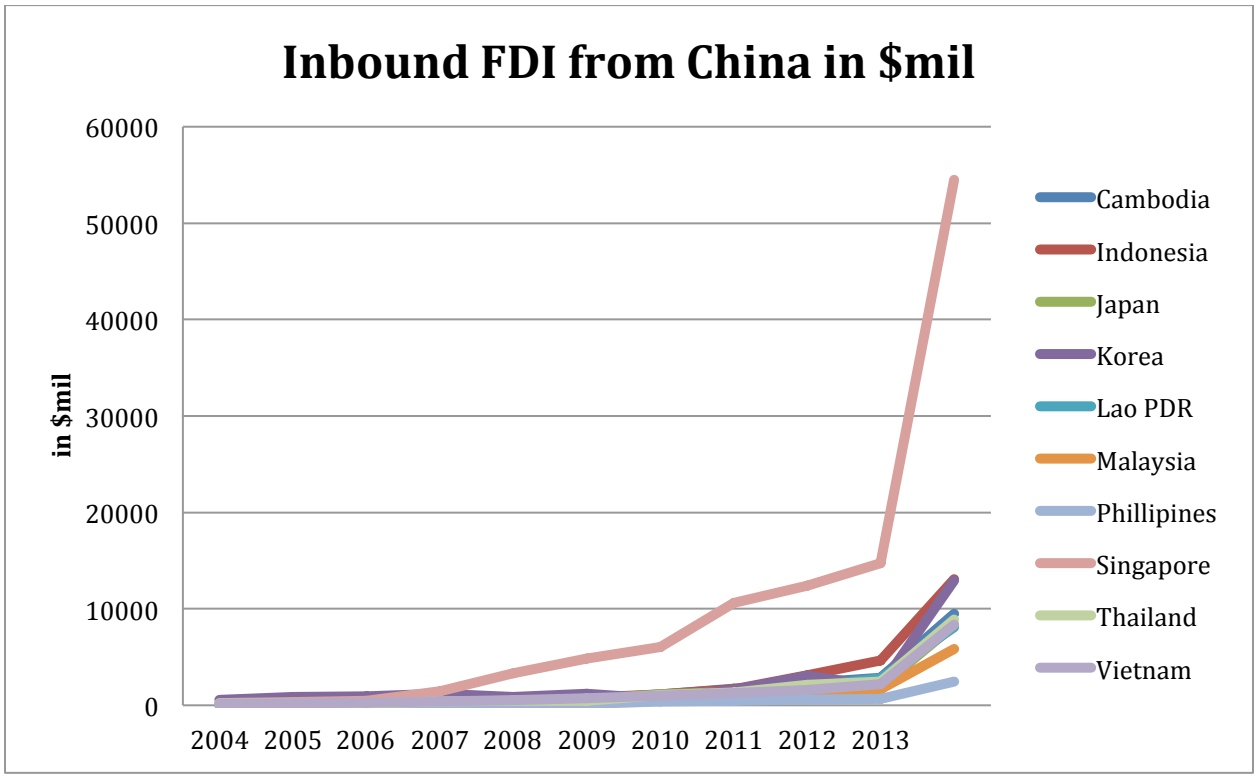
B1. FDI-Led Growth Theory

FDI is widely accepted as a vehicle for country's economic growth, in particular for developing country's economic growth. For example, FDI in China is positively correlated with its growth, especially since China is the largest recipient of FDI. FDI contributes to growth through its role as a conduit for transferring advanced technology from industrialized to the developing economies (Lim 2001). This transfer, often referred to as knowledge diffusion, leads to improvements in productivity and efficiency. In developing countries, when multinational corporations from advanced countries enter the country, they expose new knowledge, technology, and techniques to the local firms there.

B2. China as Major Investor

Inbound foreign direct investment or otherwise characterized in this research paper as China's outward foreign direct investment (OFDI) is a growing factor since the early 2000s. China's overseas companies have been gaining momentum in moving international capital investing across a broad spectrum of sectors ranging from natural resources to manufacturing to telecommunications and many others. As China's economy continues to grow, China faces shortages in almost all raw materials, particularly oil, iron ore, aluminum, and uranium, and it

must therefore build trade linkages with other resource-rich countries such as ASEAN to secure supplies. In October 2004, for instance, the National Development and Reform Commission (NDRC) and the Export-Import Bank of China (EIBC) jointly issued a circular to encourage overseas investment in specific areas: "(1) resource exploration projects to mitigate the domestic shortage of natural resources; (2) projects that promote the export of domestic technologies, products, equipment and labor; (3) overseas R&D centers to utilize internationally advanced technologies, managerial skills and professionals; (4) mergers and acquisitions that could enhance the international competiveness of Chinese enterprises and accelerate their entry into foreign markets (USCC 2011). Growing Chinese investment in ESA countries has important economic, political, and social implications for China and other countries.



CHAPTER IV

EMPIRICAL MODEL

This chapter will introduce the framework of the Exports and FDI-led model used in this study. I will first introduce two previous works that have applied econometric models to study competitive trade flows in Asia. Then, I will explain the basic model used in this study, followed by characterizations of variables that affect GDP growth.

