Surplus, Openness and income Inequality: An Empirical Analysis of the problems with China's development

Yin, Fengbao

博 士 論 文

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神戸大学大学院経済学研究科

経済学 専攻

指導教員 羽森茂之

尹 凤宝

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(黒字、開放度及び所得不平等： 中国の経済発展に伴う諸問題に関する実証分析)

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ABSTRACT

Surplus, Openness and Income Inequality: An Empirical Analysis of the Problems with China's Development

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FENGBAO YIN

Ph. D., UNIVERSITY OF KOBE

Directed by: Professor **S. HAMORI**

That great change has been brought about by China's 30 years of reform and opening up is beyond doubt. However, there are still many problems to be solved, for example, ecological and environmental problems, issues with people's livelihoods, and economic structure and official corruption problems. In this paper, I want to focus on economic issues.

Following the introduction, this thesis is composed of five chapters, which can be sectioned into two parts. The first part, which consists of Chapters 2 and 3, mainly discusses the trade surplus and the problem of the balance of payments surplus. The second part consists of the last three chapters, and focuses on the development of China's economy within the background of internationalization, including a comparison with the Indian economy, integration with the other East Asian countries, and the problem of income inequality caused by financial liberalization.

How to solve China's trade imbalance has become a perplexing question for the world's economists. Chapters 2 and 3 both try to settle the problem from an empirical perspective. Chapter 2 estimates the import demand function of China's economy based on the concept of cointegration, to provide deeper analysis of China's import behavior. I make a contribution to the empirical literature as the study employs two different definitions of domestic real activity and two alternative estimators for explaining the behavior of import demand in China. For estimation purposes, the traditional import demand model and the disaggregated expenditure model are applied. To estimate the log-run coefficients of price and income elasticities the autoregressive distributed lag (ARDL) and dynamic ordinary least squares (DOLS) techniques

were used, developed by Pesaran and Shin (1999) and Stock and Watson (1993), respectively.

Similarly, Chapter 3 analyzes the problem from the perspective of the international balance of payments. It tests the sustainability of China's current account surplus during the period from 1982 to 2009. It follows Husted (1992), the first important empirical study on trade balance sustainability, in which he develops a theoretical model that explains the existence of a long-run equilibrium relationship between exports and imports.

Then, a discussion is given of the effects of globalization on China's economy. The question of which forms of openness increase economic development is often hotly debated. Chapter 4 examines the Melo-Vogt hypotheses and compares the effects of economic openness between China and India – the most-discussed countries in the twenty-first century. The two defining characteristics of this study are the addition of a cross term to the traditional import demand function model, including a measurement of openness by the KOF Index of Globalization sub-index for economic globalization, and the inclusion of a test for cointegration between variables using the Hansen (1992) method considering structural change. For estimation, I use Phillips and Hansen's (1990) fully modified ordinary least squares (FMOLS) approach, also used by Hansen (1992), and I also use the DOLS approach.

In addition, one of the characteristics of the global economy in recent years has been the simultaneous progress of both globalization and regionalization. A typical example is East Asia. Chapter 5 analyzes the relationship between globalization and economic growth in the East Asia region. An examination is conducted proving that *de facto* integration within East Asia has occurred. It is shown that the region, under the impact of globalization, has been forming close mutual links, based on the evidence of foreign trade matrices, intra-regional foreign trade ratios, and bilateral export intensity. Furthermore, an empirical analysis is conducted to examine the effects of globalization on the economic growth of East Asia, both before and after the Asian economic and currency crisis. As in Chapter 4, the KOF overall indices and its sub-indices are utilized for this analysis.

Economic globalization is a double-edged sword. It has been criticized as a process that leads to inequality, threatens employment and living standards, and destroys the environment and communities. In fact, from the mid-1970s, income inequality became a frustrating problem not only in China, but also in other countries and regions. Most economists have approached the relationship between globalization and income inequality from the point of view of economic openness and economic development. Almost no one has considered it from the perspective of financial liberalization, and especially the capital balance angle. Chapter 6 addresses this gap in the financial liberalization literature, which has heretofore focused on the effects of economic growth. The chapter shifts focus to consider the effects of liberalization on income inequality, a

problem at the center of global policy debates over the last two decades. Chapter 6 investigates the impact of capital account liberalization on income inequality, using new data for these two variables, which is more consistent than was previously available, namely the KAOPEN Index and the Gini coefficient from UTIP.

CONTENTS

LIST   OF   TABLES

LIST   OF   FIGURES

Chapter 1

Introduction

1.1. Motivation

That great change has been brought about by China's 30 years of reform and opening up is beyond doubt (See Table 1-1). Today, no one adopts a suspicious attitude toward China's statistical data. The experts and scholars who laughed at Deng Xiaoping's "three-step" strategy have also been silenced[1], because the "well-off society" target, as it was originally envisaged, is expected to be realized 30 years in advance of predictions, by about 2020. According to IMF data, China surpassed Japan as the world's second-largest economy in 2010. Now, economists pay more attention to questions such as how long will the amazing "Chinese Speed" last and when will China have a larger economy than the United States. The 18th National Congress of the Communist Party of China (CPC), held recently, attracted global attention with regard to China's future economic development[2]。

Table 1-1: China's major economic indicators　　　　(Unit: 100 million U.S. $)

	1978	1990	2000	2010
Gross Domestic Production(GDP)	2,165	3,913	11,838	59,312
Per Capita GDP（U.S. $）	226	342	934	4,427
Total Value of Imports and Exports	206	1,154	4,734	29,728
Total Exports	97	621	2,492	15,779
Total Imports	109	534	2,251	13,948
Foreign Direct Investments	#	35	407	1,057
Foreign Exchange Reserves	2	111	1,656	28,473

Note: # indicates no data is available
Source: China Statistical Yearbook

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[1] Deng had a "three-step" strategy for China's Development: 1) double GDP between 1981 and 1990 and ensure there is enough food and shelter for all people; 2) double GDP again during the 1990s and ensure people live a moderately prosperous life; and 3) achieve modernization by 2050, raising incomes to the level of medium-size developed countries.

[2] Economists have different judgments of the Chinese economy, and it even caused a "gamble"; it is said that the British "Economist" magazine and Professor Michael Pettis from Peking University's Guanghua Management School made a friendly wager earlier this year. Their bet—for a bottle of booze—was over whether China's economy was about to run out of steam. The "Economist" was forecasting that China would stay on course to overtake the US as the world's biggest economy by 2018. However, Michael Pettis believes that the growth rate will fall to a measly (by Chinese standards) 3% this decade. This is one piece of evidence of the global attention being given to China's economy. (http://www.bbc.co.uk/news/business-19897695)

As the report delivered by General Secretary Hu Jintao at the 18th CPC National Congress noted, behind the success of China's economic boom, there are still many problems to be solved, for example, ecological and environmental problems, issues with people's livelihoods, and economic structure and official corruption problems. In this paper, I want to focus on economic issues. Because of the recession in the Japanese economy, the U.S. economic downturn, and the debt crisis in European Union countries in recent years, China must shoulder more international responsibility to promote the development of the global economy, especially with the increasing proportion of the world economy that China accounts for. If the Chinese economy has serious problems, it is no exaggeration to say that the world economy will suffer a critical blow.

Following the introduction, this thesis is composed of five chapters, which can be sectioned into two parts. The first part, which consists of Chapters 2 and 3, mainly discusses the trade surplus and the problem of the balance of payments surplus. The second part consists of the last three chapters, and focuses on the development of China's economy within the background of internationalization, including a comparison with the Indian economy, integration with the other East Asian countries, and the problem of income inequality caused by financial liberalization.
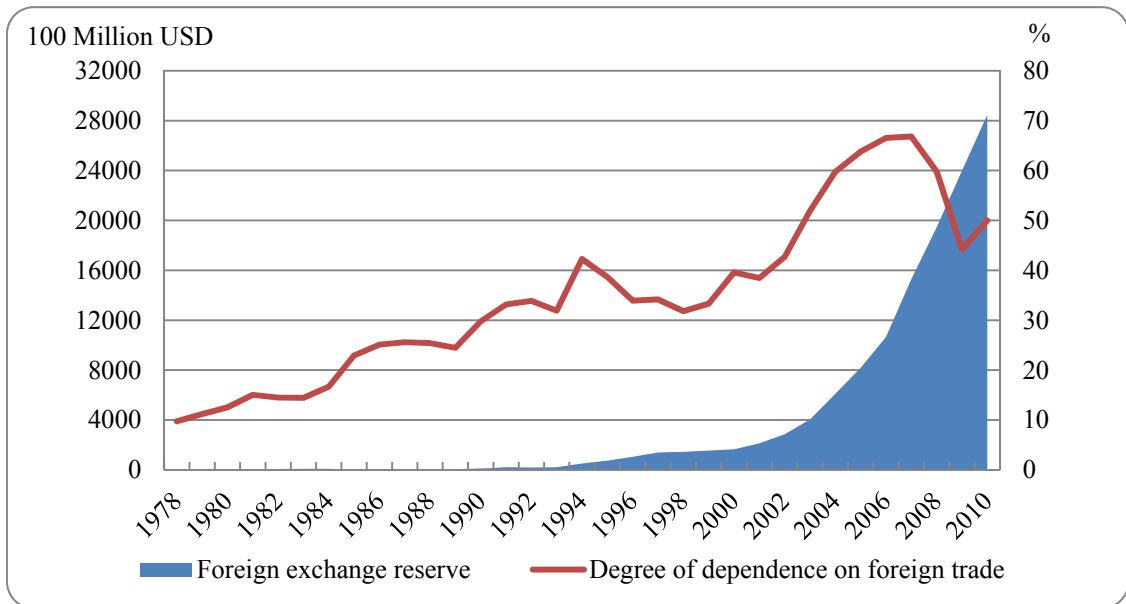
Fig. 1-1: China's foreign exchange reserves and trade dependence

Source: Compiled from China Statistics Yearbooks and People's Bank of China.

First of all, I consider the trade surplus, one of China's most often discussed problems. In the past China has followed export-oriented growth strategies, emphasizing the trade surplus. Consequently, as shown in Fig. 1-1, the degree of dependence on foreign trade (Trade volume /

GDP) has been growing rapidly. In the first year of reform and opening up, 1978, the dependence on foreign trade ratio was only 9.7%, while in 2007 this figure reached a peak of 66.8%. Experts argue that this is an example of how economic globalization has penetrated China's economy, and caused China's world trade participation to increase. It also reflects the fact that integration of the global economy has matured. However, excessive dependence on international trade has become a potential source of instability. China's economy has become more vulnerable to the influence of global economic changes. Furthermore, if a country's trade surplus continues to increase within the international trading system, it will inevitably lead to the imbalance of the whole system. In recent years, China has become the country facing the most frequent anti-dumping accusations in the WTO[3]. Chinese exports have surged in past decades and the expanding trade surplus is considered an important cause of trade friction.
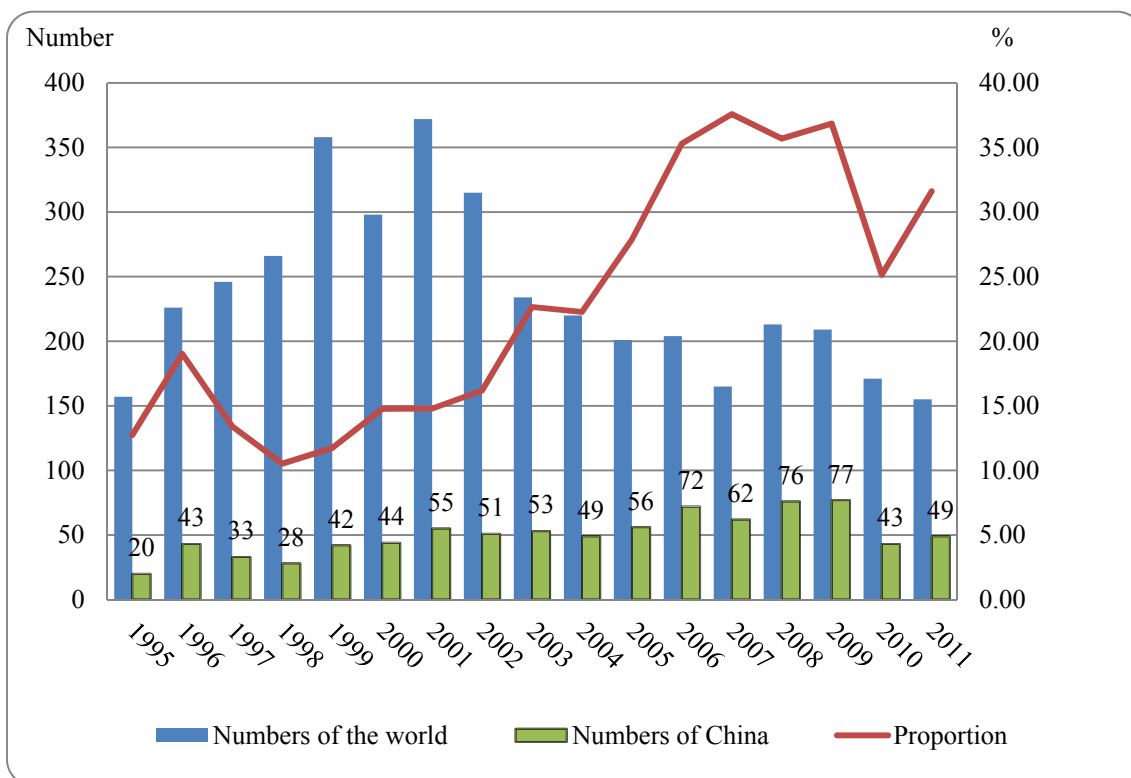
Fig. 1-2: The number of anti-dumping investigations targeting China

Source: The data is from the HP of WTO

3 According to WTO statistics, since 1995 China has become a more frequent target of anti-dumping investigations than any other country in 17 consecutive years (See Fig. 1-2).

Table 1-2: Structural features of China's international balance of payments

(Unit: 100 million U.S. $)

	1985	*1995*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*
Subtotal of international payments	**24**	**403**	**2,238**	**2,599**	**4,453**	**4,450**	**4,419**	**5,314**
Current Account (Proportion %)	**-114** **(--)**	**16** **(4)**	**1,608** **(75)**	**2,499** **(96)**	**3,718** **(83)**	**4,261** **(96)**	**2,971** **(67)**	**3054** **(57)**
Goods	-131	181	1,342	2,177	3,154	3,607	2,495	2,542
Services	7	-61	-94	-88	-79	-118	-294	-221
Income and Profit	8	-118	106	118	257	314	433	304
Current Transfers	2	14	254	292	387	458	337	429
Capital and Finance Account (Proportion %)	**90** **(--)**	**387** **(96)**	**630** **(25)**	**100** **(4)**	**735** **(17)**	**189** **(4)**	**1,448** **(33)**	**2,260** **(43)**
Capital Account	23	5	41	40	31	30	40	46
Financial Account	67	382	589	60	704	159	1409	2,214
Direct Investments	**11**	**357**	**678**	**603**	**1,214**	**943**	**343**	**1,249**
Chinese Direct Investments Abroad	-6	-20	-113	-178	-170	-535	-439	-602
FDI in China	17	377	791	781	1,384	1,478	782	1,851
Securities	-15	16	-49	-676	187	427	387	240
Other Investments	71	9	-40	133	-697	-1,211	679	724
Reserve Assets	-24	225	2,070	2,470	4,617	4,190	3,984	4,717
Net Error and Omission	1	-178	-168	-129	164	-261	-435	-597

Note: The numbers may not exactly balance because of rounding
Source: Compiled from China Statistics Yearbooks

There is an important issue with the duration of China's "twin surpluses." Under the guidelines of the reform and open-door policy, huge change has occurred in the scale and structure of China's international balance of payments. Especially since 1995, great attention has been paid to China's double international payment surplus, both in the current account and capital and financial account (See Table 1-2 for the details) [4]. The so-called Twin Surpluses in China's international payments have caused a series of problems, such as increasing pressure for RMB appreciation. The rising surplus in the current account, especially in the goods trade balance, is also seen as leading to the rapid increase in foreign exchange reserves. China's foreign currency reserves at the end of March 2006 totaled U.S. $ 853.7 billion, overtaking Japan and becoming the highest globally, and as of March-end 2011, for the first time the reserves exceeded U.S. $ 3 trillion. The trend in China's foreign reserves is shown in Fig. 1-1.

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[4] The only exception is the capital and financial account deficit in 1998.

The long-term trade surplus, or current account surplus, is not beneficial to the development of China's domestic economy. First, due to economic growth and the trade surplus, RMB is always under pressure to appreciate. Second, China's foreign reserves are considered to be a byproduct of selling RMB to buy dollars in a foreign exchange manipulation that favors the export industry. The artificial devaluation of the RMB has resulted in a decrease in the purchasing power of the public, so preventing an increase in the level of consumption, and has brought no benefit to the Chinese public. In recent years, it is often said "rich country, poor people"; this may well reflect the true situation in Chinese society.

How to solve China's trade imbalance has become a perplexing question for the world's economists. Chapters 2 and 3 both try to settle the problem from an empirical perspective. The purpose of Chapter 2 is to estimate the import demand function of the Chinese economy, to explain and investigate China's import demand functions, and to provide deeper analysis of China's import behavior. In other words, Chapter 2 gives an analysis based on trade theory. In contrast, Chapter 3 analyzes the problem from the perspective of the international balance of payments. It tests the sustainability of China's current account surplus during the period from 1982 to 2009. The empirical results show that the experience of trade balance surpluses continuing for more than a decade cannot be sustainable in the future. Therefore, it is necessary to ensure that an effective policy to control changes in the trade accounts is established.

Then, a discussion is given of the effects of globalization on China's economy. The question of which forms of openness increase economic development is often hotly debated. Chapter 4 compares the effects of economic openness on China and India—the most-discussed countries in the twenty-first century. Anticipation of growth and of the future sizes of the Chinese and Indian economies easily leads to expectations of them having commensurately large impacts on the global economy in the future[5]. Predicted growth potential, therefore, is another factor that focuses attention on these two countries. Besides being comparable in size and rate of economic growth, China and India also share the fact that their growth followed economic openness. The economic development courses chosen by China and India, therefore, can be seen as being similar. However, there are significant differences between the degree of economic openness and the resulting impacts in the two countries. The main purpose of Chapter 4 is to shed light on these differences.

In addition, one of the characteristics of the global economy in recent years has been the simultaneous progress of both globalization and regionalization. A typical example is East Asia. In the 1950s, economic growth in East Asian countries began with the establishment of nation

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[5] For the details, see Uri and Bennett (2010).

states, accompanied by the building of national economies. From the mid-1980s multinational corporations, such as those in Japan, introduced competition into mass production in East Asia. This competition resulted in organic links forming between production bases that were previously scattered across the region. The resulting increase in mutual interdependence led to independent development mechanisms forming in East Asia that were not prone to being influenced by trends in countries outside the region. Moreover, China's economic growth spurred an increase in the East Asian intra-regional foreign trade ratio and strengthened the East Asian economic integration that Japanese corporations had set in motion. Chapter 5, which is concerned with the effects of globalization in East Asia, attempts to empirically research the intertwined nature of internationalization with globalization and regionalization in East Asia.

Economic globalization is a double-edged sword. Some insist that globalization is an inevitable part of economic development that cannot be undone, and will bring benefits through access to the global economy. On the other hand, globalization has been criticized as a process that leads to inequality, threatens employment and living standards, and destroys the environment and communities. In fact, from the mid-1970s, income inequality became a frustrating problem not only in China, but also in other developing countries and regions, for example, India and Latin America, and even in developed countries and regions such as the USA and the other Organization for Economic Cooperation and Development countries. Most economists have approached the relationship between globalization and income inequality from the point of view of economic openness and economic development. Almost no one has considered it from the perspective of financial liberalization, and especially the capital balance angle. Chapter 6 addresses this gap in the financial liberalization literature, which has heretofore focused on the effects of economic growth. The chapter shifts focus to consider the effects of liberalization on income inequality, a problem at the center of global policy debates over the last two decades.

1.2. Methodology

Chapter 2 analyzes the import demand function of China empirically, based on the concept of cointegration, from 1978 to 2009. I make a contribution to the empirical literature as the study employs two different definitions of domestic real activity and two alternative estimators for explaining the behavior of import demand in China. This is an important difference between my study and the extant literature on China's import demand. The import demand model adopted here is derived within the framework of imperfect substitution theory. Typically, it uses a Marshallian demand function that relates the total quantity of imports demanded by a country to

its real expenditure or income and to the price of imports and domestic substitutes, measured in the same currency[6]. For estimation purposes, the traditional import demand model and the disaggregated expenditure model are applied. To estimate the log-run coefficients of price and income elasticities the autoregressive distributed lag (ARDL) and dynamic ordinary least squares (DOLS) techniques were used, developed by Pesaran and Shin (1999) and Stock and Watson (1993), respectively. The choice of the ARDL was motivated primarily by recent evidence that it possesses desirable small sample properties and can effectively correct for possible endogeneity of explanatory variables (see, for example, Pesaran and Shin, 1999; Panopoulou and Pittis, 2004; Caporale and Pittis, 2004). I include the estimates from DOLS, because these are among the most widely used estimators of cointegrating vectors in the applied literature.

Similarly, Chapter 3 analyzes the "surplus" problem; using a nonstationary time series approach it tests the sustainability of the current account surplus in China. It follows Husted (1992), the first important empirical study on trade balance sustainability, in which he develops a theoretical model that explains the existence of a long-run equilibrium relationship between exports and imports. The model implies that if intertemporal budget constraints are valid in an open economy, exports and imports have a cointegrating relationship, and thus, the trade balance is sustainable. Husted analyzes this relationship, between exports and imports, using the US quarterly data for 1967–1989.

Economists differ greatly in their views on the theoretical value of openness and its impact on real economies. Within empirical research, there are the Melo-Vogt hypotheses: if the degree of import liberalization increases, the income elasticity of import demand will increase, and if economic development continues, the price elasticity of demand will increase due to import substitution.