A1. Gravity Model

The dominant framework used for analyzing bilateral trade flows is the gravity model. The basic gravity model dictates that with the increase of the country's GDP, the trade relationship between the countries in the same region will increase over time, given also geographic proximity of the countries in the region, which significantly decreases transportation costs and thus further perpetuates trade. Previous studies have used the gravity model to examine the impact of China on the export performance of Asian countries (Eichengreen et al., 2007; Greenaway et at., 2008). Eichengreen et al. (2004) find that more and less developed Asian countries are affected by China's rise differently. China competes with less developed countries in exporting consumer goods. Although the rapidly growing China needs more resources and goods, most of the products they import are in capital goods made by more advanced markets. Greenaway (2008) uses gravity modeling to explore whether and how the growth of China's exports is displacing exports of other Asian countries to their markets over the period of 1990-2003. Greenaway (2008) results were similar to Eichengreen et al. (2004). Chinese growth has indeed increased China's imports from the Asian countries in the sample and but export were mostly from Japan and Korea.

A2. Econometric Model

Ahearne et al. (2003) examine how China and Kong Kong exports have affected the growth of four NIEs (Korea, Singapore, Taiwan, and Hong Kong) and ASEAN-4 members. Using a panel of annual data for 1981-2001, they regress Asian countries' exports growth on trading partner's income growth, movements in real effective exchange rates and China's real export growth. Using a VAR estimation of aggregate trade equations, they find that the income growth of trading partners is critical in explaining trade relations. They find a positive correlation between China's export growth and that of other Asian countries, suggesting that China's exports do not compete with other Asian countries' exports overall but compete in specific products. They traced a shifting of trade patterns taking place, similar to that of the "flying geese" pattern in which China and ASEAN-4 move into the product space vacated by the NIEs.

B. Export and Inbound FDI-Led Growth Model

Based on the export-led theory and FDI-led theory explained in Chapter III, the following equation will be used in this study to estimate China's trade and investment impact on ESA countries:

$$(1) \qquad Y_{it} = \beta_0 + \beta_1 exp_{it} + \beta_2 FDI_{it} + e_{it}$$

$$i = Japan, Republic\ of\ Korea, Malaysia \ldots 10\ countries$$

$$t = time\ in\ years$$

$$e_{it} = stochastic\ disturbance$$

Dependent Variable for Measuring Growth:

$$Y_{it} = real\ GDP\ per\ capita$$

Main Independent Variables:

$$exp_{it}(+)^2 = exports\ to\ China$$

$$FDI_{it}(+) = Inbound\ FDI\ from\ China$$

C. Fixed Effects

With any economic relationship, there are many independent variables that can affect the dependent variable. Within this relationship, possible variables unique to countries' real GDP per capita growth include but are not limited to: openness, development of financial institutions, legal institution, and infrastructure of countries. With the existence of omitted variables, coefficient results are biased. Because the proposed model cannot capture all the possible variables, two approaches are taken in this study. In order to attain more accurate values, country fixed-effects model can be applied. With a fixed-effects model, each country has its own intercept. In practice, this means that the coefficients are estimated using information about how each variable varies over time.

D. Importance of Proxy Variables

The other approach to adjust for unaccounted variable is to include variables that act as proxies for these various factors such as openness, human capital, and level of financial institution. In the remaining parts of this section, we will explore the importance as these factors in determining real GDP per capita growth.

[2] As these independent variables increase, the dependent variable is also expected to increase.

Proxy Variables:

$$OPEN_{1it}(+) = openness\ of\ host\ country$$

$$M2_3(+) = m2\ as\ percentage\ of\ GDP\ of\ host\ country$$

$$HC_4(+) = human\ capital\ of\ host\ country$$

D. Importance of Proxy Variables

D1: Openness

The positive relationship between trade openness and economic growth is supported in several literatures (Edwards 1992, Krueger 1997, Wacziarg and Horn Welch 2003, Harrison 1996). Wacziarg and Horn Welch (2008) analysis based on the new data set suggests that over the 1950-98 period, countries that liberalized their trade regimes experienced average annual growth rates that were about 1.5 percentage points higher than before liberalizations. Therefore, China's trade interactions with ESA countries are an important factor in determining its impact on growth. Openness is calculated by the total number of imports and exports between China and the host country divided by the nominal GDP of the host country.

D2. M2 as a percentage of GDP

M2 is defined as M1 (the sum of currency held by the public and transaction deposits from the public such as commercial banks, savings and loan associations, savings banks, and credit unions) plus savings deposits, small denomination time deposits and retail money market mutual fund shares (Fed Reserve 2014). Measures of money supply have exhibited fairly close relationships with important economic variables such as nominal gross domestic product (GDP) and the price level. M2 is also an indicator of financial development. Since Schumpeter (1911), McKinnon (1973) and Shaw (1973), the relationship between financial development and

economic growth has been extensively studied. It is well recognized that financial development is crucial for economic growth. Calderon and Liu (2003) finds that financial development generally leads to economic growth and financial deepening contributes more to the causal relationships in the developing countries than in the industrial countries. Financial deepening propels economic growth through both a more rapid capital accumulation and productivity growth.