Chapter 4 examines the Melo-Vogt hypotheses and compares the effects of economic openness in China and India. The two defining characteristics of this study are the addition of a cross term to the traditional import demand function model, including a measurement of openness by the KOF Index of Globalization sub-index for economic globalization, and the inclusion of a test for cointegration between variables using the Hansen (1992) method considering structural change. The KOF index is a quantification of the degree of globalization by country, which considers 23 items within the three main dimensions of globalization—economic, social, and political. It was prepared by Dreher at the KOF Swiss Economic Institute, based on the three dimensions as defined by Keohane and Nye (Dreher,

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[6] For details, see Carone (1996, p.3).

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2006). For estimation, I use Phillips and Hansen's (1990) fully modified ordinary least squares (FMOLS) approach, also used by Hansen (1992), and I also use the DOLS approach.

An unbalanced, cross-country, panel data analysis is employed in Chapters 5 and 6. I conduct panel data analysis because of its two advantages: its ability to identify country-specific effects and to avoid the potential problems of time-series data, such as non-stationarity, cointegration, and autocorrelation (Macnair, et al., 1995). Chapter 5 analyzes the relationship between globalization and economic growth in the East Asia region. An examination is conducted proving that *de facto* integration within East Asia has occurred. It is shown that the region, under the impact of globalization, has been forming close mutual links, based on the evidence of foreign trade matrices, intra-regional foreign trade ratios, and bilateral export intensity. Furthermore, an empirical analysis is conducted to examine the effects of globalization on the economic growth of East Asia, both before and after the Asian economic and currency crisis. As in Chapter 4, the KOF overall indices and its sub-indices are utilized for this analysis.

Finally, Chapter 6 investigates the impact of capital account liberalization on income inequality, using new data for these two variables, which is more consistent than was previously available, namely the KAOPEN Index and the Gini coefficient from UTIP. KAOPEN is a capital account openness index, developed by Chinn and Ito (2002)[7] and is the first of four principle components of the IMF's AREAER. It takes higher values for less regulated and more open regimes. One merit of the KAOPEN index is that it attempts to assess the intensity of restrictions on the mobility of capital. The index makes such a large contribution due to its wide coverage: data are available for 182 countries for the period 1970–2010.

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[7] The KAOPEN Index (Also known as the Chinn-Ito Index) was initially constructed by Chinn and Ito (2002, 2006). The series has been updated annually since then, while expanding the scope of countries.

Chapter 2

Estimating Import-Demand Function in ARDL Framework: The Case of China

2.1. Introduction

This paper aims to empirically analyze the long-run relationship of China's import demand function. Trade has been at the core of China's development strategy since the Communist Party Central Committee's decision in December 1978 to adopt Deng Xiaoping's program of economic reform. Over the last two decades, especially with the implementation of the world trade organization's (WTO) rules and substantial reduction in trade restrictions, the volume of China's trade has rapidly increased and it has run large trade surpluses. Its foreign reserves swelled from $21 billion in 1992 (5% of its annual GDP) to $2.4 trillion in June 2009 (approximately 50% of its GDP). The effect of this astronomical accumulation of reserves has been a source of growing public attention in the context of the debate on global imbalances. China is being criticized for the considerable trade surplus held by them and this voice gained momentum during the global crisis. Determining the manner in which China's trade imbalance problem must be resolved has become a rather difficult issue for economists across the world.

The purpose of this study is to estimate the import demand function of the Chinese economy in order to explain and investigate China's import demand functions and provide a more in-depth analysis of China's import behavior. In particular, this paper has a twofold purpose. The first is to provide estimates of the income and price elasticities of import demand using the autoregressive distributed lag (ARDL) model developed by Pesaran and Shin (1999) and the dynamic ordinary least squares (DOLS) estimator developed by Stock and Watson (1993). The second is to compare the estimates obtained by using the traditional models with those obtained by using the disaggregated expenditure models. Moreover, I have proposed pertinent recommendations for resolving the imbalance in trade in China in accordance with the results.

The remainder of this paper is organized in the following manner: Section 2.2 provides an overview of the import demand literatures that estimate the import determinants using certain estimation methods, which are subsequently employed in my empirical analysis. Section 2.3 explains the import demand model and empirical approach. Section 2.4 reports the empirical findings and their interpretations. Finally, the conclusion provides a summary of the empirical findings and their policy implications for China.

2.2. Literature reviews

Over the recent years, owing to increasing globalization, the interdependence among countries has increased. Every country wants to achieve a rapid pace of economic development by maximizing their benefits from international trade and using modern techniques in their production processes. The relationships between imports and macro-components of particular countries have become the basis for recent directions of research. Santos-Paulino (2002) highlighted that the empirical investigation of import demand functions is one of the most researched areas in international economics. The import demand specification is crucial for meaningful import forecasts, international trade planning, and policy formulation.

A plethora of studies exists on the determinants of import demand models that have been conducted over several decades. A few of the important studies are Stern et al. (1979), Gafar (1995), Carone (1996), Mah (2000), and Hamori and Matsubayashi (2001). Carporale and Chui (1999) is the seminal work on the analysis of the import demand function. They estimated income and relative price elasticity of trade in a cointegration framework for 21 countries using annual data for the period from 1960 to 1992. The ARDL and DOLS estimates confirm the existence of a cointegration relationship between growth rates and income elasticity estimates.

Now I review other empirical studies on the aggregate import demand function that have employed the bounds testing approach. Tang (2003) examined the long-run relationship of China's aggregate import demand function for the period 1970–1999 using the bounds testing approach. Several definitions have been employed in order to represent domestic demand—GDP, GDP minus exports, national cash flow, and final expenditure components. Tang (2003) validated a long-run equilibrium relationship between these measures of domestic demand and China's import demand. He found that expenditure on exports have the biggest correlation with imports (0.51), followed by investment expenditure (0.40) and final consumption expenditure (0.17); China's import demand function was found to be inelastic (–0.6) with respect to relative prices in the long run.

Narayan and Narayan (2005) found a long-run relationship between import volumes, domestic incomes, and relative prices for Fiji in a cointegration framework only when import demand is the dependent variable. They used the bounds testing approach in order to investigate the long-run as well as the short-run elasticities of Fiji's import demand. Their results confirm that although domestic income has a positive impact on import volumes, an increase in relative prices reduce import volumes. According to them, in the long run, growth in income has a significant and elastic impact on import demand.

Emran and Shilp (2010) used a structural econometric model of aggregate imports for India

and Sri Lanka. In order to estimate the model, they employed the time series data for the period 1952-1999 for India and 1960-1995 for Sri Lanka. ARDL, DOLS, and FM-AADL (Fully Modified and Augmented-by-Leads Autoregressive Distributed Lag) techniques were used for estimating the log-run coefficients of price and income elasticities. The empirical results from both ARDL and Johannes' method provided strong evidence regarding the existence of a long-run relationship among the variables included in the long-run import demand models. The mean income elasticity was 1.07, which indicated long-run unitary income elasticity. The mean of price elasticity was –0.72, and foreign exchange availability variable was highly significant with correct positive signs for both the countries.

2.3. Model specification and data

The import demand model adopted here is derived within the framework of the imperfect substitution theory. It typically uses a Marshallian demand function that relates the total quantity of imports demanded by a country to its real expenditure or income (or another scale variable that captures domestic demand conditions) and to the price of imports and domestic substitutes measured in the same currency[8]. According to the conventional demand theory, the demand for real imports is a function of domestic income or GDP and relative price (import price index deflated by an index of domestic prices). Microeconomic theory regards demand functions to be homogeneous of degree zero in terms of prices and money income (Deaton and Mullbauer, 1980). In accordance with the studies by Khan and Ross (1977), Salas (1982), and Gafar (1995), the traditional import demand model may be expressed in the following manner[9]:

$$\ln M_t = \alpha_0 + \alpha_1 \ln Y_t + \alpha_3 \ln RP_t + \varepsilon_t \tag{1}$$

where ln is the natural logarithmic form and ε_t is the error term M_t denotes the volume of imports at time t, Y_t denotes real income at time t, and RP_t denotes the relative price (the import price index deflated by a GDP deflator) at time t. Generally, the hypothesized values of the coefficients of the explanatory variables are $\alpha_1 > 0$ in general and $\alpha_2 < 0$, which represent the income and price elasticities respectively of import demand.

The composition of expenditure is also important in that the import content of the different components of expenditure differs (Giovannetti, 1989; Davies, 1990). Indeed, if the

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[8] See Carone (1996, p.3) for details.

[9] A time trend is included in Tang's (2003) model in order to represent a change in consumer preferences; however, the cointegration test indicates a linear deterministic trend in the data only in my paper.

composition of the final demand changes, the aggregate import propensity will change even if the disaggregated marginal propensities remain unchanged. Giovannetti (1989) argued that if the different components of total expenditure have different import contents, the use of a single demand variable (e.g., GDP) in an aggregate import demand function would lead to aggregation bias. Moreover, an aggregate import equation that embodies disaggregate demand variables among the regressors has a better fit and forecast than a standard specification with a single demand variable[10]. According to these studies, decomposing GDP into the following three broad categories is an alternative to the traditional approach: consumption expenditure by private and public sectors, investment expenditure (public and private), and net exports. The preference for an import demand model with disaggregated expenditure components not only eliminates aggregation bias but also can test out the impact on imports from different components of GDP.

The disaggregated expenditure model of import demand is expressed in the following manner:

$$\ln M_t = \beta_0 + \beta_1 \ln FC_t + \beta_2 \ln I_t + \beta_3 \ln EX_t + \beta_4 \ln RP_t + u_t \tag{2}$$

where FC_t is the final consumption expenditure at time t, which is the sum of the real private and public consumption expenditures; I_t is the real expenditure on investment goods at time t,; and EX_t is the real expenditure on exports at time t,. The definitions of the other variables are the same, as defined previously. According to the equation (2), the parameter must satisfy the following sign restrictions: $\beta_1 > 0$, $\beta_2 > 0$, $\beta_3 > 0$ and $\beta_4 < 0$. With respect to details on sign restrictions, see Bahmani-Oskooee and Niroomand (1998).

I use the annual data over the period from 1978 to 2009 for empirical analysis. Each data is taken from the World Bank (2009) database.

Testing for the existence of a relationship in levels between variables is essential to empirical economics, and such testing has received considerable attention over the past decade. Generally, this analysis is based on the use of cointegration techniques. In order to test for the existence and the number of long-run relationship(s), I employ the system-based reduced rank regression approach by Johansen (1991, 1995), the bounds F-test proposed by Pesaran et al. (2001), and the bounds t-test based on Banerjee et al.'s (1998) cointegration test. I employ the bound test (Pesaran et al., 2001) for cointegration analysis because it has the following advantages: First, this test can be used irrespective of whether the regressors are purely I(0), purely I(1), or mutually cointegrated. Second, the approach of the test is such that the model takes a sufficient

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[10] The link between imports and the macro-components of final expenditure has become very popular in recent research (e.g., Abbott and Seddighi, 1996; Tang, 2003).

number of lags in order to reduce the intensity of the serial correlation of residuals in a general-to-specific modeling framework. Third, it assumes that all variables in the model are endogenous. Finally, a dynamic error correction model may be derived by making a simple linear transformation in the ARDL model (see, for example, Pesaran and Pesaran, 1997; Pesaran and Shin, 1999).

There is an important difference between my study and the extant literature on China's import demand[11]. I use the following two alternative estimators for estimating the cointegrating vector: ARDL and DOLS. I use alternative methods for gauging the sensitivity of the results to different estimation techniques. The choice of the ARDL is motivated primarily by the recent evidence that it possesses desirable small sample properties and can effectively correct for possible endogeneity of explanatory variables (see, for example, Pesaran and Shin, 1999; Panopoulou and Pittis, 2004; Caporale and Pittis, 2004). I include the estimates from DOLS, because it is among the most widely used estimators of cointegrating vectors in applied literature. However, Caporale and Pittis (2004) indicated that the decision regarding the estimation method is more crucial than the actual data employed; while widely used estimators, including OLS and DOLS, have the worst performance in small samples, ARDL (and FM-AADL) does not suffer from the problem that the standard asymptotic critical values are highly misleading in small to moderate samples.

2.4. Empirical Results

I must investigate the existence of a long-run import demand relationship before interpreting the estimated import demand equations in Table 2-1. In order to investigate this, the bounds tests suggested by Persaran and Shin (1999) and Banarjee et al. (1998), and the rank tests for cointegration due to Johansen (1995) were employed. The specifications of the ARDL and VAR models are selected by the Schwartz Bayesian Information Criterion (henceforth SBIC) and then estimated by OLS[12]. In addition, the unit root tests indicate that the relevant variables of the import model are non-stationary and integrated of order one (Table 2-A-1) [13].

2.4.1 Cointegration

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[11] With respect to the empirical investigation of China's import demand function, see Moazzami and Wong (1988), Senhadji (1998), and Tang (2003).

[12] The ARDL model selected by SBIC is more effective than alternatives like the Akaike information criterion (AIC). For more details on this, see Pesaran and Shin (1999).

[13] The result of the unit root test for the "GDP minus exports" variable, which is used as a proxy of GDP in Senhadji (1998) and Emran and Shilp (2010) is I(2) (not reported).

The Johansen's maximum eigenvalue and trace tests indicate that there is one cointegrating vector in both specifications (1) and (2) (Table 2-A-2) [14]. The null hypothesis of no cointegration can be rejected at the 1% significance level in both the cases. Table 2-1 presents the results of a bounds test for cointegration. The cointegration test under the bounds framework involves the comparison of the F-statistics against the critical values, which are generated for specific sample sizes. This is also an improvement over the existing studies (Tang, 2003) that use the bounds testing approach. The results of the bounds F tests indicate that the null hypothesis of no cointegration can be rejected at the 1% significance level in both the models. The results from the bounds t-tests are similar[15]. All the three approaches provide similar results on the long-run correlation, thereby demonstrating that China's import demand and its determinants are cointegrated for the sample period.

Table 2-1: Testing for the existence of a long-run relationship in autoregressive distributed lag (ARDL) models

Model 1

Critical value bounds (case III: unrestricted intercept and no trend)

k	90 percent level		95 percent level		99 percent level	
2	$I(0)$	$I(1)$	$I(0)$	$I(1)$	$I(0)$	$I(1)$
F-statistic	2.915	3.695	3.538	4.428	5.155	6.265
t-statistic	-2.57	-3.21	-2.86	-3.53	-3.43	-4.10
Calculated		F-statistic	t-statistic			
		6.392***	**-4.006****			

Model 2

Critical value bounds (case III: unrestricted intercept and no trend)

k	90 percent level		95 percent level		99 percent level	
4	$I(0)$	$I(1)$	$I(0)$	$I(1)$	$I(0)$	$I(1)$
F-statistic	2.525	3.560	3.058	4.223	4.280	5.840
t-statistic	-2.57	-3.66	-2.86	-3.99	-3.43	-4.60
Calculated		F-statistic	t-statistic			
		8.807***	**-3.709***			

Notes:

(1) The critical values of the F-statistic have been extracted from Narayan (2004a, b) and critical values of t-statistic are extracted from Pesaran et al. (2001).

(2) The optimal lag length for ARDL models that start at three lags were selected by the Schwarz-Bayesian Information Criterion (SBIC).

(3) k is the number of regressors.

(4) ***, **, and * denote values significant at the 1 percent, 5 percent, and 10 percent levels.

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[14] Owing to the use of limited annual observations in this study, three lag and one lag structures of VAR were selected for specifications (1) and (2), respectively.

[15] This was because those critical values of t-statistics were extracted from Pesaran et al. (2001), which were based on the sample sizes of 500 and 1,000 observations; the significance levels of the t-test are higher than the corresponding significance levels of F-test.

2.4.2. Long-run elasticities

Since there is strong evidence of the existence of a long-run relationship among the variables included in the long-run import demand model, I estimate the long-run cointegration relationship (long-run coefficients) for imports using the ARLD and DOLS single equation estimation methods. Table 2-2 presents the long-run results.

For the income coefficient, the magnitude of DOLS estimates is lower than the estimates from ARDL in two cases. However, contrary to the income coefficients, the DOLS estimates of the relative price coefficient are higher as compared to those from ARDL. This finding is inconsistent with Emran and Shilp (2010), wherein the DOLS estimates are the lowest among the estimates for both income coefficients and relative price. In addition, the estimated coefficients are highly statistically significant except lnFC by both the estimates (t-statistic is 0.441 by DOLS and 0.805 by ARDL) in model 2.

Table 2-2: Estimates of the long-run import demand function

	Model 1		Model 2	
	DOLS	ARDL	DOLS	ARDL
lnRP	-0.916	-0.478	-0.397	-0.340
	(-13.811)	(-2.251)	(-2.987)	(-3.122)
ln$Y$	1.524	2.661		
	(51.588)	(4.179)		
lnEX			0.359	0.854
			(4.027)	(6.001)
lnFC			0.132	0.203
			(0.441)	(0.805)
ln$I$			0.689	1.235
			(2.656)	(4.476)
Intercept	-16.655	-9.270	-5.437	-4.064
	(20.063)	(-4.472)	(-2.617)	(-2.397)
Diagnostics				
$\bar{R}^2$	0.996	0.994	0.995	0.996
σ	0.066	0.088	0.083	0.071
Serial Correlation (F)	0.035	0.211	0.027	0.321
	[0.854]	[0.651]	[0.872]	[0.577]
Normality (χ^2)	0.387	1.130	1.441	0.383
	[0.824]	[0.568]	[0.486]	[0.826]
Heteroscedasticity (F)	0.563	0.165	4.409	0.996
	[0.809]	[0.687]	[0.004]	[0.499]

Note: t-statistics and P-values are indicated in parentheses and brackets, respectively.

When the import equation was estimated by ARDL, the coefficients were found to be completely different from those in Tang (2003). For example, in the traditional model, the estimated income elasticity was 2.661; this is considerably larger than Tang's (2003) estimated income elasticity of 0.73[16]. Similarly, the coefficients of the decomposed GDP are slightly higher as compared to those in Tang (2003), that is, 0.51, 0.17, and 0.4 for exports, consumption, and investment, respectively. A possible explanation for this is that over the period 1970–1999, China experienced historical trade deficits[17].

I conducted a number of diagnostic tests including tests of autocorrelation, normality, and heteroscedasticity. The estimated residuals did not provide any significant evidence of serial correlation, nonnormality (Jarque-Bera test), or heteroscedasticity in the error term[18]. Meanwhile, the adjusted R-squared of approximately 0.995 indicated that 99.5% of the variation in import demand was explained by the variables in the models. In addition to this, the estimated coefficients for the relative price and activity variables (measured by income, consumption, investment, or exports), satisfy the theoretical sign restrictions for both models regardless of the estimation technique considered.

2.4.3. Stability of the estimated parameters

Model stability is necessary for prediction and econometric inference. I test for the stability of estimated parameters by using the cumulative sum of recursive residual (CUSUM) and CUSUM of square (CUSUMSQ) tests[19]. For the sake of brevity, I have only discussed the results for the ARDL model. The results of the CUSUM and CUSUMSQ tests are reported in Fig. 2-1 and Fig. 2-2 for models 1 and 2, respectively. Neither tests provided any evidence of instability in the estimates at the 5 percent significance level for conventional specification. Meanwhile, for the decomposed GDP specification, although the ARDL estimates passed the CUSUM test, the CUSUMSQ test provided some evidence of mild instability[20].

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[16] The result is at odds with the conventional wisdom of long-run unitary income elasticity.

[17] See Tang (2003, p. 143).

[18] The homoscedasticity test of DOLS results may be rejected for model 2.

[19] The CUSUM test detects the systematic changes in the regression coefficients, whereas the CUSUMSQ (CUSUM of squares) test is useful for capturing the sudden departures from the constancy of regression coefficients.