D3. Human Capital

Since human capital is not measurable estimates of education attainment provide a proxy for the stock of human capital (Barro and Lee 2011). Education is important. Usually, primary and secondary enrollment rates or public expenditure on education are used to show the evidence of high human capital accumulation. These variables are proxies. What is learned in an education system, from knowledge accumulation to group conducts, as well as education at home, may be more important in growth. Many analysts have emphasized the crucial importance of human capital, particularly as attained through education, to economic progress (Mankiw, Romer and Weil, 1992). A highly educated population mirrors a high level of labor productivity. It also implies larger numbers of skilled workers and greater ability to absorb advanced technology from developed countries. The level and distribution of educational attainment also have impact on social outcomes, such as child mortality, fertility, education of children, and income distribution (Barro and Lee 1994; Breierova and Duflo 2004; Cutler et al., 2006).

E. Data and Reason for Period Selection

Trade data used to calculate openness was collected from COMTRADE for the years 1993-2013. COMTRADE provides bilateral trade data (imports and exports) for China and corresponding countries in nominal US dollars. All GDP data was obtained from WDI of the World Bank. China's outward foreign direct investment data including stocks and flows is obtained from Statistical Bulletin of China's Outward Foreign Direct Investment by the Ministry of Commerce of the People's Republic of China National Bureau of the People's Republic of China State Administration of Foreign Exchange (MOFCOM) for the years 2004-2013. The MOFCOM statistics are the only statistics available with regard to geographical distribution. The data is mostly presented as aggregated data. Data available for the years 2004-2006 only consists of non-financial outward investment flows. The exclusion of financial OFDI causes some problems. For example, the exclusion of financial institution purchases, such as the acquisition of Indonesia-based Bank Halim by the Industrial and Commercial Bank of China, and the USD 1.3bn heavy purchase of Bank of America business in Hong Kong and Macao by China Construction Bank, both in 2005, leads therefore to an under-reporting of Chinese OFDI (Voss 2011). M2 as percentage of GDP comes from WDI of the World Bank. Human capital using 5-year interval of average years of schooling as a proxy was attained from Barro and Lee (2011). To calculate the approximate data for intervening years, we used a standard formula for capital accumulation.

$$r = \frac{ln\left(\frac{K_{t+5}}{K_t}\right)}{5}$$

$$r = average\ annual\ rate\ of\ growth\ of\ K$$

$$t = years$$

This empirical study focuses on the years 2004-2012 due the limited availability of China's OFDI data. In the early 1990s, China's OFDI was still relatively small because it was still a low-income developing economy with a small GDP and suffered from an inadequacy of capital, particularly foreign exchange. Rapid industrialization and its role as the "factory of the world" made China one of the largest consumers of minerals and ores. To be the "factory of the world" China needed industrial raw materials and energy security leading China to invest in resources abroad. When China's OFDI picked up during the post-2003 period, the principal reasons contributing to growth in OFDI were the fact that China had grown and industrialized and that its GDP and industrialization levels had reached impressively high levels. The first veritable upswing in the OFDI flows occurred after 2003. Initially Chinese MNCs and firms focused on mining investments in the developing countries. Another surge was seen in 2008, when the targets were high-technology firms in innovation-intensive areas in the advanced economies. After the adoption of the "go global" strategy during the Tenth Five-Year Plan (2001-2005), a structural change in China's OFDI became obvious (Das 2014). As evidenced, the major growth and changes in China's OFDI occurred after the 2000s, which this study focuses on.

The basic framework of the Export and FDI-led growth model was introduced in this chapter along with other variables that affect a country's economic growth. In the next chapter, we estimate the impact of these variables through the use of fixed-effect OLS regression. Multiple regressions are run to test for the true estimate model of growth.

CHAPTER V

EMPERICAL RESULTS

Chapter V will present the empirical results for this study. In section A, we estimate the export and investment model using ordinary least squares for the sample period 2004 to 2013 for all ten countries. In 4.1B, we analyze regression results of different groups of countries according to level of advancement. In 4.1C, additional variable such as openness, M2, and human capital are applied to the model. In the last section of this chapter, we use the regression results to build on the importance of regional cooperation in the Asian region.

A. Export and Investment Econometric Model

The first set of regression results based on the following model and includes all ten ESA countries is presented in Table 1:

(1) $$Y_{it} = \beta_0 + \beta_1 exp_{it} + \beta_2 FDI_{it} + e_{it}$$

The first regression run using the two variables, exports to China and inbound FDI, from China showed high statistical significance, high residuals, and most importantly, positive signed coefficients. The positive signed coefficients denote that exports to China from the host countries and inbound FDI from China do, in fact, contribute to ESA countries' real GDP per capita. All else equal, a $1 million increase in exports leads to approximately $.02 increase in real GDP per capita and a $1 million increase in FDI stock leads to $0.43 increase in real GDP per capita. Although $0.02 sounds small, it is significant in per capita terms. Considering large countries such as Indonesia with a population of 249.9 million people, $0.02 per capita translates to $4.998million. In comparison to trade, FDI stock contributes 95% more to GDP per growth. A robust adjusted R-squared value of 0.998 demonstrates that the estimated equation explain

roughly 99.8% of the relationship variance between export and investment to real GDP per capita growth.