[20] However, this evidence of mild instability is not corroborated by the results obtained from recursive estimations. The results are available from the authors upon request.
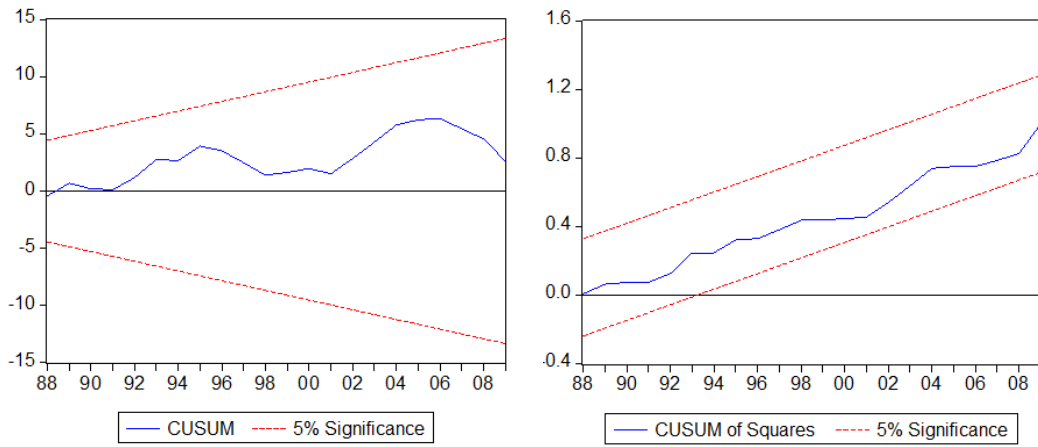
Fig. 2-1: Cumulative sum of recursive residual (CUSUM) and CUSUM of square (CUSUMSQ) tests (Model 1)
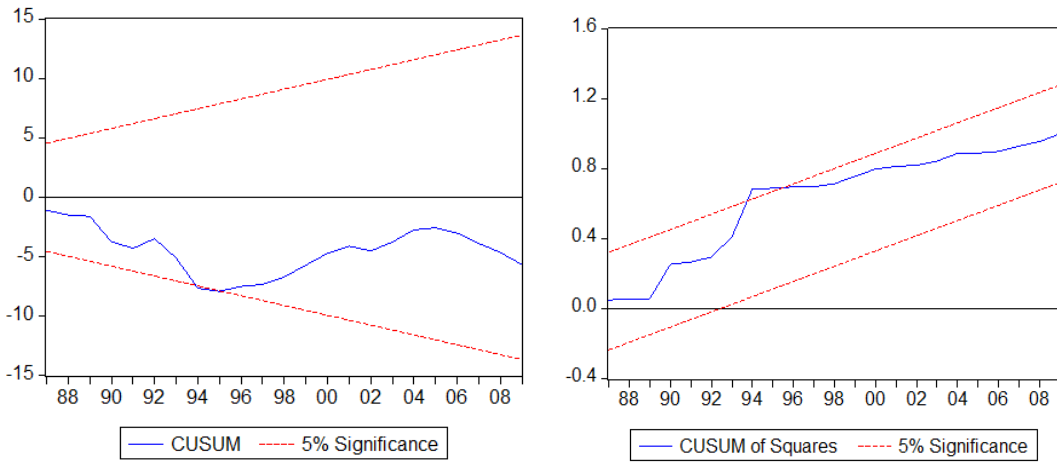
Fig. 2-2: Cumulative sum of recursive residual (CUSUM) and CUSUM of square (CUSUM) tests (Model 2)

2.5. Conclusions and policy implications

This paper empirically analyzed the import demand function of China based on the concept of cointegration for the period 1978–2009. I contribute to the extant empirical literature by employing two different definitions of domestic real activity and two alternative estimators (ARDL model and DOLS estimator) for explaining the behavior of import demand in China. Moreover, irrespective of the estimation technique, I find strong evidence of a cointegration relationship between the income and relative price variables in both the models. However, the estimated coefficients for income and relative price variables were found to be rather different when different estimation techniques were employed. I also find that decomposing final expenditure explains China's import demand more effectively. Since the elasticity of imports significantly differs with respect to different macro expenditure components, the different macro components of expenditure have different import contents.

Pertinent policy implications may be derived on the basis of the empirical estimates. First, it is evident that prices play an important role in the determination of imports. The estimated long-run elasticity is inelastic and approximately within the range of -0.5 to -1. Similar to Tang (2003), it appears that China cannot depend on using its exchange rate policies to correct the balance of trade problem[21]. However, the long-run price elasticity is statistically significant, suggesting that if the growth in inflation in China is related to the import price, then China's import bill will increase.

Second, in model 2, the estimated coefficients of consumption were found to be statistically irrelevant for both ARDL and DOLS. This implies that increase in import does not benefit the living conditions of Chinese people. This is not a surprising result because China's currency "manipulation" is fare "effective."

Finally, contrary to Tang (2003), the growth in income has a significant and elastic impact on import demand in the long run. In addition, the estimated coefficient of investment was also found to be elastic, and larger than that of exports in the ARDL model. This indicates that higher growth especially in investment will induce higher demand for imports. Since the demand for imports rises when the level of investment increases, the balance-of-payments is expected to deteriorate if China's growth in imports exceeds their growth in exports.

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[21] The average long-run price elasticity of Tang (2003) is –0.51; according to Heien (1968), "exchange rate polices which directly influence the relative price, will have little impact on China's import demand as well and trade balances."

Appendix:

The augmented Dickey-Fuller (ADF) (Dickey and Fuller, 1979, 1981) unit root test has been employed for each variable. The unit root test indicates that all the series employed are non-stationary and integrated of order one. The results of the ADF test are presented in the following table:

Table 2-A-1: Unit root test

Series	Level	First difference
$\ln M$	0.574	–4.531***
$\ln Y$	–0.270	–4.090***
$\ln RP$	–2.274	–3.064**
$\ln FC$	–1.251	–4.373***
$\ln EX$	1.675	–3.072**
$\ln I$	0.573	–3.426**

Notes:

(1) The auxiliary regression is run only with an intercept, both for the level and first differenced series.
(2) The maximum number of lags is three, and the order of the lag length is selected by the Schwarz-Bayesian Information Criterion (SBIC).
(3) The critical values are extracted from MacKinnon (1996).
(4) ** and *** indicate that the null hypothesis is rejected at 5% and 1% significance levels.

Table 2-A-2: Test for existence of cointegrating vectors using Johansen approach

Test Type	Trace/ Max-Eig Statistic				5% Critical Value	Prob.	Hypothesized Number of CEs
Model 1	ln*M*	ln*Y*	ln*RP*	(Conventional approach)			
Trace	50.472				29.797	0.000	none *
	9.839				15.495	0.293	at most 1
Max-Eig	40.633				21.132	0.000	none *
	7.355				14.265	0.448	at most 1
Model 2	ln*M*	ln*EX*	ln*FC*	ln*I* ln*RP*	(Decomposed GDP)		
Trace	79.813				69.819	0.006	none *
	39.289				47.856	0.249	at most 1
Max-Eig	40.525				33.877	0.007	none *
	19.572				27.584	0.372	at most 1

Notes:

(1) The test assumes a linear deterministic trend in the data.

(2) The lag length selected by Schwarz-Bayesian Information Criterion (SBIC) for the VAR analysis is three for model 1 and one for model 2.

(3) Prob indicates the MacKinnon-Haug-Michelis (1999) *P*-values.

(4) * denote the significance at the 1% level.

Chapter 3

The Sustainability of Trade Balances in China

3.1. Introduction

Following Deng Xiaoping's historical tour of South China in 1992 [22], China became increasingly integrated into the world economy. Meanwhile, China's large and persistent "twin surpluses" (current account and capital and financial account surpluses) represent one of the most hotly debated issues among politicians and economists over the past ten years. In particular, the yawning trade surplus against the United States and European Union has strained China's foreign trade environment, triggering more frequent trade friction. Fig. 3-1 shows the movements of China's exports, imports, and trade balances. As is clear from the figure, the China's trade balance surplus has increased in recent years. The problems that arise are not caused by the rising exports but by the imbalance between export and import growth. Without a stable balance between the two, newly emerging trade imbalances will tend to increase (Hamori, 2009).
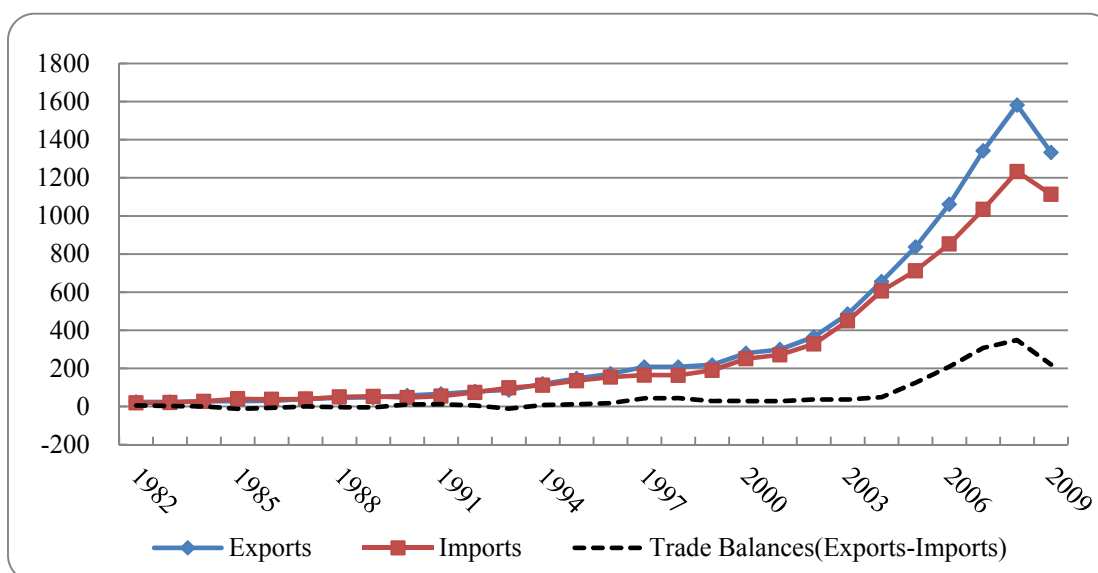
Fig. 3-1:   Exports, Imports, and Trade Balances in China (Billion U.S. $)

Note: "Imports" are the imports of goods and services; "Exports" are the exports of goods and services; and "Trade Balances" refer to the difference between "Exports" and "Imports."

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[22] Deng Xiaoping (1904 – 1997) was a Chinese politician and served as the Paramount leader of the People's Republic of China from 1978 to 1992. He was well known as a reformer to lead China towards a market economy.

Husted (1992) is the first important empirical study on trade balance sustainability. He develops a theoretical model that explains the existence of a long-run equilibrium relationship between exports and imports. The model implies that if intertemporal budget constraints are valid in an open economy, exports and imports have a cointegrating relationship, and thus, trade balance is sustainable. Husted analyzes this relationship between exports and imports by employing the US quarterly data for 1967–1989 and concluded that the two series are cointegrated, and hence, US trade deficits are a short-run phenomenon.

Following this seminal work by Husted (1992), many researchers have empirically analyzed the long-run relationship between exports and imports (trade balance sustainability) for various countries. (See Wu, 2000; Arize, 2002; Baharumshah et al., 2003; Irandoust and Ericsson, 2004; Wu et al., 1996; Hamori, 2009; Konya, 2009; and Greenidge et al., 2011).

While a large number of countries have been analyzed, to the best of my knowledge, there has been no empirical investigation of China's trade account balances using the nonstationary time series approach[23]. This paper aims to empirically analyze the sustainability of trade balances in China, which is being criticized for the considerable trade surplus.

3.2. Model and Data

3.2.1. Model

Following Husted (1992), I examine the intertemporal budget constraints to analyze the trade balance the dynamics. Suppose that "the representative agent of a small open economy, that produces and exports a single composite good and has no government, can borrow and lend in international markets at the world interest rate using one-period financial instruments and aims at maximizing lifetime utility subject to budget constraints" (Husted, 1992, p.160).

The current period budget constraint is shown as follows:

$$C_0 = Y_0 + B_0 - I_0 - (1 + r_0)B_{-1}, \tag{1}$$

where $C_0, Y_0, B_0,$ and I_0 denote current consumption, output, net borrowing (borrowing minus lending), and investment, respectively; r_0 is the one-period interest rate; and $(1 + r_0)B_{-1}$ is the initial external debt of the economy.

Next, the intertemporal budget constraint is given as follows:

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[23] The only exception is Tiwari (2011), which examined the long-run relationship between exports and imports for the Chinese and Indian economies using monthly data from 1992 to 2010. Tiwari used recent time series econometric methods and showed that trade deficit is sustainable in the case of India but not in the case of China.

$$B_0 = \sum_{t=1}^{\infty} \mu_t TB_t + \lim_{n \to \infty} \mu_n B_n, \tag{2}$$

where $TB_t = EX_t - IM_t (= Y_t - C_t - I_t)$ represents the trade balance in period t (i.e., income minus absorption), $\mu_t = \prod_{j=1}^{t} 1/(1+r_j)$ is the discount factor, EX_t represents the exports of goods and services at time t, and IM_t represents the imports of goods and services at time t. When the last term of Equation (2) is zero, i.e., $\lim_{n \to \infty} \mu_n B_n = 0$, the net international borrowing of the economy is equal to the present value of the future trade balance. When it is nonzero, whether B_0 is positive or negative, the economy is not sustainable[24].

After some manipulation, equation (2) becomes as follows:

$$Z_t + rB_{t-1} = EX_t + \sum_{j=1}^{\infty} \lambda^j (\Delta EX_{t+j} - \Delta Z_{t+j}) + \lim_{n \to \infty} \lambda^{n+1} B_{t+n}, \tag{3}$$

where $Z_t = IM_t + (r_t - r)B_{t-1}$ and Δ is the difference operator, that is, $\Delta x_t = x_t - x_{t-1}$.

Assuming that EX_t and Z_t follow random walks with drift,

$$EX_t = \alpha_1 + EX_{t-1} + \varepsilon_{1t}, \quad Z_t = \alpha_2 + Z_{t-1} + \varepsilon_{2t}, \tag{4}$$

where ε_{1t}, and ε_{2t} are I(0) error term. Then we obtain

$$EX_t = \beta_0 + \beta_1 MM_t + u_t, \tag{5}$$

where $MM_t = IM_t + r_t B_{t-1}$ and u_t is the disturbance at time t. This model implies that if EX_t and MM_t are I(1), the sufficient condition for the intertemporal budget constraint is the existence of a $(1, -1)$ cointegrating vector between EX_t and MM_t. To satisfy the economy's intertemporal budget constraint, the coefficient of MM_t in equation (5) should be equal to one and u_t should be stationary.

3.2.2. Data

This study uses annual data for China from 1982 to 2009. This sample period is based on the availability of the data. Both real exports of goods and services (EX_t) and real imports of goods and services plus net transfer payments and net interest payments (MM_t) are measured in

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[24] See the discussion in Husted (1992), Konya (2009), and Greenidge et al. (2011) for details.

constant local currency units. The data source is the World Development Indicator published by the World Bank.

As a preliminary analysis, I conduct the augmented Phillips–Perron test (Phillips and Perron, 1988) for the exports and imports. I find that each export and import (MM_t) may be an I(1) variable with a unit root.

3.3. Empirical Results

3.3.1. Cointegration Tests

If exports and imports (MM_t) possess cointegrating vectors of the form (1, –1), then the trade balance will be stationary. Thus, I perform Johansen type cointegration tests (Johansen, 1991) on exports and imports (MM_t).

Table 3-1 presents the results of the cointegration tests. Because the Johansen test depends on the lag order, I use alternative lag orders, that is, two and three periods, to examine the robustness of the test results. Under the null hypothesis of no cointegration, the trace test statistic and its p-values are 35.544 and 0.000 respectively when the lag length is equal to one and 38.473 and 0.000 respectively when the lag length is equal to two. The maximum eigenvalue test and its p-values are 35.009 and 0.000 respectively when the lag length is equal to one and 30.300 and 0.000 respectively when the lag length is equal to two. As the table shows, the null hypothesis may be rejected. Thus, there is likely to be a cointegrating relationship between exports and imports (MM_t).

Table 3-1:   Results of Cointegration Tests (EX_t, MM_t)

Lag	Null hypothesis	Trace test	Maximum eigenvalue test
1	$r = 0$	35.544 (0.000)	35.009 (0.000)
2	$r = 0$	38.473 (0.000)	30.300 (0.000)

Notes: r is the hypothesized number of the cointegrating vector.

The numbers in parentheses are MacKinnon–Haug–Michelis (1999) *p*-values.

3.3.2. DOLS Estimation

Having thus supported the existence of the cointegrating relationship, I move on to estimate the cointegrating vector. When estimating the cointegrating vector, the endogeneity of regressors prevents me from using the ordinary least squares method. To work my way around this problem, I apply the dynamic ordinary least squares (DOLS) method developed by Stock and Watson (1993). The cointegrating vector in Equation (5) is estimated by adding ΔMM_t, and its leads and lags are as follows:

$$EX_t = b_0 + b_1 MM_t + \sum_{i=-K}^{K} \gamma_i \Delta MM_{t-i} + u_t \tag{6}$$

Here, all variables are as previously defined. The estimation results are presented in Table 3-2. As shown, the import coefficient is estimated to be 1.558 for $K = 1$ and 1.593 for $K = 2$, and statistically significant.

Table 3-2:   Results of the DOLS Method

$$EX_t = b_0 + b_1 MM_t + \sum_{i=-K}^{K} \gamma_i \Delta MM_{t-i} + u_t$$

Lead and lag	Variable	Estimate	SE	t-statistic	p-value	$\bar{R}^2$
$K = 1$	MM_t	1.558	0.026	60.547	0.000	0.999
$K = 2$	MM_t	1.593	0.048	32.858	0.000	0.999

Note: SE is the Newey–West HAC (Heteroskedasticity Autocorrelation Consistent) standard error.

3.3.3. Hypothesis Testing for Cointegrating Vector

Finally, the test results of the cointegrating vector are shown in Table 3-3. Since I want to test whether the (EX_t, MM_t) has a cointegrating vector of $(1, -1)$, I need to analyze if $b_1 = 1$ in Equation (5). As Table 3-3 shows, the test statistic and its corresponding p-values are 21.46 and 0.000 respectively for $K = 1$ and 12.35 and 0.000 respectively for $K = 2$. Thus, the null hypothesis is rejected for both cases. That is, export and import (MM_t) does not have a cointegrating vector of $(1, -1)$.

Table 3-3: Results of the Coefficient Tests

$$H_0 : b_1 = 1, \ H_A : b_1 \neq 1$$

Lead and lag	Test statistic	p-value
$K = 1$	21.46	0.000
$K = 2$	12.35	0.000

3.4. Conclusion

This study uses nonstationary time series approach to test the sustainability of the current account surplus in China over the period from 1982 to 2009. It is essential to know whether imports (MM_t) and exports are cointegrated or not in order to design and evaluate the current and future macro policies aimed at achieving trade balance (Arize, 2002).

My empirical results suggest that, despite the cointegrating relationship between imports (MM_t) and exports in China, the intertemporal external constraints may be violated. Thus, the trade balance surplus experienced over more than a decade cannot be sustainable in the future. It is therefore necessary to ensure that an effective policy for controlling changes in trade accounts is established.

Chapter 4

Economic Openness and Growth in China and India:
A Comparative Study

4.1. Introduction

The term "BRICs" was first used in a report titled, "Building Better Global Economic BRICs," put out by Goldman Sachs in 2001. It later gained currency as a keyword in the lexicon of global economic discussions from its use in "Dreaming with BRICs: The Path to 2050," an investor-oriented report issued by the same company in October 2003[25].

Among the BRICs (Brazil, Russia, India and China) countries, China and India - large countries with populations continuing to grow at high rates - have drawn the attention of experts and policy authorities. Together, their populations exceeded 2.5 billion in 2010, approaching 40% of the global population. According to some forecasts, between 2010 and 2020, China will maintain an economic growth rate of 8-10%, while India will post figures of 7-8%. Moreover, China will become the world's largest economy sometime between 2030 and 2050, and India is seen as rising to the number three spot, behind the second-place Unite States economy. Anticipation of the growth and future sizes of the Chinese and Indian economies easily leads to expectations of commensurately enormous impacts on the global economy in the future[26]. Predicted growth potential, therefore, is another factor focusing attention on these two countries.

Besides having comparable size and economic growth rates, China and India also share the fact that their economic growth followed economic openness. Though it is widely acknowledged that China's rapid economic growth began with its switch to a path of economic reform and opening at the end of 1978, it was Deng Xiaoping's tour of southern China in 1992 that acted as the catalyst for market-based economic development, accelerated reforms and opening, and sparked China's rapid economic growth. Meanwhile, in India, which had pursued an industrial development strategy based on import substitution since it gained independence in 1947, the Persian Gulf crisis led to economic reforms and liberalization under the Rao administration (1991-1996). These changes not only improved the country's international balance of payments and avoided a foreign exchange crisis, but also set India on a path of rapid economic growth. The economic development courses chosen by China and India, therefore,

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[25] With the inaugural participation of South Africa in a summit of the four BRIC countries held on April 13, 2011 in Beijing, the formal rendering of "BRICs" was changed to "BRICS."

[26] For the details, see for Uri and Bennett (2010).

may be seen as being similar. However, there are significant differences between them in degrees of economic openness and the resulting impacts. The main purpose of this paper is to shed light on these differences.

This paper is organized as follows. The next section reviews the literature about openness, especially, Melo-Vogt hypotheses which concern the relationship between import demand elasticities and trade openness. Section 4.3 provides a synoptic description of KOF index about openness. Section 4.4 describes the data and the empirical framework. Section 4.5 discusses the results of the estimation procedures. The paper ends with some brief concluding remarks in section 4.6.

4.2. Openness and the Melo-Vogt Hypotheses

Economists differ greatly in their positions on the theoretical value of openness and its impact on real economies. Even as support has shifted overwhelmingly toward Endogenous Growth Theory and away from Neoclassical Growth Theory over the past 20 years, there have still been hot debates on whether economic openness (especially trade openness) packages have played an important role in the performance of outward oriented economies. Many economists believe that open economies perform better on aggregate than do the closed ones, and that open policies contribute significantly to economic development. Adam Smith and David Ricardo argued that international trade was seen as the engine of growth. Benefits from free trade have been widely documented since then. Bhagwati (1978) and Liu et al. (1997) argue that openness exposes countries to the most advanced new ideas and methods of production dictated by international competitive behavior, and thus it enhances efficiency. Bruno (1987) thought that, in the long run, trade liberalization would improve resource allocation efficiency and promote economic growth by introducing completion and benefit local consumers by decreasing cost per unit.

Among the ideas opposing openness is trade protection. Grossman and Helpman (1991) argue that protection could enhance the long-run growth if government intervention in trade encourages domestic investment along the lines of comparative advantage. Batra (1992) have gone further by suggesting that free trade can be a primary source of economic downturn. The domestic economy may suffer a loss because openness may make imports more attractive than domestic production. Stiglitz and Charlton (2006), holding that developing countries suffer great costs for openness, have said that there is no conclusive proof that openness is beneficial for all countries.

From a theoretical perspective, therefore, whether greater openness has positive impacts on economic growth is not patently clear.

In empirical research, there are the Melo-Vogt hypotheses[27]. Melo and Vogt (1984) estimated Venezuela's real income and relative price elasticties of demand for imports using disaggregated annual data for 1962-1979. They found that during the period 1974-1979, the increase in the wealth (the market value of Venezuela's oil reserves) has led to an increase in all categories of imports. And they argue that the greater price elasticities suggest that the Venezuelan economy has made progress in developing industries which produce substitutes for imports. Their conclusions were summarized by the Boylan and Cuddy (1987), became Melo-Vogt hypotheses: if the degree of import liberalization increases, the income elasticity of import demand will increase; if economic development continues, the price elasticity of demand will increase due to import substitution.