In the second regression, the independent variable, FDI, is lagged by two years. The two-year lag corrects for the precision error of the slow implementation of FDI, reducing serial correlation in the error term. Lags take into account the unreliability of data because of timing. Once a Chinese company decides to invest in another country, it takes time before the new firm can fully operate. The nature of any FDI often requires time and effort to gather proper financial funding, file for permit rights, and hire workers. It is somewhat unreasonable to believe that the decision-making process and actual implementation of work all occur within one year. Therefore, the original equation is adjusted to include a two-year lag effect of inbound FDI from China. It is more reasonable to believe that a $1 million increase in FDI invested by China two years ago affects this year's growth. In regression (2), a $1 million increase in FDI stock lagged by two years leads to $0.06 more GDP per capita than the uncorrected FDI stock variable. Each lag, however, reduces the number of observations.

In the third regression, rather than using the variable exports to represent trade relations, Trade (sum of host countries' imports and exports with China) is used. Trade, however, contributed less to GDP per capita than exports. The effect of a $1 million increase in exports on GDP per capita is approximately $0.01 less than the effect of a $1million increase in trade on real GDP per capita. This difference could indicate that exports to China has a greater impact on real GDP per capita than imports from China, supporting the Export- Led Theory and the argument that China's need for resources as a new growing power contributes to economic growth in ESA.

The first two regressions, however, resulted in a low Durbin-Watson (DW) statistic of 1.12 and 1.36 respectively, suggesting positive serial correlation. The presence of autoregressive behavior suggests that an important independent variable may be excluded from the model or the functional form may be inappropriate. One standard procedure to address autoregressive behavior is the Chochrane-Orcutt method, denoted by the AR(1) specifications in EViews. Thus, we rerun the model with the first order autoregressive error specification (AR(1)) to test for potential autoregressive behavior in the error terms. With the AR(1), the value of the Durbin-Watson is 1.93, approximately equal to 2, indicating no serial correlation.

The 1% level statistical significance of the coefficients, the signs of the coefficients, and the high adjusted R-squared for each investment type remain acceptable. Therefore, the estimation equation that includes the AR(1) specification, exports, and two-year lagged effect of inbound FDI from China is used throughout various regressions in this study.

Table 1: Regression Results for all ESA Countries
(Dependent variable: real GDP per capita)
Sample: 2004 to 2013, 10 countries

Explanatory Variable	**(1)**	**(2)**	**(3)**	**(4)**
Intercept	9043.673 (53.670)***	9233.36 (47.653)***	9101.681 (24.827)***	9146.535 (28.916)***
Exports	0.0217 (5.070)***	0.024 (5.444)***		0.027 (4.211)***
Trade			0.016 (3.830)***	
FDI Stocks	0.4325 (8.847)***			
FDI Stocks (-2)		0.494 (8.784)***	0.381 (4.772)***	0.413 (5.578)***
AR(1)			0.419 (3.567)***	0.360 (2.995)***
Adjusted R-squared	0.998	0.998	0.999	0.999
Durbin-Watson	1.120	1.360	2.01	1.94

Note: t-statistics in parenthesis
**Significant at 10% significance level*
***Significant at % significance level*
****Significant at 1% significance level*

B: Fixed Effects Model

$$(2) \qquad Y_{it} = (\beta_0 + effect) + \beta_1 export_{it} + \beta_2 FDI_{it-2} + AR(1) + e_{it}$$

In the first set of regressions, results show that exports and investment from China lead to growth in real GDP per capita in ESA countries. These two main variables, however, are not the only ones that affect the dependent variable. As explained in Chapter IV, omitted variable bias can influence the true value of the coefficients.

In fixed effects estimation, dummy variables are included in the regression that control for observable and unobservable differences in countries' GDP per capita growth, reducing potential omitted variable bias. Given the fact that at different steps of development, trade and investment relations with China affect each country's GDP differently, fixed effects allow those differences to be taken into account. If there were an explicit variable for degree of development that truly capture the level of economic development, affecting benefits from trade and development, then the fixed coefficient would not be necessary. The explicit variable could capture economic development, education, or infrastructure (physical and legal).

The variation in effects for each country is obtained and shown in Table 2. Equation (2) shows the interpretation of the fixed effects. In the first regression when all ten ESA countries were observed, Japan, Republic of Korea, and Singapore had high positive results. This is reasonable because they are the most advanced countries in ESA. Advanced countries' may be more efficient or have better trade agreements that help them gain more from trade and investment relationships with China. The differences in fixed effects could indicate the different tiers of development of ESA countries. Thus, to reduce omitted variable biasedness, countries were separated into groups based on level of advancement. In group 2, only the developed countries were observed: Japan, Republic of Korea, and Singapore. The third group consists of

all developing countries in the study. The Newly Reformed countries are made up of economies such as Vietnam, Cambodia, Lao, and Philippines who had the lowest effects.

Table2: Country Fixed Effects

(1) All ESA Countries		**(2) Developed Countries**	
COUNTRY	Effect	COUNTRY	Effect
Japan	**22744.33**	Japan	**4494.72**
Rep. of Korea	**8879.12**	Rep. of Korea	-9364.08
Singapore	**22869.26**	Singapore	**4869.36**
Thailand	-7131.07		
Malaysia	-4177.37		
Indonesia	-8532.28		
Vietnam	-8794.63		
Cambodia	-8820.25		
Lao PDR	-8751.19		
Philippines	-8285.92		
(3) All Developing Countries		**(4) Newly Reformed Countries**	
COUNTRY	Effect	COUNTRY	Effect
Thailand	**920.55**	Vietnam	**67.06**
Malaysia	**4289.10**	Cambodia	-55.89
Indonesia	-739.43	Lao PDR	-208.39
Vietnam	-1440.80	Philippines	**197.23**
Cambodia	-1270.27		
Lao PDR	-1180.06		
Philippines	-579.09		

C: Regression Results For Different Tiers of Countries

(3) $$Y_{it} = \beta_0 + \beta_1 exp_{it} + \beta_2 FDI_{it-2} + AR(1) + e_{it}$$

Several similarities and differences stand out across the regressions show in Table 3. In all of the groups, Exports and two-year lagged inbound FDI contribute positively to real GDP per capita growth although levels vary. Exports and two-year lagged inbound FDI affect developed countries most and newly reformed countries the least. All else equal, a $1million increase in exports leading to $0.01 increase in real GDP per capita is still substantial to developing countries with low incomes. The Developing countries' regression result in the lowest D.W. statistic of 1.88 with an statistically insignificant AR(1) suggesting positive serial correlation. On the other hand, All Developing countries' regression had a high D.W. statistic of 2.42, suggesting negative serial correlation. There may be issues of multi-linearity. Two-year lagged inbound FDI, however, impact newly reformed countries the least and the coefficient is not statistically significant. This could be due to the short period of time observed in this study. It is only in the past few years that Newly Reformed countries are experiencing the same level of trade and investments that developed countries experienced in the early 2000s (refer to Graph 1 in Chapter 3). Moreover, due to the two-year lag, observations are further decreased. Therefore, the latest years, in the 2010s, when newly reformed countries experienced the highest number of trade and investments are not included in the regression.

Table 3: Regression Results for Different Tiers of Countries
(Dependent variable: real GDP per capita)
Sample: 2004 to 2013

Explanatory Variable	All ESA	Developed	All Developing	Newly Reformed
Intercept	9146.535 (28.916)***	26877.44 (18.903)***	2050.9 (7.890)***	151.1 (0.189)
Exports	0.027 (4.211)***	0.030 (2.390)**	0.010 (3.016)***	0.004 (3.05)***
FDI Stocks (-2)	0.413 (5.578)***	0.450 (3.255)***	0.135 (2.376)**	0.011 (.356)
AR(1)	0.360 (2.995)***	0.300 (1.27)	0.862 (6.728)***	1.050 (16.289)***
Adjusted R-squared	0.999	0.978	0.999	.998
Durbin-Watson	1.94	1.88	2.42	2.12

Note: t-statistics in parenthesis
**Significant at 10% significance level*
***Significant at % significance level*
****Significant at 1% significance level*

D. Lagged real GDP per capita as an Independent Variable

$$Y_{it} = \beta_0 + \beta_1 exp_{it} + \beta_2 FDI_{it-2} + Y_{it-1} + e_{it} \quad (4)$$

In the previous set of regressions shown in Table 3, the regressions with abnormal D.W. statistics suggest serial correlation and multicollinearity. To address these issues, we place the variable AR(1) with one-year lagged real GDP per capita as an independent variable. The results are shown in Table 4. The application of the previous year's real GDP per capita as an independent variable suggests that the pattern of change in real GDP per capita is dependent on its past real GDP per capita. Although the D.W. statistic for Developed countries' improved, D.W. statistic for Developing countries' regression increased, suggesting negative serial

correlation. With last year's real GDP per capita, in every regression, the coefficients of exports and inbound FDI decreased.

Table 4: Regression Results for Various Countries with Lagged Dependent Variable
(Dependent variable: real GDP per capita)
Sample: 2004 to 2013

Explanatory Variable	All ESA	Developed	All Developing	Newly Reformed
Intercept	5962.393 (6.675)***	18843.41 (3.734)***	627.860 (4.383)***	44.875 (0.897)
Exports	0.017 (3.742)***	0.020 (2.162)**	0.008 (4.426)***	0.001 (0.864)
FDI Stocks (-2)	0.325 (4.755)***	0.373 (2.743)***	0.043 (1.569)	0.011 (.829)
real GDP per capita (-1)	0.356 (3.74)***	0.305 (1.655)	0.639 (7.507)***	0.979 (14.787)***
Adjusted R-squared	0.999	0.980	0.999	0.997
Durbin-Watson	1.97	1.91	2.50	2.17

Note: t-statistics in parenthesis
**Significant at 10% significance level*
***Significant at % significance level*
****Significant at 1% significance level*