Mah (1999) tested Melo-Vogt hypotheses with the experience of Thailand on data for 1963-1992. The equilibrium form as well as the disequilibrium form of the conventional traditional import demand function is used. He found that the results using first differenced variables show that Thailand's income elasticities increased after trade liberalization, supporting the hypothesis. However, unlike the hypothesis, the price elasticities showed no increase with economic development.

4.3. The KOF Index

Although the term openness is widely used in the international economics, there is no consensus on how to measure it. In the existing empirical studies various measures have been tried. These include the Economic Freedom Index [28]、 Capital Access Index (CAI) [29]、 the World Bank's Outward Orientation Index which classifies countries into four categories according to their perceived degree of openness (the World Bank, 1987), and other indices in many literatures (see Balassa, 1982; Michaely et al. 1991; Johnson and Sheehy, 1996).

Significant efforts have been made to construct a satisfactory comparative openness index and it is generally agreed that the majority of such measures continue to be subject to various

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[27] Several empirical studies have confirmed the hypothesis that increasing openness has a positive impact on economic growth. Examples include Doller (1992), Sachs and Warner (1995) and Edwards (1998) among others.

[28] The Economic Freedom Index covers over 100 countries and is announced in an annual report by the *Wall Street Journal* and Heritage Foundation.

[29] The CAI is an index communicating the capital market openness of individual countries and is prepared annually by the Milken Institute, a Unite States think tank that performs research on capital markets and world economic trends. The CAI is calculated based on 7 components, examples of which include commodity prices, interest rates, tax rates, and other macroeconomic components; components reflecting financial laws and systems; measures of the soundness, efficiency, and other characteristics of financial institutions; measures of the development of equity and bond markets; components reflecting the conditions of venture capital, credit card, and other capital markets; and components reflecting the ability of foreigners to utilize capital markets.

limitations (Edwards, 1998). In this paper, openness is measured using the KOF index of globalization sub-index.

KOF index is a quantification of the globalization degree by country for 23 items [30] in the three main dimensions -- economic, social, and political -- was prepared by Dreher at the KOF Swiss Economic Institute based on the three dimensions of globalization defined by Keohane and Nye (Dreher, 2006, p. 1092).[31] The economic sub-index is measured using actual economic flows such as foreign trade and foreign direct investment with added economic restrictions put on metrics such as imports and capital balance. The social sub-index is built from tri-lateral data related to personal contacts, information flows, and culture proximity. The political sub-index is computed using data such as the number of international organization memberships as proxy variables. Sub-indices are constructed in such a way that the items associated with each dimension are converted based on a scale from zero to ten according to the method used by Gwartney and Lawson (2002). Then the indexes of economic, social, and political globalization are combined into a single index of overall globalization, providing the respective weight for each dimension. The single index is named after the KOF index of Globalization. The KOF index takes values between 0 and 100, with higher values representing stronger globalization.

Figs. 4-1 and 4-2 demonstrate features of China and India's globalization. As can be seen from these figures, there are a few points common to both countries. First, among the indices presented, political globalization has reflected the greatest progress. Second, progress in social globalization has significantly lagged in terms of the other two measures of globalization. And, third, progress in economic globalization has largely mirrored progress in overall globalization. In contrast, China and India can be seen to differ in economic globalization, where China began to achieve progress ten years ahead of India and has led it ever since. And in political globalization, China, overcoming its late start with significant improvement beginning in the 1990s, had largely caught up to India by 2009.

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[30] The variables are shown in Table 4-A-1.

[31] I use the 2012 version of this index as documented in Dreher et al. (2008) which is available at http://globalization.kof.ethz.ch/.
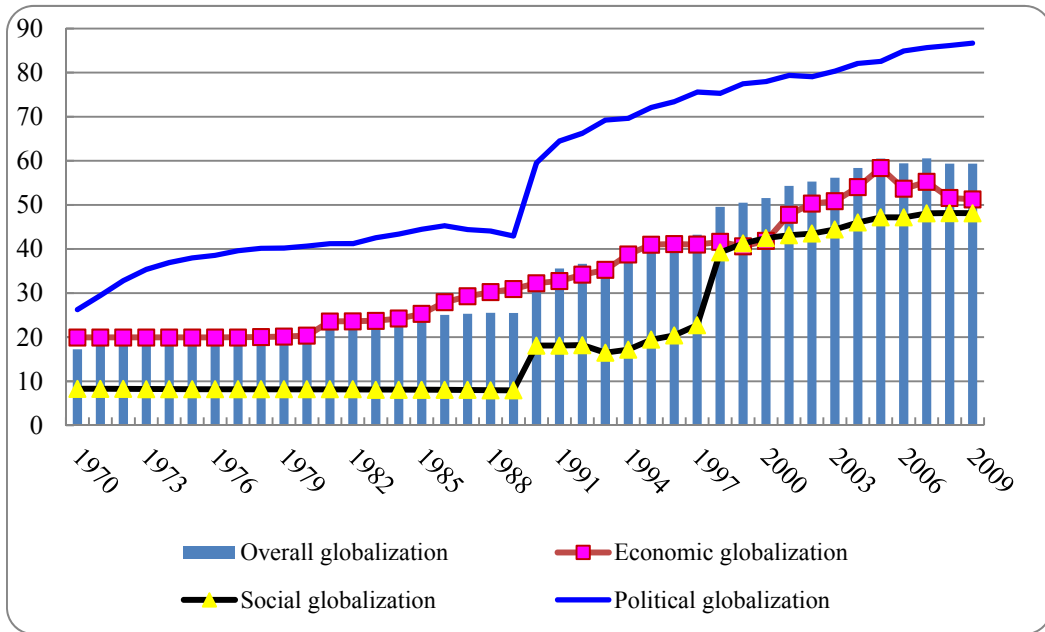
Fig. 4-1 China's trends of globalization as per KOF indexes (1970-2009)

Fig. 4-2 India's trends of globalization as per KOF indexes (1970-2009)

4.4. Data, Model and Estimation Procedures

Most of the data used in this paper were taken from the World Bank's World Development Indicators, 2011. For openness, I use data from the KOF Index of Globalization sub-index for economic globalization. The data period for India covers 1970 to 2009, while for China it covers 1978 to 2009. [32]

The basic model specification is from the imperfect substitution theory framework [33]. Based on both Keynesian and Neoclassical economics, the total imports demanded by a country is related to its real expenditure or income (or another scale variable capturing domestic demand conditions) and relative price (i.e. the ratio of import to domestic prices). The standard mathematical form of import demand can be shown as[34]

$$IM_t = Y_t^{\beta_1} RP_t^{\beta_2} e^{\beta_0 + u_t} \tag{1}$$

Where u_t is the error term, IM_t the import demand at time t, Y_t real domestic output (GDP), and RP_t a relative price (the import price index deflated by a GDP deflator) at time t. Generally, the expected signs for coefficients are $\beta_1 > 0$ and $\beta_2 < 0$, representing the income and price elasticities, respectively, of import demand.

The log-linear specification for eqution1 is stated as follows:

$$\ln IM_t = \beta_0 + \beta_1 Y_t + \beta_2 RP_t + u_t \tag{2}$$

To test the Melo-Vogt hypotheses, I extend the model to include the cross term containing the economic globalization index.

$$\ln IM_t = \alpha_0 + \alpha_1 \ln Y_t + \alpha_2 \ln RP_t + \alpha_3 EF_t * \ln Y_t + v_t \tag{3}$$

$$\ln IM_t = \gamma_0 + \gamma_1 \ln Y_t + \gamma_2 \ln RP_t + \gamma_3 EF_t * \ln Y_t + \gamma_4 EF_t * \ln RP_t + \omega_t \tag{4}$$

where EF_t refers to the economic globalization index that is sub-index of KOF Index at time t. The other definitions are as defined previously. In Equation 3, if parameter $\alpha_3 > 0$, the first Melo-Vogt hypothesis is confirmed. In Equation 4, If $\gamma_3 > 0$ and $\gamma_4 < 0$, both hypotheses are

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[32] Since China's import data for 1970-1977 could not be obtained, the data set begins with 1978.

[33] For details, see Carone (1996, p. 3).

[34] The relevant literature references, see Chapter 2.

confirmed.

An important difference between my study and the extant literature is in introducing the cross term. To consider the economic impacts where openness is changing, Melo and Vogt (1984) and Mah (1999) divided the sample period into two, taking a particular year as the dividing line, introduced a dummy variable and assessed the impact using the dummy variable coefficient. However, Melo and Vogt (1984) and Mah (1999) have significant problems. The former does not consider stationarity (nonstationarity) of the variables and therefore cannot rule out spurious regression. The latter performed unit root tests on the variables but did not consider cointegration.

In this article, I first test for unit-roots in my variables following the usual convention. The ADF test indicates that the relevant model variables are nonstationary and integrated of the order of one irrespective of whether the data are from China or India (Tables 4-A-2 and 4-A-3). To find long-run relationships between the variables, I perform tests based on Hansen (1992) considering structural changes. For estimation, I use Phillips and Hansen's (1990) fully modified Ordinary Least Squares (FMOLS) approach, also use by Hansen (1992), and Stock and Watson's (1993) dynamic OLS (DOLS) approach.

4.5. Empirical Results

As observed in the introduction, my main objective is to compare the effects of economic openness between China and India.

Tables 4-1, 4-2 and 4-3 present results for China based on Equations 2, 3 and 4, respectively. As is clear from the LC statistics, none the test statistics are significant at the 20% level and thus none of the equations suggest instability. In other words, even if structural change is considered, the null hypothesis that a co-integrating relation exists is adopted.

From Equation 2, expressing a traditional import demand function, results for the two estimation methods (DOLS and FMOLS) are nearly the same. And the sign conditions are satisfied. The income coefficients are 1.468 and 1.404, while the relative price coefficients are -0.899 and -0.852, respectively. In Equation 3, which includes a cross term for openness and income, the sign conditions are satisfied, but the estimation results differ from those for Equation 2. Looking at absolute values, both income elasticity and price elasticity are lower. Of particular interest is that the cross term coefficients, at 0.188 and 0.127, respectively, are positive and statistically significant at the 1% level. That shows that, as openness increases, import demand income elasticity increases. The first Melo-Vogt hypothesis, therefore, is supported. In equation 4, which was used to test both of the Melo-Vogt hypotheses, the

coefficients for the cross terms for openness and income are positive and statistically significant, as was the case for Equation 3. In contrast, however, neither of the cross term coefficients for openness and relative prices was statistically significant. The second Melo-Vogt hypothesis, therefore, is not supported.

Moving on to a comparison of empirical results obtained for India to those for China, Tables 4-4, 4-5 and 4-6 show the results obtained with Equations 2,3 and 4, respectively. Based on Hansen test results, the null hypothesis is adopted for all results, except the FMOLS estimation results shown in the Table 4-4, and the existence of long-run relationships between variables is supported. The greatest difference in comparison to the results obtained for China is that almost none of the coefficients for relative prices are statistically significant in the case of India. Equation 2 produced import demand income elasticities of 1.814 and 1.807, respectively. These values are larger than those obtained for China, but the absolute values for price elasticity were small and not statistically significant.

Table 4-5 presents the results obtained with Equation 3, which adds to Equation 2 the cross term for openness and income, and the table clearly shows that the cross term coefficients are positive and statistically significant. In the case of India, as well, therefore, the first Melo-Vogt hypothesis is supported. However, with coefficients of 0.082 and 0.075 – figures smaller than those obtained for China – it can be said that openness is progressing more rapidly in China than in India and that the impact on the economy is larger[35]. The results of Equation 4 produced cross term coefficients for openness and relative prices that were not statistically significant. Similar results were obtained for China.

From the preceding discussion, it is clear that the second Melo-Vogt hypothesis does not hold for either of the two developing countries examined. These results are consistent with the conclusion of Mah (1999), who examined the applicability of the Melo-Vogt hypotheses to Thailand.

4.6. Conclusions

The question as to what sort of openness increases economic development is often hotly debated. This article tested the applicability of the Melo-Vogt hypotheses to China and India – the most-discussed countries in the twenty-first century. The two defining characteristics of this article are,

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[35] In the "2012 KOF Index of Globalization", China was reported as having an economic globalization index of 51.25, significantly higher than that of India at 43.73.

(1) the addition of a cross term, including openness, to the traditional import demand function model

(2) testing for cointegration between variables, considering structural change

From my analysis, three major points can be made.
First, the first Melo-Vogt hypotheses on positive correlation between the absolute value of income elasticity of import demand and openness is supported. This is confirmed for both China and India.

Second, the second of the Melo-Vogt hypotheses on positive correlation between the absolute value of price elasticity of import demand and openness is not supported, consistent with Mah (1999).

Third, the cross term coefficients for openness and income are larger for China than for India, indicating increasing openness and greater economic impact in China than in India. This should provide countries food for thought on World Bank's policy prescriptions and contribute to understanding the nexus between openness and growth.

Table 4-1:   Estimated result for Equation 2 (China)

Technique	Variable	Estimate	SE	p-value	adjR^2	Hansen
DOLS						
	lnY	1.468	0.044	0.000		0.059
	lnRP	-0.899	0.108	0.000	0.990	(P>0.2)
	Constant	-14.820	1.199	0.000		
FMOLS						
	lnY	1.404	0.042	0.000		0.157
	lnRP	-0.852	0.134	0.000	0.983	(P>0.2)
	Constant	-12.778	1.156	0.000		

Notes: DOLS - lead and lag are set to be one.

Hansen   (1992) Lc   (m2=2, k=0) p-values, where m2=m-p2 is the number of stochastic trends in the asymptotic distribution.

Table 4-2:   Estimated result for Equation 3 (China)

Technique	Variable	Estimate	SE	p-value	adjR^2	Hansen
DOLS						
	lnY	0.662	0.129	0.000		0.118
	lnRP	-0.738	0.060	0.000	0.996	(P>0.2)
	EF*lnY	0.188	0.030	0.000		
	Constant	5.267	3.219	0.121		
FMOLS						
	lnY	0.891	0.118	0.000		0.188
	lnRP	-0.777	0.081	0.000	0.987	(P>0.2)
	EF*lnY	0.127	0.029	0.000		
	Constant	-0.108	2.915	0.971		

Notes: DOLS - lead and lag are set to be one.

Hansen   (1992) Lc   (m2=3, k=0) p-values, where m2=m-p2 is the number of stochastic trends in the asymptotic distribution.

Table 4-3:   Estimated result for Equation 4 (China)

Technique	Variable	Estimate	SE	p-value	adjR^2	Hansen
DOLS						
	lnY	0.727	0.172	0.001		
	lnRP	-1.578	0.576	0.018	0.996	0.117 (P>0.2)
	EF*lnY	0.191	0.034	0.000		
	EF*lnRP	3.013	1.784	0.117		
	Constant	3.430	4.370	0.448		
FMOLS						
	lnY	0.867	0.146	0.000		
	lnRP	-0.631	0.466	0.187	0.987	0.234 (P>0.2)
	EF*lnY	0.130	0.031	0.000		
	EF*lnRP	-0.395	1.517	0.797		
	Constant	-0.530	3.670	0.886		

Notes: DOLS - lead and lag are set to be one.

Hansen   (1992) Lc   (m2=4, k=0) p-values, where m2=m-p2 is the number of stochastic trends in the asymptotic distribution.

Table 4-4:   Estimated result for Equation 2 (India)

Technique	Variable	Estimate	SE	p-value	adjR^2	Hansen
DOLS						
	lnY	1.814	0.090	0.000		
	lnRP	-0.101	0.333	0.765	0.988	0.020 (P>0.2)
	Constant	-23.847	2.271	0.000		
FMOLS						
	lnY	1.807	0.047	0.000		
	lnRP	-0.257	0.181	0.164	0.990	0.429 (P=0.069)
	Constant	-23.614	1.252	0.000		

Note: Same as Table 4-1.

Table 4-5: Estimated result for Equation 3 (India)

Technique	Variable	Estimate	SE	p-value	adjR^2	Hansen
DOLS						
	lnY	1.600	0.168	0.000		
	lnRP	-0.108	0.242	0.660	0.992	0.030
	EF*lnY	0.082	0.036	0.030		(P>0.2)
	Constant	-18.679	4.185	0.000		
FMOLS						
	lnY	1.536	0.115	0.000		
	lnRP	-0.255	0.131	0.060	0.991	0.228
	EF*lnY	0.075	0.028	0.012		(P>0.2)
	Constant	-16.997	2.852	0.000		

Note: Same as Table 4-2.

Table 4-6: Estimated result for Equation 4 (India)

Technique	Variable	Estimate	SE	p-value	adjR^2	Hansen
DOLS						
	lnY	1.549	0.212	0.000		0.029
	lnRP	0.701	1.555	0.657	0.991	(P>0.2)
	EF*lnY	0.095	0.047	0.054		
	EF*lnRP	-4.140	7.777	0.600		
	Constant	-17.442	5.251	0.003		
FMOLS						
	lnY	1.479	0.115	0.000		0.313
	lnRP	0.888	0.788	0.268	0.992	(P>0.2)
	EF*lnY	0.098	0.031	0.003		
	EF*lnRP	-5.750	3.907	0.150		
	Constant	-15.649	2.823	0.000		

Note: Same as Table 4-3.

Appendix:

Table 4-A-1: Components of index of globalization

A. Economic Globalization	[36%]		
(i) Actual Flows		(50%)	
Trade (percent of GDP)			(21%)
Foreign direct investment (percent of GDP)			(28%)
Portfolio investment (percent of GDP)			(24%)
Income payments to foreign nationals (percent of GDP)			(27%)
(ii) Restrictions		(50%)	
Hidden import barriers			(24%)
Mean tariff rate			(27%)
Taxes on international trade (percent of current revenue)			(26%)
Capital account restrictions			(23%)
B. Social Globalization	[37%]		
(i) Data on personal contact		(34%)	
Telephone traffic			(25%)
Transfers (percent of GDP)			(4%)
International tourism			(26%)
Foreign population (percent of total population)			(21%)
International letters(per capita)			(25%)
(ii) Data on information flows		(35%)	
Internet users (as a share of population)*			(33%)
Television (per 1000 people)			(36%)
Trade in Newspapers (per cent of GDP)			(32%)
(iii) Data on cultural proximity		(31%)	
Number of McDonald's restaurants (per capita)			(44%)
Number of IKEA (per capita)			(45%)
Trade in books(percent of GDP)			(11%)
C. Political Globalization	[26%]		
Embassies in Country		(25%)	
Membership in International Organizations		(28%)	
Participation in U.N. Security Council Missions		(22%)	
International Treaties		(25%)	

Note: The number in parentheses indicates the weight used to derive the indexes. Weights may not sum to 100 because of rounding. All indexes range between 0 (not globalized) and 100 (globalized).

Table 4-A-2:   Unit Root Test for the Data of China

	1978~2009					
	No Constant		Constant		Constant and Trend	
Variables	Level	First Difference	Level	First Difference	Level	First Difference
lnIM	4.439	-3.388*	**0.572**	**-4.532***	-1.772	-4.810
lnY	3.979	-0.597	**0.279**	**-4.063***	-4.400*	-3.993**
lnRP	-2.295**	-3.143*	**-2.269**	**-3.057****	-1.184	-4.095**
EF	2.288	-4.420*	**-0.873**	**-5.372***	-3.926**	-5.349*
EF*lnY	2.532	-4.310*	**-0.710**	**-5.340***	-2.280	-5.369*

Notes: (1) The maximum number of lags is there.

(2) The order of leg length is selected by the Schwarz-Bayesian Information Criterion (SBIC).

(3) * and ** indicate that the null hypothesis is rejected at 1% and 5% significance level. (the critical values are extracted from MacKinnon (1996)).

Table 4-A-3:   Unit Root Test for the Data of India

	1978~2009					
	No Constant		Constant		Constant and Trend	
Variables	Level	First Difference	Level	First Difference	Level	First Difference
lnIM	6.232	-1.182	**0.696**	**-5.338***	-1.438	-5.566*
lnY	11.125	-0.360	**2.781**	**-7.040***	-2.098	-7.884*
lnRP	-2.617**	-5.695*	**-2.700**	**-5.643***	-2.617	-5.632*
EF	3.773	-2.116**	**1.146**	**-5.238***	-2.054	-5.725*
EF*lnY	4.097	-1.992**	**1.345**	**-5.165***	-1.948	-5.762*

Notes: (1) The maximum number of lags is there.

(2) The order of leg length is selected by the Schwarz-Bayesian Information Criterion (SBIC).

(3) * and ** indicate that the null hypothesis is rejected at 1% and 5% significance level. (The critical values are extracted from MacKinnon (1996)).

Chapter 5

Globalization and Economic Growth in East Asia

5.1. Introduction

The simultaneous progress of globalization (internationalization) and regionalization (regionalism) marks a characteristic feature of the global economy in recent years. Behind the progress of globalization are factors such as rapid advances in information and transportation technologies, deregulation, and liberalization of foreign trade and investment, which resulted in the transfer of hardware, people, finance, and information at a global level and on a huge scale.[36] The systemic framework supporting globalization has changed from the General Agreement on Tariffs and Trade (GATT) to the World Trade Organization (WTO). However, the excessive expansion of the WTO (157 countries) has stymied its ability to form a consensus and left the organization at an impasse.[37] Promoting the liberalization of foreign trade and investment is not easy amid efforts to coordinate the intricate intertwinement of member countries' national interests by multilateral negotiations. Disappointment and disgust with WTO negotiations has been tipping the scale strongly in favor of Free Trade Areas or Free Trade Agreements (FTA) established bilaterally between countries. Amid progressing globalization, the trend today is towards regionalism, of which East Asia can be regarded as a typical example.[38]

Beginning in the 1950s, economic growth in East Asian countries started with the establishment of nation states accompanied by the building of national economies. From the

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[36] Moreover, beginning in the 1980s, there was strong pressure from the U.S. side and also through international finance and foreign trade institutions such as the International Monetary Fund (IMF) and the World Trade Organization (WTO). Based on the so-called Washington Consensus, which refers to a neoclassical economic ideology that asserts maximum welfare and prosperity from every kind of liberalization, individual countries' economic policies were under powerful pressure to move in the direction of liberalization (Hirakawa et al., 2007, p2).