E. Regressions with Proxy Variables

In the fifth set of regressions shown in Table 5, we add variables such as openness, M2, and human capital that also affect GDP per capita growth. The importance of these variables was previously explained in Chapter IV. In Developed and All Developing countries, an increase in one unit of openness leads to a very high increase in GDP per capita. Although an increase in one unit of openness leading to $25252.24 increase in real GDP per capita sounds high, rarely do

countries jump one unit of openness. The coefficients are statistically insignificant, likewise for human capital and m2. An increase in human capital, measured by an additional year of schooling, leads to $248.55 increase in GDP per capita with 10% statistical significance. Such large impact is reasonable in newly reformed, developing countries where there is a low level of schooling. An increase in schooling, thus human capital increases productivity levels. In advanced countries such as Japan or Singapore where average number of schooling is above high school level, an increase in one more year does not make a large difference in growth. The lack of statistical significance in this set of regressions is partially due to correlation between two independent variables. Correlation values between two variables are show in Table 6. Linear correlation coefficient measures the strength and the direction of a linear relationship between two variables. A correlation coefficient value close to the value of absolute one indicates a strong linear relationship between two variables. A correlation coefficient greater than 0.8 is generally described as strong, whereas a correlation less than 0.5 is generally described as weak, meaning random, non-linear relationship between two variables. For example, human capital and M2 share a high correlation coefficient. This is likely due to the fact that in developed countries where the financial institutions are well run, it is also likely to have highly educated people.

Table 5: Regression Results with Additional Variables
(Dependent variable: real GDP per capita)
Sample: 2004 to 2013

Explanatory Variable	**Developed**		**All Developing**		**Newly Reformed**
Intercept	25864.7	16882.01	2574.872	194.891	-683.571
	(7.169)***	(0.993)	(3.119)*	(0.236)	(-0.934)
Exports		0.025		0.005	0.004
		(1.612)*		(3.189)***	(3.558)***
FDI Stocks(-2)	0.523	0.240	0.091	0.007	0.020
	(3.149)***	(0.610)	(1.248)	(.204)	(0.579)
Openness	25252.240		355.704		
	(1.203)		(0.580)		
m2				0.439	
				(.918)	
Human Capital		963.972			248.547
		(0.590)			(1.697)*
AR(1)	0.238	0.0259	0.921	1.052	1.137
	(0.806)	(1.018)	(10.185)***	(14.426)***	(13.741)***
Adjusted R-squared	0.972	0.977	0.998	0.998	0.998
Durbin-Watson	1.82	1.95	2.877	2.37	2.38

Note: t-statistics in parenthesis
**Significant at 10% significance level*
***Significant at % significance level*
****Significant at 1% significance level*

Table 6:Correlation

	OPENNESS	Exports	M2	Human Capital	FDI	FDI (-2)	Y(-1)
OPENNESS	1.00	-0.19	0.11	0.19	0.27	0.26	-0.03
Exports	-0.19	1.00	0.78	0.76	0.00	0.05	0.70
M2	0.11	0.78	1.00	0.79	0.15	0.18	0.77
Human Capital	0.19	0.76	0.79	1.00	0.33	0.35	0.77
FDI	0.27	0.00	0.15	0.33	1.00	0.95	0.45
FDI(-2)	0.26	0.05	0.18	0.35	0.95	1.00	0.42
Y(-1)	-0.03	0.70	0.77	0.77	0.45	0.42	1.00

CHAPTER VI

CONCLUSION

A. Summary of Findings

It is peculiar that in both All ESA countries' and All Developing countries' regressions, Indonesia with its large population and rapid economic growth, had very low fixed effects. This could be a result of China and Indonesia's complex relationship. Although China's demand for raw materials has created significant opportunities for Indonesia to export natural resources, the two are also competitors in producing low-tech manufactures such as shoes, textiles, and garments. When the ASEAN-China Free Trade Area (ACFTA) was implemented in 2010 at the same the global economic slowdown hit, huge stockpiles of manufactured Chinese goods were dumped into Indonesia while China created barriers to its market, leading to the closings of many manufacturing firms in Indonesia. The resulting pattern of trade in which Indonesia exports primary products to China and imports manufacturing goods has come under strong criticism as a "neocolonial" one, creating perceptions of China as an exploitative economic actor, and leading to the adoption of defensive measures (Bruce 2014).

It is evident throughout the multiple regressions run that trade relations with China and particularly inbound FDI from China contribute to ESA real GDP per capita. Regression results related to exports and inbound FDI are robust in nearly all estimates run (Table 1,3,4,5 and Appendix A) with D.W. statistics close to 2, 98% adjusted R-squared, and positive coefficients for exports and FDI. In this study, developed countries such as Japan, Singapore and Korea benefit more from economic relations with China. In comparison, developing countries enjoy a lower level of impact, although still positive. China's growth could potentially impact developing countries more in the future since heavy investment from China and exports to China

have just started in the recent years. Indeed China and the rest of ESA depend on western markets to prosper and grow but through China's success as the "manufacture machine" of the world, China is slowly transforming into an impactful player. In the past two decades, it has increased its role as an importer and investor in the Asian region. Proven in this study, China's rise drives other Asian countries' economies to grow. The economic gains of trade interdependence in Asia calls for regional cooperation.

B. Asian Regional Cooperation

The 1997 Asian financial crisis marked the beginning of Asian regionalism. When the Asian Tigers were hit badly with a regional financial crisis that started quickly in Thailand, Beijing helped stabilize the regional economic situation by not devaluing its own currency. At the time, Western institutions seemed impotent in saving the crisis-hit Asian economies. Since then, talks of regional cooperation began to momentum. Today, organizations such as ASEAN+3, which accounts for Southeast Asian countries and Japan, Korea, and China help build greater economic and security ties in the region.

C. Suggestions for Future Research

One of the major setbacks in this study was the lack of data for China's OFDI. We were only able to obtain OFDI data for the years 2004-2013. With the application of lagged effects and country groupings, observations were very low in each regression. A larger data set would provide more information about the trade and investment factors that contribute to ESA countries' GDP growth over time, especially if the data set covered watershed events such as the Asian Financial Crisis. To adjust for serial correlation, more inputs could be included in the regressions to account for possible variables unique to differing countries. For trade, it would be

beneficial to include industry sector variables to distinguish what industries countries complete with China. With more data, in both the extented number of years and variables, the proper model will be established.

Appendix A

Regression Results for all ESA countries
(Dependent variable: real GDP per capita)
Sample: 2004 to 2013

Explanatory Variable	**(1)**	**(2)**	**(3)**	**(4)**
Intercept	10446.74 (19.782)***	10360.65 (3.715)***	12758.12 (4.766)***	8771.126 (5.189)***
Exports		0.028 (4.162)***	0.030 (4.730)***	0.023 (4.868)***
Open	-166.781 (-.058)			
FDI Stocks(-2)	0.436 (4.704)***	0.450 (4.042)***	0.494 (4.621)***	0.410 (4.758)***
Human Capital		-153.978 (-0.438)	-49.524 (-0.154)	-13.580 (-0.076)
M2			-28.255 (-2.731)***	-23.837 (-3.074)***
real GDP per capita(-1)				0.320 (3.441)***
AR(1)	0.443 (3.645)***	0.357 (2.946)***	0.312 (2.255)**	
Adjusted R-squared	0.998	0.998	0.998	0.998
Durbin-Watson	2.11	1.94	1.844	1.89

Note: t-statistics in parenthesis
**Significant at 10% significance level*
***Significant at % significance level*
****Significant at 1% significance level*

Appendix B

Regression Results for Developed Countries
(Dependent variable: real GDP per capita)
Sample: 2004 to 2013; 3 countries

Explanatory Variable	**(1)**	**(2)**	**(3)**	**(4)**
Intercept	25864.70 (7.169)***	16882.01 (0.993)	15234.48 (0.942)	16875.83 (2.009)*
Exports		0.025 (1.612)	0.235 (1.716)*	0.028 (2.911)***
Open	25252.24 (1.203)			
FDI Stocks(-2)	0.523 (3.149)***	0.240 (0.606)	0.078 (0.212)	0.176 (0.697)
Human Capital		963.973 (0.590)	2085.285 (1.286)	1369.229 (1.380)
M2			-65.622 (-2.28)**	-53.850 (-2.555)**
real GDP per capita(-1)				0.127 (0.652)
AR(1)	0.238 (0.806)	0.259 (1.018)	0.330 (1.017)	
Adjusted R-squared	0.972	0.977	0.982	0.984
Durbin-Watson	1.82	1.95	1.62	1.58

Note: t-statistics in parenthesis
**Significant at 10% significance level*
***Significant at % significance level*
****Significant at 1% significance level*

Appendix C

Regression Results for Developing Countries
(Dependent variable: real GDP per capita)
Sample: 2004 to 2013; 7 countries

Explanatory Variable	**(1)**	**(2)**	**(3)**	**(4)**
Intercept	2574.872 (3.119)***	3458.591 (4.111)***	3694.434 (0.705)	1283.562 (4.075)***
Exports		0.012 (4.383)***	0.008 (2.473)**	0.009 (4.484)***
Open	355.704 (0.580)			
FDI Stocks(-2)	0.091 (1.249)	0.238 (4.120)***	0.227 (2.781)**	0.120 (2.567)**
Human Capital		-236.415 (-2.006)**	-187.720 (-0.339)	-64.480 (-2.125)**
M2			-4.330 (-2.442)**	-1.364 (-0.890)
real GDP per capita(-1)				0.584 (6.168)***
AR(1)	0.921 (10.185)***	0.653 (4.063)***	0.829 (5.718)***	
Adjusted R-squared	0.998	0.999	0.999	0.999
Durbin-Watson	2.88	2.06	2.12	2.40

Note: t-statistics in parenthesis
**Significant at 10% significance level*
***Significant at % significance level*
****Significant at 1% significance level*

Appendix D

Regression Results for all Newly Reformed Countries *(Dependent variable: real GDP per capita)* Sample: 2004 to 2013; 4 Countries				
Explanatory Variable	**(1)**	**(2)**	**(3)**	**(4)**
Intercept	-164.694 (-0.089)	-683.571 (-0.934)	-601.279 (0.716)	404.498 (2.266)**
Exports		0.004 (3.558)***	0.005 (3.291)***	0.003 (2.067)**
Open	368.334 (2.430)**			
FDI Stocks(-2)	-0.002 (-0.072)	0.020 (0.578)	0.019 (0.471)	0.029 (1.680)
Human Capital		248.547 1.697*	228.960 (1.390)	-88.913 (-2.028)*
M2			0.326 (0.686)	0.250 (0.340)
real GDP per capita(-1)				1.152 (10.867)***
AR(1)	1.033 (15.413)***	1.137 (13.741)***	1.135 (11.126)***	
Adjusted R-squared	0.997	0.998	0.997	0.997
Durbin-Watson	2.40	2.38	2.56	2.67
Note: t-statistics in parenthesis **Significant at 10% significance level* ***Significant at % significance level* ****Significant at 1% significance level*				

References

Ahearne, Alan G., John G. Fernald, Prakash Loungani, and John W. Schindler. 2003. China and emerging Asia: Comrades or competitors? .