[37] Negotiations at the WTO Doha Round (multilateral negotiations on foreign trade) have collapsed. Doha negotiation rounds treat issues previously deferred because their solution poses difficulty. Main areas of negotiation are agriculture, Non-Agricultural Market Access (NAMA), services, rules (anti-dumping taxes, etc.), development, trade and environment, intellectual property rights (TRIPS), and foreign trade facilitation, etc. Another factor is developing nations' rise to power. Negotiations have from the start brought out the conflicting interests of fully industrialized and developing nations. Today, negotiations that ignore the claims of developing nations would be impossible.

[38] In this chapter, East Asia means the region comprised of Northeast Asia, consisting mainly of China, Japan and South Korea, and Southeast Asia, which is also referred to as ASEAN (Association of Southeast Asian Nations) region. For the purposes of the analysis, however, the scope of subject countries may be changed as necessary for the analysis.

1980s, liberalization was promoted both for trading in merchandise and for financial transactions with a view to further accelerating economic growth. In other words, countries actively took steps to open themselves to capitalism by going global. Multinational corporations, such as those in Japan, introduced mass production competition in East Asia, beginning in the mid-1980s. This competition resulted in organic linkages between production bases that were previously scattered across East Asia. The resulting strengthening of mutual interdependence brought about independent development mechanisms in the region that were not prone to the influence of trends in countries outside the region. In particular, after the Asian currency and financial crisis at the end of the 1990s, East Asian countries hit by the crisis found they were not getting the help they had anticipated from countries outside the region. They realized that intra-regional cooperation, such as FTAs, was necessary if a recurrence of the crisis was to be prevented. This realization was the event that brought East Asia's regionalization to light.

The strongest criticism leveled at regionalism is that it supports inward-turned, closed-off regional blocks, and so threatens to obstruct global liberalization. However, East Asia's regionalism has been propelled by the creation of stabilization measures in the face of economic uncertainty brought about by globalization, which differs from the exclusive economic blocks of the 1930s.

Ultimately, the emergence of regionalism is a stopgap measure to fill a void in the absence of prospects for quick global liberalization through the WTO. Indeed, one could say that the global economy today is running on the two wheels of multilateralism's international trade liberalization negotiations centered on the WTO and economic cooperation based on the regionalism between multiple countries.

This chapter, which concerns itself with the effects of globalization on East Asia, attempts empirical research mainly of internationalization intertwining with globalization and regionalization in East Asia. The chapter starts with a review of East Asia's economic integration over time, before explaining the performance of globalization in East Asia using globalization indicators. Finally, the chapter concludes with an empirical analysis of the effects of globalization on East Asia, both before and after the Asian currency crisis. The objective of this chapter is to establish the true shape of the unique frameworks created in East Asia, which has benefited tremendously from the wave of globalization.

5.2. The formation of the East Asian economic sphere

Globalization is said to be continuing, and the observation leads to questions such as how much has the integration of the East Asian economy actually strengthened, in what ways is East Asia

changing, what kind of position has East Asia come to take in the world, and how far has regional cooperation in East Asia progressed. This section argues that, while East Asian countries are diverse, the region's remarkable economic growth has been associated with increasingly close trade relationships between countries, a strengthening of mutual dependence. With reference to statistical data related to the "*de facto* integration" among East Asian countries, the following explanation focuses on the economic development behind this expansion of foreign trade and the factors promoting economic integration.

5.2.1. Diversity in East Asia

East Asia consists of numerous countries and regions, diverse in terms of ethnicities, languages, and religions. Mutual differences also exist between the region's countries with respect to social and political systems, with wide disparities in land areas, population sizes, and levels of economic development. Table 5-1 shows key economic indicators for 15 countries and regions. The data is from 2010, the most recent available.

Table 5-1: Key economic indicators for countries and regions in East Asia (2010)

	Land area (1,000 sq. km)	Population (million)	GDP (U.S.$, billion)	GDP per capita (U.S.$)	Total Trade (U.S.$, billion)	Economic Growth Rate(real, annual %)	
						1985-1996	1997-2008
Japan	364.60	127.45	5458.84	42831.05	1598.67	3.05	0.94
Korea, Rep.	98.73	48.86	1014.48	20756.69	1034.71	8.56	4.12
China	9572.90	1338.30	5926.61	4428.46	3246.01	10.04	9.90
(Hong Kong)	1.04	7.07	224.46	31757.81	988.31	6.26	3.65
(Taiwan)	36.19	23.14	430.84	18618.64	525.84	7.81	4.11
Indonesia	1811.57	294.56	706.56	2945.58	336.25	7.51	2.95
Malaysia	328.55	28.40	237.80	8372.83	420.42	8.32	4.33
Philippines	298.17	93.26	199.59	2140.12	142.55	3.66	4.16
Thailand	510.89	69.12	318.52	4608.10	430.45	9.13	3.24
Singapore	0.70	5.08	208.77	41122.19	822.68	8.51	5.05
Brunei	5.27	0.40	14.39*	37414.31*	15.24*	1.71	1.65
Vietnam	310.07	86.94	106.42	1224.19	175.96	6.74	7.07
Lao PDR	230.80	6.20	7.30	1176.66	56.34	5.39	6.53
Cambodia	176.52	14.14	11.24	795.17	12.77	-	9.08
Myanmar	667.58	61.19	45.43	742.44	16.00	2.14	12.22

Notes: The data for China's land area is from the Encyclopedia Britannica; * denotes data of 2008.
Source: World Bank (2011); Taiwan data from ADB (2011); Myanmar data IMF (2011).

The East Asia region comprises a mixture of economies at various stages of development. A comparison of GDP, for example, shows extreme economic disparities, on the basis of volume, between China and Laos, and on a per-capita basis between Japan and Myanmar. However, it is because of these economic disparities and economic complementary relations between the member countries that the region's foreign trade and international investment are flourishing. The two columns on the right side of Table 5-1 show the real economic growth rates before and after the Asian currency crisis. As can be seen from the table, East Asian countries and regions after the crisis display high economic growth rates in instances where economic expansion has started comparatively late, such as Vietnam. Comprised as it is of a diversity of countries and regions, East Asia provides various location advantages, a unique characteristic in the context of the region's rapid economic development.

5.2.2. *De facto* economic integration

Despite the diversity in the relations among East Asian countries in terms of economic disparity, depth of historical interaction, and differences in social and political systems, regional integration is progressing in East Asia in step with the strengthening global trend towards regional economic integration. To date, through foreign trade and investment, East Asia has been building relations of intra-regional mutual dependency. Basic statistics are provided by foreign trade matrices that track the changes in the flow of foreign trade between countries over time. These statistics can be used to measure the strengthening of mutual dependencies in foreign trade among East Asian countries.

East Asian countries' strong growth is reflected in their foreign trade statistics. Table 5-2 provides a comprehensive foreign trade matrix for regions and countries centered on East Asia. This matrix includes statistics for the three central economies in East Asia (China, Japan, and ASEAN [39]) as well as the United States, as the country with the strongest influence in the Asia Pacific region, and the EU which as extra-regional foreign-trade counterparty cannot be ignored. Included are also data (2010) for ASEAN+3 and ASEAN+6 which have been a frequent topic of discussion in recent years. This data casts into relief East Asia's characteristic features in global foreign trade over the last 25 years.

Table 5-2 also shows period-to-period growth rates in foreign trade between pairs of referenced economic entities. The values for 1985 were selected for this data set because 1985 marks the year of the Plaza Accord, which had a massive impact on the structure of global trade. The Asian currency crisis occurred in 1997, so the figures are split into two periods around this point.

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[39] As a result of large economic disparities, the combination of Indonesia, Malaysia, Philippines, Singapore, and Thailand is generally called ASEAN-5, while ASEAN overall is referred to as ASEAN-10.

The purpose of this demarcation is to demonstrate regions' and countries' foreign trade performance before and after the Asian currency crisis.

Table 5-2:   Matrix of East-Asia centered regional foreign trade and its growth rates

(Units: U.S. $, million; percent)

Export to Exporting from		China	Japan	ASEAN5	East Asia	EU	USA	World
China	1985	7,148	6,091	2,804	16,043	2,743	2,336	27,329
	96/85	4.99	5.07	3.15	5.17	7.64	**11.44**	5.53
	1996	35,658	30,888	8,830	82,903	20,960	26,731	151,165
	10/96	6.95	3.89	**15.66**	6.97	**14.86**	**10.61**	**10.45**
	2010	247,994	120,262	138,236*	577,866	311,478	283,679	1,580,400
Japan	1985	12,590		11,261	42,551	23,526	66,684	177,189
	96/85	1.73		6.38	4.07	1.46	1.70	2.32
	1996	21,827		71,898	173,201	34,237	113,174	411,302
	10/96	6.86		1.57	2.39	2.54	1.06	1.88
	2010	149,626		112,868*	413,970	87,105	120,483	771,720
ASEAN-5	1985	930	16,351	12,937	36,030	8,312	13,900	68,553
	96/85	**10.25**	2.85	5.87	4.83	5.78	4.40	4.81
	1996	9,531	46,677	75,992	174,191	48,083	61,100	329,499
	10/96	**14.56**	2.19	3.54	3.75	2.45	1.74	3.32
(ASEAN-10)	2010	138,791*	102,364*	268,852*	653,459*	118,009*	106,177*	1,094,542*
ASEAN+3	2010	413,893	248,671	571,782*	1,878,789	560,725	556,331	3,908,276
ASEAN+6	2010	488,203	296,217	615,621*	2,092,039	619,886	594,969	4,368,862
East Asia	1985	21,377	31,722	32,287	122,385	45,056	117,757	364,210
	96/85	4.93	3.75	6.23	5.22	4.31	2.45	3.64
	1996	105,338	118,820	201,090	638,695	194,137	288,164	1,325,848
	10/96	6.57	2.37	3.17	3.61	3.25	2.18	3.44
	2010	692,300	282,113	636,540*	2,308,524	631,249	629,518	4,560,641
EU	1985	6,322	8,916	8,250	31,552	431,965	71,026	729,603
	96/85	2.97	5.09	6.01	5.38	3.28	2.07	2.96
	1996	18,762	45,415	49,575	169,690	1,414,730	146,944	2,161,520
	10/96	6.93	1.12	1.47	2.00	2.37	1.85	2.31
	2010	130,088	50,674	73,061*	339,223	3,351,170	272,179	4,987,300
USA	1985	3,856	22,631	8,039	47,511	52,201		213,146
	96/85	3.11	2.98	5.29	3.80	2.49		2.92
	1996	11,978	67,536	42,508	180,535	130,087		622,949
	10/96	7.67	1.08	1.66	1.72	1.85		2.05
	2010	91,878	72,645	70,434*	311,139	240,589		1,277,630
World	1985	38,189	110,199	58,797	276,070	714,163	327,543	1,874,100
	96/85	4.09	2.85	5.72	4.34	2.89	2.43	2.83
	1996	156,201	313,533	336,386	1,196,774	2,060,800	794,753	5,300,740
	10/96	8.17	1.97	2.81	3.28	2.53	2.24	2.83
	2010	1,275,590	617,694	944,196*	3,928,334	5,222,840	1,779,810	14,994,300

Notes: (1) The value of Chinas foreign trade with China refers to trade by mainland China with Taiwan and Hong Kong; exports by countries and regions to Taiwan reflect the values of Taiwanese import statistics (CIF base) converted to FOB base by multiplying with 0.9; an asterisk designates ASEAN10 values; EU values are EU27 for 2010 and EU25 for other years. (2) East Asia comprises China, Japan, South Korea, Hong Kong, Taiwan and ASEAN5 (Malaysia, Singapore, Philippines, Indonesia, Thailand; values for 2010 are ASEAN10 comprising ASEAN5, Brunei, Vietnam, Lao PDR, Cambodia and Myanmar). (3) ASEAN+3 comprises ASEAN10, Japan, China and South Korea; ASEAN+6 comprises ASEAN+3 India, Australia and New Zealand.

Source: Compiled from IMF Direction of Trade Statistics Yearbooks and Taiwan Trade Statistics.

The base value of comparison is the growth rate for global foreign trade in the bottom right corner of the matrix. The matrix shows that East Asia's growth rates for both periods exceed this base value by far. At the same time, the EU, which features the world's most developed regional integration, exceeds the base value before the crisis but falls short of it later. Comparisons between periods before and after the crisis (respectively 1985-1996 and 1997-2010) show that both Japan and the U.S. registered declines in imports from all of the regions but China's imports rose across the board. Notably, values in bold print, which mark growth rates of 10 percent or higher, all relate to China. These two points clearly demonstrate China's growing presence in global trade. This section will conclude with a few observations about the increasingly close trade relationship between China and ASEAN. Specifically, before the Asian currency crisis, the compound annual export ratio from ASEAN to China recorded a high growth of 10.25 percent. After the crisis, trade flows in both directions grew strongly. Especially China's export rate to ASEAN rose by a remarkable 15.66 percent.

Table 5-3 compares the size of East Asia's foreign trade (total value of foreign trade and intra-regional foreign trade ratios) with that of two big groups, namely NAFTA and the EU.

Table 5-3: Comparison of the foreign trade volumes of East Asia, NAFTA and EU

		Northeast Asia	ASEAN	East Asia	NAFTA	EU
Total trade	1985	513	127	640	740	1,444
(Billion U.S.$)	1996	1,857	666	2,523	1,959	4,222
	2010	6,450	2,039	8,489	4,381	10,210
Intra- Regional	1985	26.13	20.32	38.23	38.70	59.84
trade ratio	1996	36.56	22.82	50.64	44.71	67.01
(%)	2008	37.75	27.06	52.51	49.47	65.93
	2010	40.29	26.37	54.39	42.84	65.64

Notes:
(1) ASEAN data reflect ASEAN10 for 2008 and 2010, and ASEAN5 for other years; EU data reflect EU27 for 2008 and 2010, and EU25 for other years.
(2) Northeast Asia is comprised of China, Japan, South Korea, Taiwan, and Hong Kong. NAFTA is comprised of the U.S., Canada, and Mexico.
(3) Countries' exports to Taiwan have been converted to FOB by multiplying the values of the Taiwanese import statistics (CIF base) with 0.9.

Source: Compiled from IMF Direction of Trade Statistics Yearbooks and statistics by Department of Statistics, Ministry of Finance, Taiwan

In terms of trade volume, in 1985, East Asia and NAFTA were not that different, both being around U.S. $ 0.7 trillion, while the gap between East Asia and the EU was roughly twice as large, at around U.S.$1.444 trillion. Thanks to the rapid growth in intra-regional foreign trade, by 1996, the difference between East Asia and North America had already inverted, and subsequently continued to widen. By 2010, the gap was 1.94 times that between East Asia and NAFTA and 0.83 times the gap between East Asia and the EU.

With regards to the intra-regional foreign trade ratio in East Asia, the following points are worth noting. The East Asian intra-regional foreign trade ratio rose from 38.2% in 1985 to 54.4% in 2010. This number is less than the 65.6% intra-regional foreign trade ratio for the EU, but far higher than NAFTA's ratio of 42.8%. Moreover, Table 3 shows the characteristic trend of strengthening intra-regional mutual relations in East Asia. Firstly, if East Asia is divided into sub-regions of Northeast Asia and ASEAN, each of the sub-regional internal trade ratios falls short of East Asia as a whole. This observation applies at all points in time. What this point demonstrates is that the geographic region of East Asia, as the combination of ASEAN, Japan, China, South Korea, Hong Kong, and Taiwan, is able to form a territory that provides a single, large expanse for economic activity. This is highly meaningful for today's foreign trade with its emphasis on economies of scale. Secondly, after two crises (the Asian currency and economic crisis of 1997 and the global financial crisis of 2008), only East Asia displays stable increases in its intra-regional foreign trade ratio. The NAFTA intra-regional foreign trade ratio declined after 2008, and that of the EU fell on both occasions.

Both the EU and NAFTA are subject to regional governance with binding legal effects, while East Asia has no regulations for regional integration other than the loose ASEAN framework. In this sense, the high economic mutual dependence among East Asian countries has been referred to as "*de facto* integration" (Hiratsuka, 2006).

Lastly, this section concludes with an analysis of the degree of foreign trade linkage for East Asia overall using the Trade Intensity Index. The bilateral export intensity is an indicator of bias in the foreign trade relations between two countries. Indicator readings of 1 or higher point to a close foreign trade relationship between two countries[40].

Table 5-4 reveals that, overall, the values for the bilateral export intensity between two countries or regions in East Asia are often 1 or higher. These values show that the region's growing foreign trade is raising intra-regional mutual interdependence and points to an ongoing formation of close, independent economic networks. In particular, the markets of China and

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[40] The bilateral export intensity is calculated according to the following formula: Bilateral export intensity = (Value of exports from Country *i* to Country *j* / Total value of exports of Country *i*) / (Value of global exports to Country *j* / Value of global exports). (Hirakawa et al., 2007, pp. 227).

ASEAN-10 are becoming more important to East Asian countries and regions. Moreover, each country shows strong ties with ASEAN-10. Of these, Singapore is most integrated with ASEAN-10 (4.78) and has established a central position in the ASEAN region.

Table 5-4: Bilateral export intensity in East Asia by country and region

Export destination	Import destination	Japan		China		Japan, China, and South Korea		ASEAN-10	
		1996	**2010**	1996	**2010**	1996	**2010**	1996	**2010**
Japan				1.79	**2.34**	1.09	**1.82**	2.64	**2.32**
China		3.42	**1.84**			2.23	**0.79**	1.01	**1.39**
South Korea		2.05	**1.45**	2.96	**3.00**	1.85	**2.04**	2.29	**1.79**
ASEAN-5		2.37	**2.30**	0.97	**1.32**	1.81	**1.63**	3.63	**4.08**
	Indonesia	4.32	**3.95**	1.39	**1.20**	3.21	**2.27**	2.28	**3.35**
	Malaysia	2.25	**2.51**	0.81	**1.52**	1.66	**1.77**	4.22	**4.03**
	Philippines	2.99	**3.66**	0.54	**1.33**	1.87	**2.02**	1.94	**3.37**
	Singapore	1.37	**1.12**	0.91	**1.25**	1.29	**1.26**	3.06	**4.78**
	Thailand	2.82	**2.53**	1.13	**1.33**	1.93	**1.54**	3.63	**3.60**

Source: Calculated based on IMF Direction of Trade Statistics 1997, 2011.

5.2.3. Formation factors

There are various factors promoting economic integration in East Asia. The following sections discuss the most significant of these, in particular, the Plaza Accord, the Asian currency crisis, the two organizations of ASEAN and APEC, and the emergence of China.

5.2.3.1. The Plaza Accord

In the context of the regionalization of East Asia, the 1985 Plaza Accord was a formative event.[41]

The Plaza Accord provided the strongest momentum for the strategy of export oriented industrialization (EOI) that was adopted widely across the East Asia region. In the mid 1980s, the group of countries at the time referred to as newly industrialized countries (NICs)[42] was at

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[41] On September 22, 1985, the Group of Five (G5: U.S., Japan, Germany, U.K. and France) finance ministers and central bank governors held a meeting at the Plaza Hotel in New York and agreed to depreciate the U.S. dollar in a concerted action of the five countries. Exchange rate target levels were set and powerful pressure on markets exerted by each country by way of monetary policy alignment. Within twenty-four hours of the announcement, the value of the U.S. dollar to the yen fell around 20 yen from 235 yen and roughly halved to the 120 yen level after a year.

[42] A report released by the Organization for Economic Co-operation and Development (OECD) in 1979 took up the

the so-called "easy stage" after promoting industrialization but was suffering under economic recession due to the narrowness of their domestic markets. In order to exit from the recession, the NICs shifted from their previous strategies of foreign capital control and import substitution industrialization (ISI) to a strategy of export oriented industrialization.

Acting in concert with East Asia's shift to an EOI strategy, Japanese industry also shifted its focus to EOI investment. The impetus for this development was provided by the Plaza Accord of September 1985. Spurred into action by the rapid yen appreciation caused by the Plaza Accord, combined with a serious labor shortage, Japanese industry shifted domestic production bases to locations in the NICs and ASEAN-5, associated with a rapid proliferation of overseas business initiatives. Prompted by the same motives, multinational corporations of the NICs also started to invest in ASEAN-5. These, in turn, achieved rapid industrialization due in large part to the investments made by multinational corporations. On the back of the large influx of strongly export oriented Japanese industry centered on ASEAN-5, for a 10-year period until the outbreak of the Asian currency crisis in 1997, East Asia experienced strong export driven growth summarized by the world as the "East Asian miracle." [43] Moreover, after the Asian currency crisis, this circle widened to include China. Under its policy of "Reform and Opening" in the 1980s, China advanced towards a market economy regime, as well as being late starters among the ASEAN countries. The result was an unparalleled series of economic successes across a wide region.

This industrial transition process is also referred to as "Flying-Geese Pattern of Development". [44] In this development, multinational corporations with their industrial networks located in the region fulfill an important function. Since the East Asia region consists of countries at various development stages, this diversity enables a division of labor between processes by using the variance in factor prices and human capital within the region. In this process, corporations from the industrialized economies, specifically Japan, set up large

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10 countries and regions with the most conspicuous progress in industrialization at the time and coined for them the name "Newly Industrialized Countries" (NICs). Beginning in the 1980s, a period of low economic growth set in, except for the Asian NICs (South Korea, Singapore, Taiwan, and Hong Kong), which for that reason became a focus of attention. In consideration of the international issues attaching to Taiwan and Hong Kong, at the 1988 Toronto Summit the name NICs was changed to NIEs (Newly Industrializing Economies). For the purposes of this chapter, both designations refer to the same four Asian countries and regions.

[43] Referring to a report issued in 1993 by the World Bank entitled "EAST ASIA MIRACLE: Economic Growth and Public Policy, A World Bank Research Report."

[44] The Flying Geese Theory refers to an empirical law discovered by Akamatsu (1943), through statistical research that describes the catch-up industrialization pattern that is typical of the late industrializing countries. According to the 1994 Economic White Paper, "Economic growth in East Asia developed in the order of Japan, NIEs, ASEAN, China, in an industry-structural progress that is occasionally referred to as flying-geese pattern development." The author of this paper holds that due to the Asian currency and economic crisis and China's economic ascent, East Asia's economic development proceeded in the order of Japan, NIEs, ASEAN-5, China and ASEAN-10.

production bases in the regions and proceeded to form intra-corporate networks that included related industries. Industrialization previously concentrated in Japan thus spread to the countries of East Asia. Meanwhile, late-starters began to move to catch up with the industrialized economies.

In this way, the broad-based and sustained move to East Asia made after the Plaza Accord by Japanese multinational corporations significantly contributed to rendering the region a part of the tripartite global economy alongside the EU and NAFTA.

5.2.3.2. The Asian currency crisis

The 1997 Asian currency crisis came as a serious blow to the growing East Asian economy. Under the impact, most countries in East Asia in 1998 posted negative real GDP growth rates. For example, Indonesia and Thailand show a decline of 13.1% and 10.5%, respectively. Various lessons can be drawn from the Asian currency crisis.

Weak economies were obviously a factor in the crisis, and indiscriminate financial liberalization threatening the supply of short-term funds was driving Asian economies to the brink. However, in the context of globalization, international institutions such as the IMF and GATT, created as structural elements of the Pax Americana, had especially promoted the process of financial liberalization. Consequently, much criticism has been leveled at the U.S. and international institutions, particularly the IMF. For example, according to J. E. Stiglitz, the 2001 Nobel Prize laureate for economics, the prime factor causing the currency crisis in East Asia was the coerced economic reform by the IMF and the U.S. Department of the Treasury, enforced as aggressive unilateralism against East Asia to advance U.S. interests. Stiglitz points out that already from the end of the 1980s until the start of the 1990s, the countries of East Asia were under pressure to fully liberalize capital (Stiglitz, 2002). Criticism has been leveled also at the measures prescribed by the IMF for handling the crisis (Radelet and Sachs, 1998).

Occasioned by the Asian currency crisis, drastic changes occurred in the region. Here, the U.S. presented itself as uncooperative in providing funds to Asia and hostile to the creation of an Asian Monetary Fund (AMF). The IMF's faulty remedies as the crisis broke and the stance of the U.S. engendered distrust, connected to the realization that East Asia needed intra-regional economic cooperation. From this insight sprang the move for a regionalism straddling country-specific frameworks. Initially, in the field of economics, the commercial relations between East Asian countries broadened. As a conspicuous development, trade and investment increased between the East Asian economies (Japan, South Korea and ASEAN) and China. Symbolic of this development is China's ascent in 2004 to the position of Japan's biggest partner in foreign trade. Beginning in the mid 1990s, conferences started to be held involving

ASEAN, China, Japan, and South Korea, with a diversity of cooperative efforts getting under way. The intention of these conferences, referred to as ASEAN+3 (ASEAN plus Japan, China, and South Korea), is generally understood to be the promotion of cooperation in the East Asia region, given that member countries are East Asian. Another very notable development in East Asia after the Asian economic crisis is regionalism's remarkable rise to prominence, typically in the form of FTAs.

After the experience of the debilitating financial sector dislocations caused by the Asian currency crisis, painful experience has informed East Asian countries of the need to ensure the stability and development of the financial sector. East Asian countries took it up as an urgent matter to promote intra-regional financial cooperation, as opposed to identifying only a need for developing financial markets in step with the strengthening of appropriate financial supervision in each country. In May 2000, ASEAN-5, Japan, China, and South Korea announced the "Chiang Mai Initiative" (CMI), a multilateral currency swap arrangement to ward off any future currency crises and other abrupt foreign exchange events. The Asian currency crises refreshed the awareness of the risks associated with the deepening of mutual interdependence and created an atmosphere of cooperation. Spurring East Asia into action Asian countries' realization that for their own protection regional self-help frameworks had to be created to protect their economies from being wiped out by an event like the currency crisis in the course of the progressing economic globalization spearheaded by the U.S. In 2008, the global financial crisis caused currencies and foreign currency reserves to plunge in many emerging economies, compelling seven countries to request the help of the IMF. In this environment, East Asian countries escaped a balance of payments crisis in large part thanks to strong balance of payments structures put into place after the lessons drawn from the Asian currency crisis.

5.2.3.3. APEC and ASEAN

Currently a number of layering frameworks exist for the Asia Pacific region. Among them, APEC and ASEAN form two important organizations for the economic integration of East Asia.

ASEAN was at the time of its inception in 1967 predominantly an anti-communist military alliance without an agenda for economic integration, the latter emerging in a gradual change occasioned by the unification of Vietnam in 1976. [45] Today it is the only functioning regional cooperative framework in East Asia engaged in promoting cooperation in the region. APEC, launched in 1989, is a cooperative organization that, unlike all other existing instances of

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[45] ASEAN was incepted on August 8, 1967, in Bangkok, Thailand. The original five member countries were Thailand, Malaysia, Singapore, Indonesia, and Philippines (ASEAN-5). These were subsequently joined by Brunei (January 8, 1984), Vietnam (July 28, 1995), Lao PDR and Myanmar (July 23, 1997), and Cambodia (April 30, 1994) to form ASEAN-10, marking the formation of a regional body that covers all of Southeast Asia.

regional economic integration, that doesn't involve free trade agreements and is based on the principle of voluntary participation with little in the way of established regulations.[46] It is worth noting, however, that from its inception APEC has been seen as integrated into national security guaranty policies under new U.S. strategies.

Until the inception of APEC in 1989, ASEAN was the only organization that had signed treaties with nations in the Asia Pacific region. APEC was not originally welcomed by ASEAN amid open concerns that ASEAN's position and role might be diminished by being imbedded into APEC. Although key members of ASEAN belong also to APEC, the antagonism between ASEAN and APEC began from the inception of APEC as members engaged in efforts to maximize their national interest.

Beginning with the 5th APEC Ministerial Meeting in Seattle, a powerful U.S. initiative has rapidly been gathering information for an economic cooperative organization for the Asia Pacific region, to the extent that at the 6th APEC Ministerial Meeting in 1994, the Bogor Declaration provided for the fully industrialized countries to liberalize their foreign trade and investment by 2010, with industrializing countries to follow suit by 2020. The formation of the ASEAN Free Trade Area (AFTA), by ASEAN in a bid to accelerate intra-regional economic cooperation, must be seen as an expression of opposition to APEC and a reflection of fear of its possible merger into APEC.

Moreover, to the extent that the U.S. looks at APEC as an organization integrated with economic cooperation and national security guarantees, ASEAN too will have to provide propositions for both economic integration and national security guarantees. Out of such concerns, into the 1990s, ASEAN started the ASEAN Regional Forum (ARF) addressing national security guarantees and the ASEAN Free Trade Area (AFTA) addressing economic cooperation. Both are expressions of ASEAN accommodating the new strategies of the U.S.

Additional players among the many economic frameworks existing in the Asia Pacific region and concepts under research or under negotiation are the ASEAN Free Trade Area (AFTA), East Asia Free Trade Area (EAFTA), and the Comprehensive Economic Partnership in East Asia (CEPEA), centered around ASEAN[47], and the North American Free Trade Agreement (NAFTA)

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[46] APEC is short for Asia-Pacific Economic Cooperation. Proposed by Australia's then-Prime Minister Bob Hawke, APEC's first Ministerial Meeting took place in November 1989 in Canberra. Subsequent meetings of ministers for foreign affairs and foreign trade take place in the autumn of each year. APEC started with 12 members comprised of five developing countries, South Korea, and the ASEAN countries. In 1993, the number of members increased to 18 following the admission of China and South American countries in a pattern modeled after the Pacific Economic Cooperation Council (PECC). With the addition of Peru, Russia, and Vietnam, which joined in 1998, members increased further to currently 21. Although it was established after ASEAN, APEC is significantly larger in size. APEC has two main purposes of the liberalization of foreign trade and investment, and economic cooperation.

[47] The idea of a greater East Asian economic sphere is being contemplated in dual track with EAFTA guided by China and South Korea, and CEPEA proposed by Japan but ASEAN holds the key to whether these two concepts will be referred to official inter-governmental negotiations. The former consists of ASEAN+3 and the latter of ASEAN+6.

and the Trans-Pacific Partnership (TPP) centered around the United States.

By its nature, APEC is not so much a regional as a trans-regional body whose charge is limited to reflecting the voice of East Asia (John, 2000). ASEAN, by contrast, bringing to bear its special geo-political nature, even though it is an association of countries much smaller than Japan and China, stresses compliance with ASEAN's leadership position in promoting cooperation in East Asia. ASEAN, hit hard by the Asian currency crisis, resurged on the merits of building the ASEAN+10 country-to-country network and rose again to a central position in the network of Asian (Pacific) nations. (See the next section)

5.2.3.4. China's ascent to prominence

Along with progressing globalization, China's economy grew dramatically. Based on 2010 data, China accounts for 9.4% of global GDP, 9.3% of global exports (global No. 1), and 8.2 percent of global imports (global No. 2). China's foreign currency reserves at the end of March 2006 totaled U.S.$853.7 billion, overtaking Japan and marking the global top rank, and as of March-end 2011, for the first time exceeded U.S.$3 trillion.

The larger China's economy grows, the more it serves to strengthen and spread the division of labor in East Asia. As mentioned already in relation to Table 5-4, the development of East Asia's economy took a new turn after the Asian currency crisis. Tangible expressions of this change are China's economy leaping forward and China's active commitment to regionalism coming to the fore. China's economic growth spurred the rise of the East Asian intra-regional foreign trade ratio and strengthened the East Asian economic integration that Japanese corporations had set in motion.

China, an exception to the Kuznets proposition, is a country with a high degree of external exposure.[48] Since the establishment in 1992 of China's strategy of an export-driven economy, China's export industry has been propelling the country's strong growth. In 2009, China outpaced Germany in exports and rose to the top of the global rankings. China's exports have attracted and enlarged imports, especially from East Asian countries. However, although China is able to sustain a one-country production structure based on low-tech products, it needs intermediate materials and technologies from East Asian countries for products that are based on mid-range and advanced technologies. The expansion of foreign trade between East Asia and neighboring China reinforced the ripple effects on intra-regional foreign trade in East Asia. In

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[48] An empirical law of the Kuznets proposition postulates that among two countries a lower degree of external economic dependency attaches to the one with the larger economy and population. In the global economic history, only China does not conform to this law. Since the start of the 1990s, China's degree of foreign trade dependency has for the most part been fluctuating in the 30-40 percent band. In 2000 and 2001 it exceeded 40 percent and in 2003 China's degree of foreign trade dependency reached 60 percent.

other words, China's proliferating shipments of products to the world have spurred the globalization of the East Asian economy, while the growth in imports of intermediate materials and components from intra-regional suppliers necessary for China's manufacturing has promoted regionalization, thus involving forces that operate in two different directions. In this sense, China works like a magnet for East Asian intra-regional foreign trade.

Moreover, along with its economic development, China has been taking pains to meet its responsibilities as a major economic force. This was particularly true during the two economic crises, when China's performance was conspicuous. In 1998, China's government kept the USD/CNY exchange rate steady to mitigate the ill effects of the Asian currency crisis. In the interim, China-bound exports from ASEAN-5 countries were rising in volume, while China's exports suffered. Subsequently, in stark contrast to the theory of a threatening China, in truth, China's production and foreign trade expansion have contributed much to broadening East Asia's international division of labor. Moreover, after the global financial crisis, real global economic growth in 2009 turned negative at a rate of 2.0 percent, with a particularly steep fall of 4.3 percent in the emerging economies. Meanwhile, East Asia has been seen to post robust growth at a pace of 9.2 percent, driven by the Chinese economy. In the short term, China may be regarded as the engine of growth not only of East Asia but also of the global economy.

5.3. The globalization of East Asia

The previous section demonstrated that East Asia forms a single economic entity marked by *de facto* economic integration. The following section will consider the process of the region's globalization.

5.3.1. The KOF Index of Globalization

Properly defining globalization is not without its problems. Measuring globalization is prone to entail yet more problems. A quantification of the degree of globalization by country was prepared by Dreher at the KOF Swiss Economic Institute. He based his quantification on 23 items in the three main dimensions of globalization, as defined by Keohane and Nye, namely the economic, social and political dimensions (Dreher, 2006, p. 1092).[49] The economic sub-index is measured using actual economic flows, such as foreign trade and foreign direct investment, with added economic restrictions put on metrics, such as imports and capital balance. The social sub-index is built from tri-lateral data related to personal contacts,

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[49] I use the 2011 version of this index as documented in Dreher et al. (2008) which is available at http://globalization.kof.ethz.ch/.

information flows and culture proximity. The political sub-index is computed using data such as the number of international organization memberships as proxy variables. Sub-indices are constructed in a way such that the items associated with each dimension are converted based on a scale from zero to ten according to the method used by Gwartney and Lawson (2002), where upon the respective weights are aggregated. Then the indices of economic, social and political globalization are combined into a single index of overall globalization, providing the respective weight for each dimension. The single index is named after the KOF index of Globalization. The KOF index takes values between 0 and 100, with higher values representing stronger globalization.

5.3.2. The globalization of East Asia based on the KOF index

This section starts with a look at the evolvement of East Asia's globalization gleaned directly from the data charts. Fig. 5-1 shows the development of globalization as measured by KOF indices for the period from 1970 until 2008 for global regions and for the global average. From the data, it is apparent that, as compared to other regions, Europe is leading by far in the development of globalization. Specifically, globalization has continued to deepen after the transformation from EC to EU provided under the Maastricht Treaty (ratified in 1991 and put into effect in 1993).
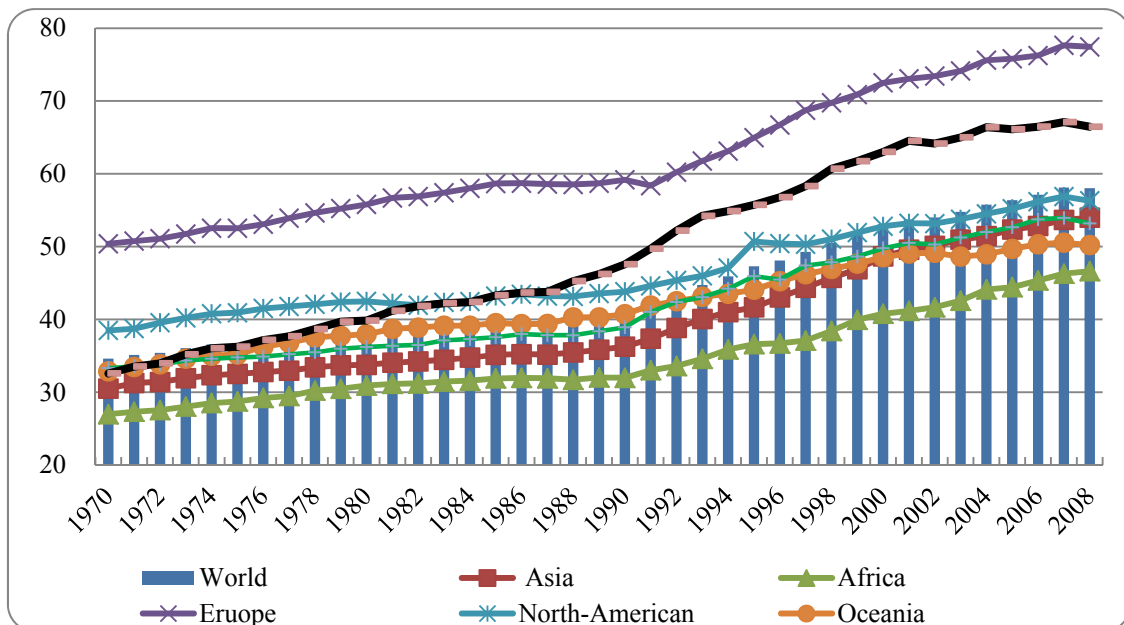
Fig. 5-1: East-Asia Trends of Globalization according to KOF Indexes (1970-2008)

Note: East Asia comprises China, Japan, South Korea and ASEAN-5.
Source: Author's calculation using data from the 2011 version of the KOF Index of Globalization.

In Asia, by comparison, the globalization of East Asia has been progressing steadily since 1970. After outpacing North America in the 1980s, beginning in the mid-1990s, the globalization of East Asia rapidly approached that of Europe. However, this vigor later weakened and globalization fell below that of Europe. These developments respectively reflect the impact of the 1985 Plaza Accord and the 1997 Asian currency and financial crisis mentioned in the previous section. Although both events had positive effects on the regional integration of East Asia, the crisis of 1997 was clearly a hindrance to globalization in East Asia.

Table 5-5: Ratings of globalization (2008)

		Economic Integration 2008		Social integration 2008		Political integration 2008		1970	Summary rating 2008	1970–2008
1.	Belgium	90.95	(5)	90.43	(3)	98.13	(3)	70.71	**92.60**	21.86
2.	Austria	87.58	(12)	91.74	(2)	97.37	(4)	55.89	**91.67**	35.78
3.	Netherlands	90.72	(6)	88.91	(5)	95.11	(7)	67.30	**91.17**	23.87
18.	Singapore	96.80	(1)	78.81	(22)	75.05	(77)	59.67	**84.39**	24.72
27.	United states	71.64	(50)	78.36	(25)	93.60	(15)	61.60	**79.84**	18.24
37.	Malaysia	73.80	(43)	65.05	(58)	85.91	(45)	40.87	**73.22**	32.35
44.	Japan	57.71	(92)	66.90	(48)	88.60	(34)	36.92	**69.14**	32.22
54.	Korea, Rep.	61.59	(79)	53.38	(86)	89.17	(32)	27.06	**65.57**	38.51
60.	Thailand	67.05	(60)	49.06	(104)	81.58	(59)	26.64	**63.97**	37.33
73.	China	50.88	(103)	53.28	(89)	86.65	(41)	18.57	**60.99**	**42.42**
84.	Indonesia	61.73	(77)	32.61	(145)	87.11	(39)	23.12	**57.23**	34.11
85.	Philippines	53.49	(98)	41.55	(129)	85.56	(50)	27.76	**57.22**	29.46
184.	Kiribati			30.43	(153)	21.67	(188)	35.91	**26.89**	-9.02
185.	Solomon Islands			24.29	(177)	27.91	(181)	24.14	**25.75**	1.61
186.	Myanmar			14.02	(197)	35.53	(169)	4.07	**22.72**	18.65

Note: The countries are ranked according to their overall index scores in 2008. Numbers in parentheses signify global rankings.

Source: Compiled by the author using 2011 KOF Index of Globalization data.

Table 5-5 shows the results for the 2008 indices as well as the overall index for 1970 and the changes between 1970 and 2008. In 2008, out of 186 countries the top three positions were held by EU members. Belgium scores highest at 92.60 points. In contrast, the United States retreated to the 27th rank from the top position it held in 2000. ASEAN member Myanmar marked the

bottom at just 22.72 points. Moreover, in East Asia, ASEAN member Singapore scored highest in Asia with the 18th rank on the global scale. This result reflects Singapore's high score for economic integration, which is leading other countries. Notably, despite their 2nd and 3rd ranks in global economic volume, Japan and China ranked 44th and 73rd, respectively, in the summary ratings due to their backwardness in opening their economies. China displays the fastest rise for the 1970-2008 period with an increase of 42.42 points from 18.57 points in 1970 to 60.99 points in 2008.