Athukorala, Prema-chandra. 2009. The Rise of China and East Asian Export Performance: Is the Crowding-Out Fear Warranted? *The World Economy* 32, no. 2:234-266.

Bank, Deutsche. 2001. Quantifying the impact of China's WTO entry. *DB Global Market Research*.

Barro, Robert J., and Jong W. Lee. 2013. A new data set of educational attainment in the world, 1950–2010. *Journal of Development Economics* 104, 184-198.

Barro, Robert, and Jong-Wha Lee. 2011. Barro-Lee educational attainment dataset. *Accessed at BarroLee.com*.

Breierova, Lucia, and Esther Duflo. 2004. *The impact of education on fertility and child mortality: Do fathers really matter less than mothers?*.

Bruce, Gilley, and Andrew, O'neil, eds. 2014. *Middle Powers and the Rise of China.*Georgetown University Press.

Busakorn, C., KC Fung, H. Iizaka, and A. Siu. 2005. The Giant Sucking Sound: Is China Diverting Foreign Direct Investment from Other Asian Countries? *Asian Economic Papers* 3, no. 3:122-140.

Calderón, César, and Lin Liu. 2003. The direction of causality between financial development and economic growth. *Journal of Development Economics* 72, no. 1:321-334.

Chantasasawat, Busakorn, et al. 2003. *International competition for foreign direct investment: the case of China.*Hong Kong Institute of Economics and Business Strategy.

Cutler, David M., and Adriana Lleras-Muney. 2006. *Education and health: evaluating theories and evidence*.

Edwards, Sebastian. 1992. Trade orientation, distortions and growth in developing countries. *Journal of Development Economics* 39, no. 1:31-57.

Eichengreen, Barry, Yeongseop Rhee, and Hui Tong. 2004. *The impact of China on the exports of other Asian countries*.

Fernald, John, and Prakash Loungani. 2004. Comrades or competitors? On trade relationships between China and emerging Asia. *Chicago Fed Letter* 200, .

GAULIER, Guillaume, Françoise LEMOINE, and Deniz ÜNAL-KESENCI. 2007. China's emergence and the reorganisation of trade flows in Asia. *China Economic Review* 18, no. 3:209-243.

Giles, Judith A., and Cara L. Williams. 2000. Export-led growth: a survey of the empirical literature and some non-causality results. Part 1. *Journal of International Trade & Economic Development* 9, no. 3:261-337.

Greenaway, David, Aruneema Mahabir, and Chris Milner. 2008. Has China displaced other Asian countries' exports? *China Economic Review* 19, no. 2:152-169.

Ianchovichina, Elena, and Terrie Walmsley. 2005. Impact of China's WTO Accession on East Asia. *Contemporary Economic Policy* 23, no. 2:261-277.

Knowles, Stephen, and P. D. Owen. 1995. Health capital and cross-country variation in income per capita in the Mankiw-Romer-Weil model. *Economics Letters* 48, no. 1:99-106.

Krueger, Anne O. 1997. *Trade policy and economic development: how we learn*.

Lall, Sanjaya, and Manuel Albaladejo. 2004. China's competitive performance: a threat to East Asian manufactured exports? *World Development* 32, no. 9:1441-1466.

Lee, Chung H., and Plummer, Michael G. 2004. *Economic development in China and its implications for East Asia.*

Li, Kun-wang, and Li-gang Song. 2006. China's Trade Expansion Benefits the Asia Pacific Economies. *China Economist*no. 3:46-57.

Lim, Ewe-Ghee. 2001. *Determinants of, and the relation between, foreign direct investment and growth: a summary of the recent literature.*International Monetary Fund.

McKinnon, Ronald I. 1973. *Money and capital in economic development.*Brookings Institution Press.

McKinnon, Ronald I. 1973. *Money and capital in economic development.*Brookings Institution Press.

Ng, Francis, and Alexander Yeats. 2003. Major trade trends in East Asia: what are their implications for regional cooperation and growth? .

Schumpeter, Joseph. 1911. 1934 The Theory of Economic Development. *Harvard Economic Studies* 46, 1911-1912.

Shaw, Edward S. 1973. *Financial deepening in economic development.* Vol. 270. Oxford University Press New York.

Sturgeon, Timothy, and Richard K. Lester. 2004. The new global supply-base: new challenges for local suppliers in East Asia. *Global production networking and technological change in East Asia*35-87.

Wacziarg, Romain, and Karen H. Welch. 2008. Trade liberalization and growth: New evidence. *The World Bank Economic Review* 22, no. 2:187-231.

Weiss, John. 2004. *People's Republic of China and Its Neighbors: Partners or Competitors for Trade and Investment?*Asian Development Bank Institute.

World Bank. 2001. *East Asian Miracle: Economic Growth and Public Policy.*World Bank Group.

Xiao, Ren. 2009. Between Adapting and Shaping: China's role in Asian regional cooperation. *Journal of Contemporary China* 18, no. 59:303-320.