5.3.3. Advance of globalization by country and region

Table 5-5 and Figs. 5-2 to 5-5 demonstrate the variance in the globalization of East Asia. The following section discusses the development of globalization (especially economic globalization) in East Asia by individual country and region, divided into Japan, China, South Korea, and ASEAN.
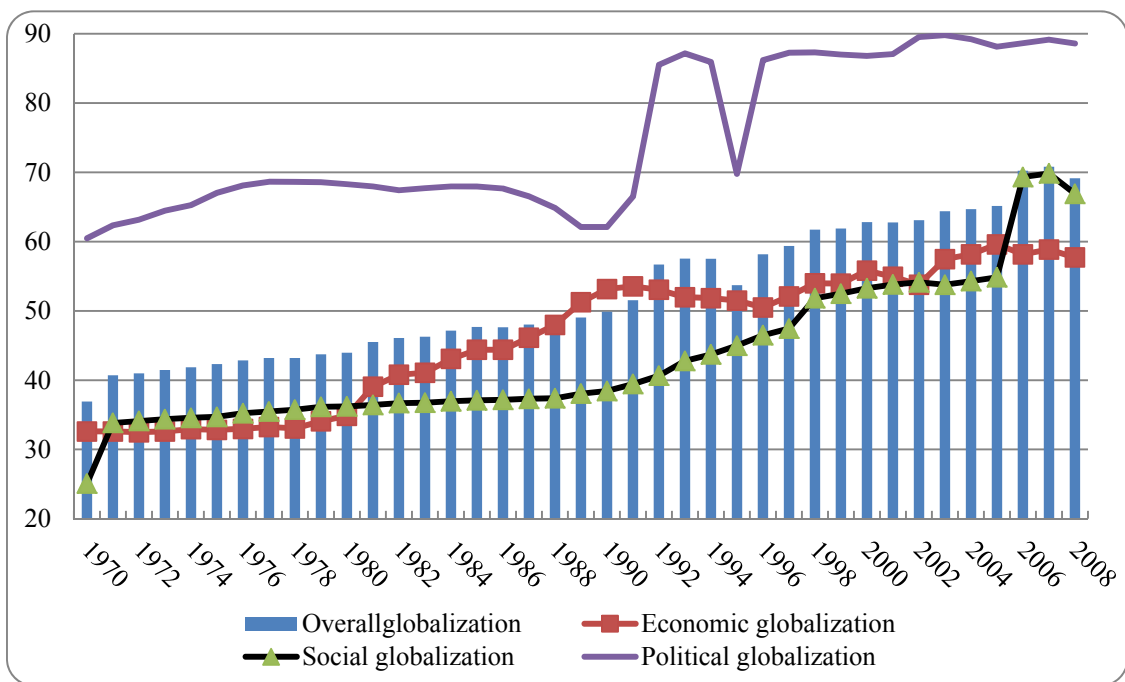
Fig. 5-2 Japan trends of Globalization based on KOF Indexes (1970-2008)

Source: Same as Fig. 5-1
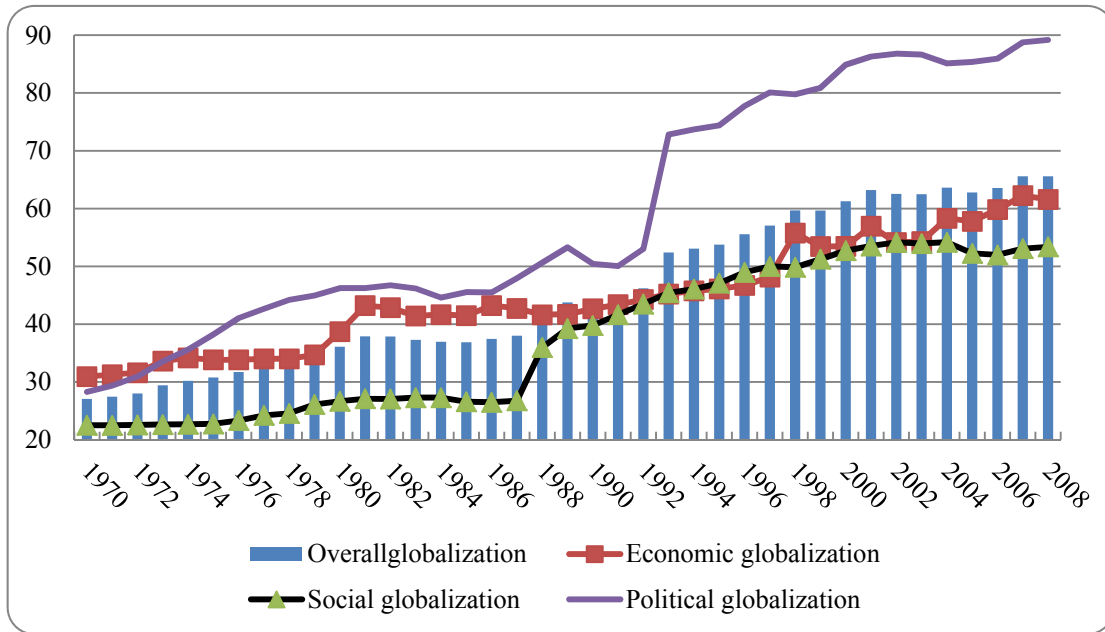
Fig. 5-3 Korea trends of Globalization based on KOF Indexes (1970-2008)

Source: Same as Fig. 5-1.
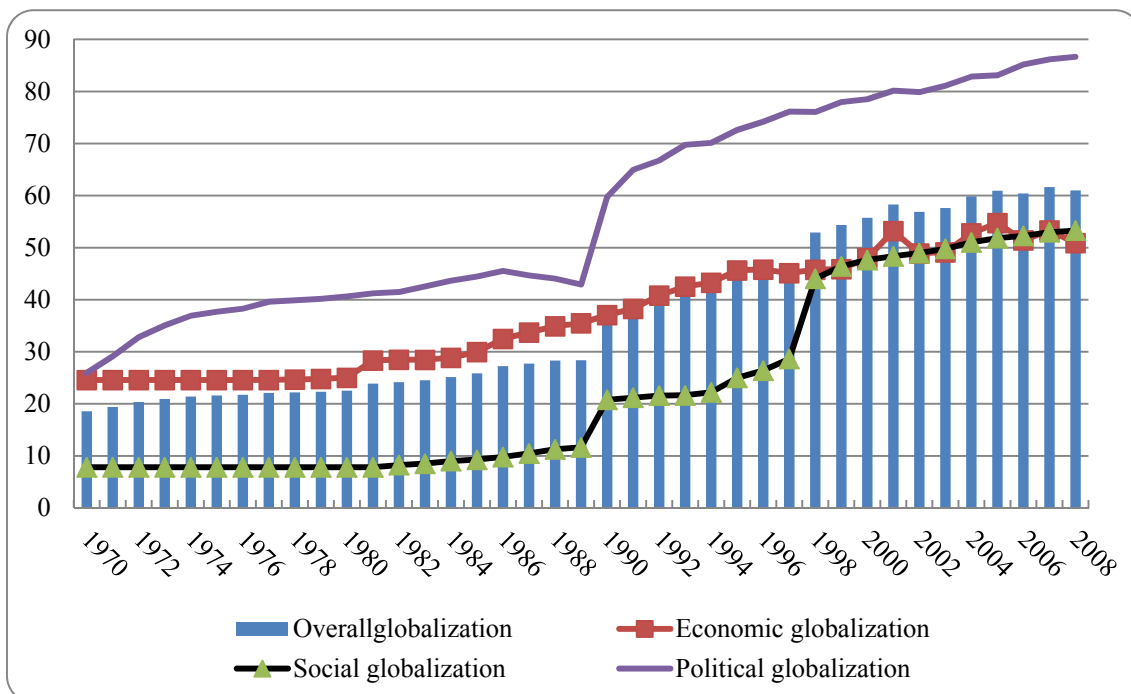
Fig. 5-4 China trends of Globalization based on KOF Indexes (1970-2008)

Source: Same as Fig. 5-1.
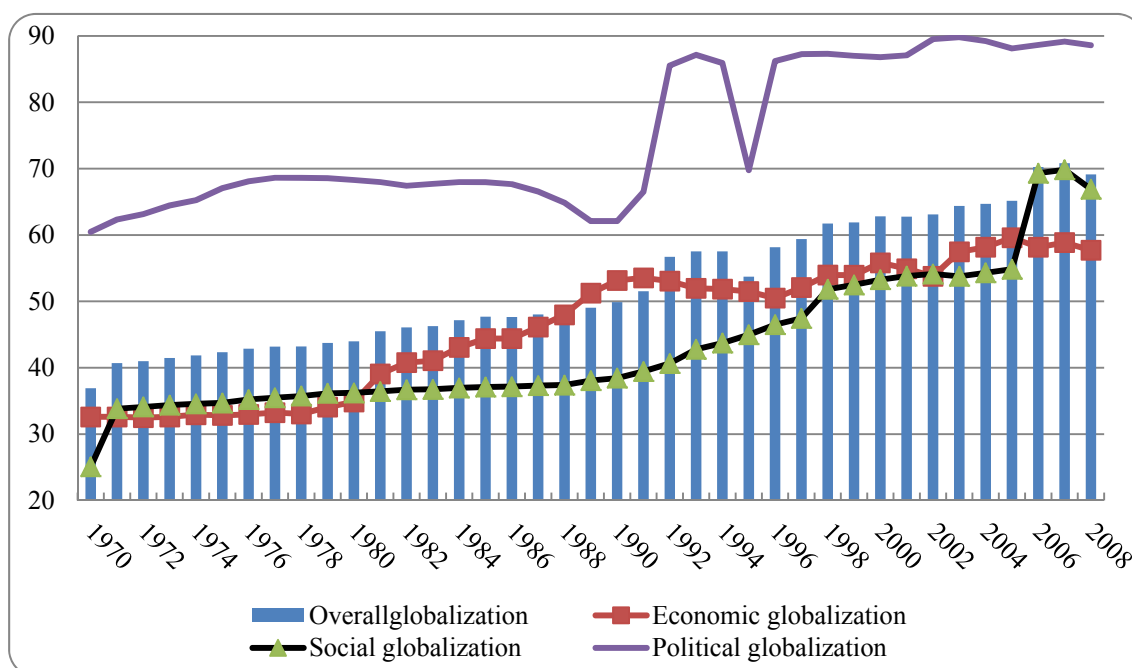
Fig. 5-5 ASEAN-5 trends of Globalization based on KOF Indexes (1970-2008)

Source: Same as Fig. 5-1.

5.3.3.1. Japan

Since joining GATT in 1955, Japan's government has given little attention to bilateral negotiations and not participated in regional free trade treaties (FTAs and customs unions). Instead they have favored multilateralism centered on maintaining and strengthening the multilateral foreign trade systems provide by GATT and its successor organization, WTO.

Into the 1970s, Japan initiated full-scale direct foreign investment (DFI) activities. However, DFI into East Asia was meant to secure natural resources. Beginning in the mid-1980s, intra-regional transactions in East Asia began to proliferate as Japanese corporations set up overseas bases in the region. This development needs some explaining. The background was provided by severe trade friction with the U.S. Subsequently, the 1985 Plaza Accord occasioned a period of explosive growth in direct foreign investment by Japanese corporations. (This development is reflected in the economic globalization chart of Fig. 5-2).

In 1998-1999, Japan's stance on trade changed to a multi-lateral trade strategy that sought to promote FTAs in addition to the previous multilateralism, which was driving foreign trade liberalization through multilateral negotiations at GATT and WTO[50]. The first FTA negotiation

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[50] Japan's government uses the term economic partnership agreement (EPA) instead of FTA. EPA connotes greater comprehensiveness than FTA.

counterpart was Singapore[51]. In December 1999, following Singapore's proposals at a meeting of government leaders in Singapore, it was agreed to set up a joint study group. In September 2000, the study group issued a report that led to the commencement of negotiations in January 2001 and to an actual agreement in October 2001. In January 2002, an Economic Partnership Agreement (EPA) was concluded with Singapore, which took effect in November 2002. After the conclusion of the Japan-Singapore Economic Partnership Agreement, amid widening activities to engage in economic cooperation centered on ASEAN, Japan too began to take active steps toward establishing economic cooperative agreements, including FTAs, with countries in East Asia. In addition to a general global trend toward FTAs, the background to this development was provided by the fact that Japan was unilaterally raising its dependence on East Asia (See Tables 5-2 and 5-4).

To date, however, the predominant view is that Japan's agricultural sector is a major obstacle to Japan's FTA strategy. Given Japan's difficult bargaining position surrounding agricultural products, trade-offs that Japan finds acceptable will have to be re-defined and strategies re-formulated. At the end of 2011, Japan's Prime Minister Noda announced plans to participate in negotiations to allow Japan to participate in the Trans-Pacific Partnership. With sweeping tariff reductions on agricultural products now unavoidable, Japan is under acute pressure to reform its agricultural sector.

5.3.3.2. South Korea

South Korea's economic development strategies have been fashioned after their Japanese counterparts. As a result, in the period from 1963 until 1996, South Korea experienced economic success with annual economic growth rates as high as 8.8 percent, often referred to as South Korea's "Han river economic miracle." The consensus is that, during this period of economic success, South Korea maintained a state-directed economy. Since the 1960s, amid efforts by the South Korean government to promote full-scale export-oriented industries, exports (and later foreign direct investment) of South Korean corporations have been rising. Along with economic development, calls started to be made to open domestic markets and to revaluate the won. Under pressure from its economic partner countries, South Korea submitted to an economic liberalization program designed to establish a market economy. In 1993, South Korea's administration, under Kim Young-sam, initiated financial market liberalization and globalization and accelerated the implementation of liberalization measures to meet the membership requirements in order to acquire OECD membership in 1996 (In Fig. 5-3, this

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[51] The earlier conclusion of the Japan-Singapore Economic Partnership Agreement is due to easier negotiations facilitated by the fact that foreign trade in agricultural products is practically not included.

effort is reflected in the economic globalization graph which turns higher in 1997.)

In the wake of the 1997 financial crisis, Korea experienced difficulties that it overcame not by closing domestic markets to the outside, but by accelerating its efforts at globalization. South Korea's administration under Kim Dae-jung, which emerged at the end of 1997 amid a worsening currency crisis, implemented four sweeping reform programs (finance, industry, labor, and public sector) coerced by the IMF's pressure of conditionality. Under the strong leadership of President Kim Dae-jung, financially weak conglomerates were dismantled, non-performing loans were written off, the financial system was refloated, and solicitation was stepped up to attract foreign capital. As a result, South Korean economic policy shifted from government directives and national interventionalism on a grand scale to a market economy regime.

Moreover, like Japan, Korea had maintained a government stance that emphasized multilateral foreign trade systems supported by GATT and the WTO. Until the start of the 2000s, South Korea was trailing Japan in its efforts at establishing FTAs, but it stepped up its activities at the beginning of 2003. By 2006, South Korea's negotiations had resulted in agreements with Chile, Singapore, and the European Free Trade Association (EFTA), followed by ASEAN, India, and the United States.

5.3.3.3. China

At the Third Plenary Session of the 11th CPC Central Committee in 1978, out of misgivings about the previous system of a centralized planned economy, China embarked on its policy of "Reform and Opening." Subsequently, along with developing a commodity-type market economy, China strengthened its links to international markets.

After the initial stage from the 1980s, Deng Xiaoping, in his "Southern Tour" in 1992, affirmed China's shift to a market economy as well as large-scale foreign investment, marking the full opening of the country to the outside. With 1992 as the watershed, the balance of foreign direct investment (FDI) into ASEAN and China inverted, with the gap continuing to widen thereafter. Using export-oriented foreign capital as leverage, China was able to maintain high economic growth rates over the long term and to further strengthen its position in global foreign trade. Since the start of the 1990s, China has been forming layers of frameworks to open increasingly wider areas to the outside, advancing from special economic zones to the coastal regions and still further to inland regions.

Moreover, with the country's WTO membership in 2001, the gates to China's economy were fully opened to the world. Achieving WTO membership was an epoch-making event. On the one hand, in its foreign trade, investment, and service transactions, the step encouraged China's

entry to international systems and the acceptance of their rules. On the other hand, it spurred the removal and mitigation of various barriers in China's economic relations, with the possibility of accelerating intra-regional investment and foreign trade. In particular, WTO membership placed China in the same policy environment as ASEAN countries, resulting in the confluence of China's and ASEAN countries' previously distinct production networks to form a large integrated production base covering the whole of East Asia.

Like others, China had been shy of multilateralism, but with the acquisition of ARF membership in 1994, changed its stance to actively pursuing multilateral arrangements. China had previously taken a cautious stance against FTAs, which it perceived as an "anti-regional block," but then changed to a more flexible approach in the face of an accelerating trend among other countries to enter into FTAs. Hence, it was China and not Japan who took the initiative in the creation of East Asia's regionalism. At the ASEAN-China Leaders Summit in 2000, China proposed to establish a working group to explore the possibility of an FTA between ASEAN and China. In 2001, China formally proposed an FTA to ASEAN. And at the ASEAN-China Leaders Summit held in Phnom Penh in November 2002, the China-ASEAN Free Trade Area (CAFTA) was inaugurated as government leaders were calling for the promotion of market integration in foreign trade and investment between ASEAN and China. The FTA between China and ASEAN marked an important step on the way to the integration of East Asian economies, which will likely serve as the foundation for a wider East Asian free trade area in the future.

5.3.3.4. ASEAN

The intra-regional cooperation among ASEAN countries, which has a history of over 40 years since its launch in the form of the Bangkok Declaration, is frequently cited as a success story of regional economic integration among developing nations. Internally, however, forces have been active within the ASEAN region that is working in two entirely different directions. One is a drive aimed at the independence of the ASEAN region. The other seeks economic integration with regional outsiders, with the ASEAN countries at the center.

In the first nine years after its formation in 1967, ASEAN's intra-regional cooperation underwent certain developments. The first ASEAN Summit in February 1976 marked the effective launch of ASEAN as a regional cooperative institution. The period from the 1970s until the 1980s saw the formation of the Preferential Trading Arrangements (ASEAN PTA, 1977), the ASEAN Industrial Projects (AIP, 1976) and the ASEAN Industrial Complementation (AIC). Coordinating national interests proved difficult, however, and the hoped-for results failed to materialize. Into the 1990s, marking a more auspicious period for economic integration, AFTA, along with the ASEAN Industrial Cooperation (AICO) scheme and the ASEAN

Investment (AIA) became a reality.

In particular, the AFTA agreement took ASEAN intra-regional economic cooperation to a new stage. Launched in 1993, AFTA aimed to remove tariffs and non-tariff barriers between member countries and to achieve complete liberalization of intra-regional foreign trade by 2015 with the creation of a free trade zone.[52] The main objective of AFTA is not to raise the intra-regional foreign trade ratio of ASEAN members, but to increase the competitive strength of ASEAN products in global markets. In other words, the main objective of AFTA is to attract FDI from outside the region to boost the competitive strength of products manufactured in ASEAN countries. Imada (1993) assesses AFTA as strongly proactive: "Considering the slow progress made by ASEAN in intra-regional economic cooperation over the last 25 years, AFTA can be credited as a quantum leap on the way to achieving it."

ASEAN has used FTAs as its foreign trade strategy, which it regards as a tool for attracting investment, and since 1993, has pursued a policy of FTA creation centered on East Asia. In 1997, the Hanoi Action Plan was agreed on as a roadmap to "Vision 2020," the future shape of ASEAN, which had ASEAN launch proactive campaigns for FTAs with extra-regional partners such as China and Japan. In addition, the action plan resulted in arrangements by the ASEAN Regional Forum and ASEAN+3, not only in the economic realm, but also in relation to political and national security issues. ASEAN initiatives also reached beyond regional boundaries to establish interaction with Europe. A result was the Asia Europe Meeting (ASEM), which probes for possible new cooperative relations based on an equal partnership between Asia and Europe.

Already before the formation of ASEAN+3, ASEAN had created channels for individual talks with extra-regional countries such as the United States, Australia, Canada, Japan, China, and South Korea. In addition, after the creation of ASEAN+3, ASEAN maintained cooperative "ASEAN+1" cooperative frameworks between itself and Japan, China, and South Korea. Today, ideas exist, with ASEAN at the core, for the East Asia FTA (EAFTA), comprised of ASEAN plus Japan, China, and South Korea, and for the Comprehensive Economic Partnership in East Asia (CEPEA), consisting of ASEAN+3+3, that is, ASEAN plus Japan, China, and South Korea, plus India, Australia, and New Zealand. These multiple layers of cooperative relationships in East Asia exist because of the pre-existing system of ASEAN regimes and organizations. At present, the channels for talks provided by ASEAN+3 and ASEAN+1 serve as the propellants

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[52] In 1992, ASEAN launched AFTA, established the Common Effective Preferential Tariff (CEPT), and for applicable items (Include List, IL) set a zero-tariff goal to be reached by 2015. Subsequently, concurrent with an accelerated tariff reduction, the original members (ASEAN-5 plus Brunei), with some exceptions, lowered intra-regional tariffs to the 0%-5% range by 2002, reaching the stage where reaching a zero-tariff by 2010 appeared possible. New members were required to lower intra-regional tariffs on CEPT items to 5% or less, with deadlines set to 2006 for Vietnam, 2008 for Lao PDR and Myanmar, and 2010 for Cambodia, and with a subsequent tariff cut to zero by 2015. (Ishikawa et al., 2010)

for promoting cooperation in the East Asia region.

5.4. The effects of globalization on East Asia

The previous section considered the globalization of Asia using the KOF indices. In the global economic terms, the economy of the East Asia region has enjoyed spectacularly high growth rates since the beginning of the 1970s. This section seeks to answer questions as to the magnitude of the benefits reaped from globalization and how the performance of globalization changed before and after the 1997 currency crisis and the havoc it brought upon the East Asian economy (with the exception of China). The analysis is based on panel data. The data used for the analysis relate to individual East Asian countries for the years from 1985 until 2008. [53] The variables used for the analysis are the KOF overall indices and sub-indices as well as variables frequently used for growth regression (general government final consumption expenditure; gross capital formation), variables for measuring human capital (school enrollment rate; life expectancy) and proxy variables for economic stability (inflation rate), among others. Table 5-6 shows the definitions for each variable.

Table 5-6:   Variable definitions

Variable	Definition
Log (GDP per capita)	GDP per capita is gross domestic product divided by midyear population.
KOF Index	Overall index of globalization; Index of economic integration; Index of social integration; Index of political integration.
General government final consumption expenditure (in percentage of GDP)	General government final consumption expenditure includes all government current expenditures for purchases of goods and services (including compensation of employees)
Gross capital formation (in percentage of GDP)	Gross capital formation consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories.
Log (life expectancy)	Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.
School enrollment, secondary (gross)	Gross enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown.
Inflation rate (annual)	Measured by the consumer price index. The Laspeyres formula is used.

Source: World Bank (2011) except for KOF Indices

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[53] Since data for the sample period were available only for China, Japan, South Korea, and ASEAN-5, the empirical analysis was conducted using the date for these eight countries.

5.4.1. Empirical analysis before the Asian currency crisis

The analysis starts with an examination of the relation between globalization and per-capita GDP in East Asia using data before the currency crisis for the period from 1985 until 1996. Table 5-7 shows the empirical results.

Table 5-7: Per capita GDP and globalization (1985-1996)

	Case 1	Case 2	Case 3	Case 4
Overall index of globalization	3.127 (19.81*)	2.001 (6.29*)	3.062 (19.67*)	
Index of economic integration				1.937 (5.80*)
Index of social integration				1.934 (9.33*)
Index of political integration				0.244 (2.63*)
General government final consumption expenditure (in percentage of GDP)	-4.303 (-6.65*)	-3.867 (-4.82*)	-3.909 (-6.30*)	-4.773 (-8.86*)
Gross capital formation (in percentage of GDP)	0.727 (3.62*)	0.745 (3.18*)	0.652 (3.35*)	0.521 (3.04*)
Log (life expectancy)		3.120 (2.98*)		
School enrollment rate, secondary (gross)		0.685 (3.09*)		
Inflation rate			0.650 (3.09*)	
Number of observations	96	81	94	96
Adjusted R-square	0.893	0.998	0.897	0.999
Hausman test (Prob > F)	0.509	0.004	0.162	0.000

Notes: Robust (White) t-statistics are shown in parentheses:

   * Significant at the 1% level, ** significant at the 5% level, ***significant at the 10% level.

Table 5-7 shows high readings for all coefficients of determination adjusted for degree-of-freedom, demonstrating a good fit with the model. Moreover, variables' coefficients are without exception significant at a significance level of 1 percent. In Cases 1 through 3 the overall globalization index coefficients are in all instances positive and statistically significant. Case 4 shows that the coefficients for three sub-indices are positive and statistically significant.

The coefficients values suggest that economic integration and social integration contributed strongly to growth while the contribution from political integration was low.

For government consumption variables and capital formation variables, the results are consistent with those of Dreher (2006). In other words, "Higher domestic investment as a share of GDP should lead to higher growth" and "Higher government consumption over GDP leads to lower growth." However, the inflation rate coefficient is positive and significant, contradicting the findings of Dreher (2006). Lastly, the two human capital proxy variables show a positive impact on economic growth. The demographic bonus is a major factor in enabling high savings and investment sustained over the long term. Moreover, the World Bank in its 1993 report identifies an emphasis on education as a factor contributing to the high economic growth rates attained in Asian countries.[54]

5.4.2. Empirical analysis after the Asian currency crisis

To examine the change in the performance of globalization after the 1997 currency crisis, the sample period was changed to the years from 1997 to 2008. The empirical analysis was carried out using the same formularization as in Table 5-7. Table 5-8 shows the analysis results.

Table 5-8 shows that overall globalization index coefficients for Cases 1 through 3 are in all instance positive and statistically significant. However, a comparison with Table 5-7 reveals a tendency to contraction. This finding suggests that the influence of globalization on economic growth weakened after the crisis. As mentioned already in the discussion of Fig.5-1, East Asia's globalization lost vigor after the crisis. In this context, the changes in the readings of the sub-index coefficients in Case 3 are worth noting. The economic integration and social integration coefficients have contracted. Specifically, the social integration index has declined from 1.934 in Table 5-7 to 0.523 in Table 5-8. In contrast, the political integration coefficient has climbed from 0.244 to 1.031. Fig. 5-2, 5-3 and 5-4 show that the probable reason for this change is the progress in the political integration of Japan, South Korea, and China. The coefficients for the capital formation variable in Tables 5-8 and 5-7 are almost unchanged. In Table 5-8, the government consumption and inflation coefficients are in many instances statistically not significant. As an intriguing point, life expectancy coefficients have risen strongly. Despite projections that the period of East Asia's demographic bonus is rapidly approaching its end due to falling birth rates and demographic aging, the positive effects on economic growth are still strong.

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[54] A report entitled "EAST ASIA MIRACLE: Economic Growth and Public Policy" published in 1993 by the World Bank mentions "benign fundamental economic conditions" as a factor contributing to countries' strong growth. By implication, this refers to a savings rate of over 30 percent in preparation for the future and a labor force with a comparatively high education which are considered fundamental conditions for self-sustained development.

Table 5-8: Per capita GDP and globalization (1997-2008)

	Case 1	Case 2	Case 3	Case 4
Overall index of globalization	3.034 (7.62*)	0.936 (2.10**)	3.042 (7.61*)	
Index of economic integration				1.591 (3.95*)
Index of social integration				0.523 (1.90***)
Index of political integration				1.031 (3.47*)
General government final consumption expenditure (in percentage of GDP)	-1.304 (-1.04)	-2.583 (-2.72*)	-1.064 (-0.82)	-0.971 (-0.74)
Gross capital formation (in percentage of GDP)	0.629 (2.08**)	1.547 (4.29*)	0.678 (2.18**)	0.671 (2.28**)
Log (life expectancy)		7.368 (6.89*)		
School enrollment rate, secondary (gross)		0.651 (2.49**)		
Inflation rate			0.183 (0.74)	
Number of observations	96	74	96	96
Adjusted R-square	0.993	0.997	0.993	0.993
Hausman test (Prob > F)	0.006	0.000	0.005	0.016

Notes: Robust (White) t-statistics are shown in parentheses:

* Significant at the 1% level, ** significant at the 5% level, ***significant at the 10% level.

5.5. Conclusions

This chapter analyzed the relation between globalization and economic growth in the East Asia region. An examination was conducted proving the *de facto* integration of East Asia, which, under the impact of globalization, has been forming close mutual linkages based on using foreign trade matrices, intra-regional foreign trade ratios, and bilateral export intensity (Tables 5-2, 5-3 and 5-4). Furthermore, an empirical analysis was conducted to check the effects of globalization on the economic growth of East Asia, both before and after the Asian currency and economic crisis. The analysis results suggest a mild decline in globalization's influence on economic growth after the crisis.

However, East Asia has been the scene of a complex intertwinement of regionalism and globalization engendered by the region's original diversity and non-systemic integration.

Currently, East Asia maintains a high intra-regional foreign trade ratio, and is gradually reducing its dependency on fully industrialized economies, including the United States. This suggests that extra-regional shocks, such as the one triggered by the U.S. sub-prime mortgage problem, might prove to have only a small recessionary impact on the region. Even so, private sector final consumption expenditure today is U.S.$10 trillion in the United States., U.S.$9 trillion in the EU, US$3 trillion in Japan, and just U.S.$1.5 trillion in China. Compared to the Unites States and EU, intra-regional final demand in East Asia is still small, and maintaining growth on intra-regional demand alone might prove difficult.

East Asia's economy today is facing a new turning point. If intra-regional integration is to advance further, the integration achieved thus far in a *de facto* manner will need support from a more system-based approach to deeper integration. ASEAN and individual countries in East Asia, specifically Japan, China and South Korea, are on the one hand pining for the restructuring of domestic political systems to be better able to deal with the pressures from globalization. On the other hand, along with the formation of layering multilateral frameworks, seeking to give regionalization a concrete shape, concepts of the East Asian Community are being rolled out. With globalization through the WTO at an impasse, the question of how to proceed with the *de jure* integration will soon pose itself to East Asia.

Chapter 6

Financial Liberalization and Income Inequality in Asia

6.1. Introduction

Recently, the 18th National Congress of the Communist Party of China (CPC) drew worldwide attention. An opening report delivered by the party head, President Hu Jintao, signaled the next leadership's policy priority—namely, improving the Chinese people's livelihoods, and social structuring. The report uses the word "equality" more than 20 times, and it stresses a need "to allocate more of the fruits of development more equally throughout the nation." The CPC has emphasized equality in society and assurance of justice as vital elements, ever since the goal of a "harmonious society" was announced at the Fourth Plenary Session of the 16th CPC Central Committee. While China has experienced remarkable growth in the years since the implementation of the Chinese economic reform, the affluent in China have become even more so. According to a report by China's Ministry of Human Resources and Social Security, in 2011, the incomes of senior company executives were 4,553 times greater than were those of migrant workers. There seems to be a serious income inequality problem associated with development in China, and a considerable body of research has examined its impact in the country.[55]

China is not alone in facing income inequality issues; other developing countries and regions—such as India (James, 2009), Latin America (Lopez and Perry, 2008), certain American states (Ashby and Sobel, 2008), and member-countries of the Organisation for Economic Co-operation and Development (OECD) (Smeeding, 2002)—have been struggling with this problem since the mid-1970s. According to these studies, globalization has one of the causes of inequality. Branko Milanović, a lead economist at the World Bank, has stated that "There are at the beginning of the second decade of the 21st century hardly two more politically charged economic terms than 'globalization' and 'inequality'" (Milanović, 2012, p. ix).

However, the nature of the relationship between globalization and inequality has not been conclusively defined. Some argue that globalization is an inevitable and irreversible part of economic development that generates the benefits of a global economy. Others criticize it, stating that globalization leads to inequality, threatens employment and living standards, and

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[55] See Khan and Riskin (1998), Kanbur and Zhang (2005), and Jalil (2012), among others. Overall inequality in China can be broken down into four study areas: inequality within the rural sector, within the urban sector, between rural and urban sectors, and among regions.

destroys communities and the global environment. Globalization[56] has been increasingly progressing since 1980, as goods, people, money, and information started to mobilize on a large scale worldwide, due to the rapid developments in information and transportation technology, deregulation, liberalization of trade and investment, and the like. Finally, it should be noted that globalization affects the lives of people primarily through two aspects: economy and finance.

Among the most prevalent topics of interest in international economics in the recent past has been the global links between economic liberalization and growth. Doucouliagos and Ulubasoglu (2006) conduct a meta-study of 52 studies dealing with the impact of economic freedom on economic growth, and conclude that economic freedom has a robust positive effect on economic growth regardless of how it is measured. Similarly, Dreher (2006) surveys the literature and presents results based on the newly developed KOF Index of globalization, arguing that globalization as measured by this index is about growth promotion. Other relevant studies include those of Edwards (1998), Frankel and Romer (1999), and Berggren and Jordahl (2005). Rising incomes, however, have been unequally shared among the population. Bergh and Nilsson (2010), using the KOF Index of globalization and the Economic Freedom Index in panel analysis, find that the freedom to trade, social globalization, and deregulation all relate to equality, or the lack thereof. Empirical evidence is also available from Scully (2002) and Cater (2007), among others.

The general thinking is that financial liberalization stimulates growth through financial development. Indeed, empirical studies affirm these expectations. Bekaert et al. (2005) augment the standard set of variables used in economic growth research by introducing an indicator variable for equity market liberalization. They conclude that equity market liberalization leads to an approximate 1% increase in annual real per-capita gross domestic product (GDP) growth. Hermes and Lensink (2005) reflect on the strong and positive effect of liberalization on growth. More recently, Quinn and Toyoda (2008) show that both developed and developing economies grow more quickly in the presence of a more open capital account and more open equity markets. However, Ito (2006) finds that a higher level of financial openness can spur equity market development, but only if a threshold level of legal development has been attained, particularly among emerging market Asian countries.

Many countries started liberalizing their financial sectors in the 1980s, based on the premise that the free movement of capital would foster financial development and economic growth. Three decades later, many of these countries find themselves in rather difficult economic conditions, with income inequality at record-high levels. Although there has been growing

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[56] The concept of "globalization" was first established by Professor Marshall McLuhan of the University of Toronto in Canada, in the early 1960s.

interest in the social impact of financial deregulation in economies across the world, there has been very little empirical work addressing the distributional consequences of a liberal financial regime.[57] There are many reasons for this neglect, but a notable one is that researchers have been hampered until recently by the unavailability of comparable data on inequality, poor measures of financial liberalization, and the regency of reforms in many parts of the world.

The current study aims to fill this literature gap by analyzing the relationship between financial liberalization and income inequality, and especially, it looks to assess the linkages between capital account liberalization and income inequality. The remainder of the paper is organized as follows. In Section 6.2, I discuss the body of literature that relates to financial liberalization; the discussion in subsection 6.2.1 provides the reader with background analysis, prior to discussing the relationship between financial liberalization and poverty. This latter discussion is undertaken in subsection 6.2.2, where the theoretical basis of the relationship between capital account liberalization and inequality is discussed. In Section 6.3, I describe how to measure inequality and capital account liberalization. In Section 6.4, I present the empirical strategy followed and the findings. I conclude, by exploring in Section 6.5, the implications and possible research extensions.

6.2. Theoretical considerations

6.2.1. Financial liberalization and poverty

The theoretical argument for financial liberalization can be traced back to the seminal contributions of McKinnon (1973) and Shaw (1973), who advocated financial market liberalization to combat financial repression, which, they argued, would in turn spur investment and economic growth. In broad terms, the term "financial liberalization" refers to a set of official government policies that focus on deregulating credit as well as interest rate controls, removing entry barriers for foreign financial institutions, privatizing financial institutions, and lifting restrictions on foreign financial transactions.

Several channels exist, by which financial liberalization could affect income distribution and poverty. Macroeconomic volatility is one. Kose et al. (2003) examine the macroeconomic volatility experienced by a large group of industrial and developing economies during the 1960–99 period. They find that, on average, the volatility of consumption growth relative to that of income growth had increased in the 1990s for more financially integrated developing

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[57] To the best of my knowledge, only two studies touch on this issue: those of Quinn (1997) and James (2009). The latter examines the causal relationship between financial liberalization and income inequality, using India as a case study.

economies. Prasad et al. (2003) report similar results from a comparison of the volatility experiences of a sample of 22 more-financially integrated developing countries and 33 less-financially integrated developing countries. Empirical evidence also shows that economic cycles have an asymmetrical effect on poverty (Morley, 1994; Londoño and Székely, 1997). The effect of volatility on the poor has another dimension beyond income levels: Ligon and Schechter (2003) found that risk plays a large role in reducing the welfare of the poor.

Jalilian and Kirkpatrick (2002) test econometrically the relationship between financial development and poverty through the growth channel. They conclude that a one-percentage-point change in financial development leads to a 0.4% change in the growth rate of the incomes of the poor. A more recent study by Jeanneney and Kpodar (2008) touches on financial liberalization in more general terms: it argues that the standard financial liberalization effect of the McKinnon (1973) type is directly effective in reducing poverty, as is the more indirect effect via economic growth. Nonetheless, financial liberalization promotes financial instability, and the poor do not benefit from enhanced credit availability. Arestis and Caner (2005) report that the growth channel is not the only channel through which financial liberalization can affect poverty; there are two further channels: the financial crises channel and the access to credit and financial services channel.

The clearest costs of financial liberalization manifest as economic crises—which, of course, have grave consequences for all, but especially for the poor. Crises hurt the poor and the rich, but the poor have fewer resources and insurance mechanisms by which to respond to them. Galbraith and Lu (1999) find that financial crises raised inequality in 73% of cases in Latin America and 62% of cases in Asia, while no impact was evident in Finland, Norway, or Spain. Similarly, Diwan (1999) finds that the share of labor income contracted markedly and irreversibly in the wake of financial crises.

Financial liberalization may constrain domestic policies aiming to alleviate poverty. In particular, the government may lose some autonomy over fiscal policy and, to the extent that this leads to reductions in transfers, social programs, or public investment, the poor may be adversely affected. Financial openness might also exacerbate inequality and poverty via a further channel—the income share of labor channel (Arestis and Caner, 2009).

6.2.2. Capital account liberalization and income inequality

Apart from poverty, another relevant topic is the impact of financial liberalization on distributional outcomes. Financial liberalization can be characterized by several broad categories, including capital account liberalization, equity market liberalization, and banking

sector liberalization. In the empirical growth literature, capital account liberalization is the most widely used category.

It was said that liberalizing capital accounts would permit financial resources to flow from capital-abundant countries, where expected returns are low, to capital-scarce countries, where expected returns are high. The flow of resources into the liberalizing countries would reduce their cost of capital, increase investment, and raise output (Henry, 2003). Thus, the liberalization of capital accounts was thought to have positive effects on economic growth, and by extension, on poverty alleviation. In reviewing several previous studies, Arestis and Caner (2010) argue that capital liberalization may increase economic growth through a number of channels;[58] however, the promotion of economic growth does not necessarily mean that it will reduce income inequality. Financial liberalization is possible asymmetrically among the poor and the affluent. Especially in the early stages of capital account liberalization, financial services—and credit in particular—are limited to the affluent and well connected. A greater degree of capital account liberalization, then, may only succeed in channeling more capital to the affluent few, and certainly not to the poor.

Regrettably and surprisingly, the literature on the relationship between capital account liberalization and income inequality—an aspect of importance equal to that of the nexus between finance and growth/development—is disappointingly small. For a sample of 66 countries over the 1973–90 period, Quinn (1997) reports a positive correlation between changes in his capital account openness indicator and changes in Gini Index values. Quinn's results are statistically significant and robust across various specifications. This relationship has been supported by further research. Das and Mohapatra (2003) analyze whether capital market reforms are associated with reforms between 1986 and 1995, and their results show that in almost all countries, inequality increases shortly after financial reform.

However, as the well-known Kuznets curve postulates [59], it would be reasonable to expect a decline in income inequality in response to financial development and liberalization. Given this ambiguity concerning the finance liberalization–inequality nexus, it is essential to examine real-world economic data by using rigorous econometric tools.

6.3. Measuring inequality and capital account liberalization

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[58] Namely, through higher investment, as capital flows into earn higher returns; through increased efficiency and productivity, via the transfer of technology and managerial know-how; through the "discipline effect," whereby governments are forced to pursue sounder macroeconomic policies; and the like.

[59] Kuznets (1955) postulates that economic inequality declines, once a certain degree of economic development has been attained.

The main objective of this study lies in investigating whether financial liberalization gives rise to greater income inequality. To this end, an important step in the research methodology is to choose appropriate data sources with respect to my main variables—namely, capital account liberalization and income inequality.

6.3.1. Measuring inequality

Cowell (2011) states that "Inequality is in itself an awkward word, as well as one used in connection with a number of awkward social and economic problems. The difficulty is that the word can trigger quite a number of different ideas in the mind of reader or listener, depending on his training and prejudice"(p.1). According to Sen (1973), measurements of inequality can be divided into two categories: "empirical" measurements that are completely independent of the explicit concept of social justice, and "normative" measurements that depend on explicit forms of social welfare and the formulation of losses due to inequality in their allocation. This study analyzes empirical measurements.

There are many empirical measures available, including relative mean deviation, coefficient of variation, log variance, Thile's entropy measure, Atkinson's measure, Dalton's measure, and the Gini coefficient. Of these, the Gini coefficient is used very broadly to indicate inequality levels. It was developed by the Italian statistician and sociologist Corrado Gini and published in his 1912 paper "Variability and Mutability." Many researchers have subsequently added deeper analysis to this measure.[60]

The Gini coefficient measures the extent to which a county's Lorenz curve, which expresses its income distribution, deviates from perfectly equitable distribution. It can be calculated in several ways: in terms of gross income (before taxes and transfers), net income (after taxes and transfer), or consumption expenditure, for example. Furthermore, the unit of analysis can be individuals or households. In a completely egalitarian income distribution—in which the entire population has the same income—the Gini coefficient would take a value of 0, while a value of 1 would indicate that all incomes are concentrated on one person. The Gini coefficient satisfies the generally accepted inequality axioms and highly correlates with other well-established income inequality indexes (Clarke, 1995).

The choice of income inequality data is a crucial issue. This is mainly rooted in the inconsistency and varying quality of available data across countries and over time. In the current study, inequality data are taken from the Estimated Household Income Inequality (EHII) dataset. This global dataset is derived from the econometric relationship between UTIP and UNIDO,[61]

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[60] See Sen (1973, p. 37) for details.

[61] UTIP is the abbreviation of the University of Texas Inequality Project, while UNIDO is the United Nations

other conditioning variables, and the World Bank's Deininger and Squire dataset. Galbraith and Kum (2005) show that data derived through this new measure is superior to the original Deininger and Squire data. EHII 2008 provides information on the distributions of more than 150 countries, and contains 3,513 observations.

6.3.2. KAOPEN Index

There is no question that it is extremely difficult to measure the extent of openness in capital account transactions. Many measures have been created to describe the extent and intensity of capital account controls. The majority of such measures use binary variables based on the International Monetary Fund's (IMF's) categorical enumeration in the Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER).[62] AREAER provides details on various regulations vis-à-vis capital account transactions across countries. However, those measures fail to capture fully the complexity of real-world capital controls (Ito, 2006).

In the current study, I adopt the capital account openness index, KAOPEN, which was developed by Chinn and Ito (2002).[63] This index is the first principle component of the four variables in the IMF's AREAER, and it takes higher values in less regulated and more open regimes. These four variables relate to the presence of multiple exchange rates (k1), restrictions on current account transactions (k2), restrictions on capital account transactions (k3), and the requirement of the surrender of export proceeds (k4). However, for controls on capital account transactions, the share of a five-year window is used in the KAOPEN Index as a substitute for AREAER's k3. Moreover, in order to focus on the effect of financial openness, the index reverses the values of these binary variables, such that the variables are equal to 1 when the capital account restrictions are nonexistent. By construction, the series has a mean of 0.

One merit of the KAOPEN Index is that it attempts to assess the intensity of restrictions to the mobility of capital. This is an important problem, since many countries have maintained a variety of capital controls bearing a variety of intensities, and they presumably have different impacts on the variables of interest. Instead of directly measuring restrictions on cross-border transactions, the KAOPEN Index measures the extent of capital controls. Indeed, "measuring the extensity of capital controls may be a good proxy for measuring the intensity of capital controls" (Chinn and Ito, 2008). The index makes the biggest contribution, owing to its wide

Industrial Development Organization. UTIP is a research group concerned with measuring and explaining movements of inequality in wages and earnings, as well as patterns of industrial change, worldwide.

[62] See Kraay (1998), Levine and Zervos (1998), Edwards (2000), and Klein and Oliver (2001). Exceptions such as Quinn (1997, 2003) and Miniane (2004) have led to more measures that are delicate.

[63] The KAOPEN Index (also known as the Chinn–Ito Index) was initially constructed by Chinn and Ito (2002, 2006). The series have been updated annually since then, while expanding the scope of the countries involved.

coverage: data are available for 182 countries, for the 1970–2010 period.

By nature of its construction, the KAOPEN Index is considered to be a *de jure* measure of financial openness, because it focuses on regulatory restrictions on capital account transactions. Hence, this index differs from price-based and so-called *de facto* measures of financial integration.[64] These two types of financial openness measures have their own strengths and weaknesses; however, it is almost impossible not only to rank the superiority of these measures, but also to distinguish them. Certainly, as Edwards (1999) discusses, *de jure* measures of financial openness are often used when the private sector circumvents capital account restrictions, thereby nullifying the expected effect of regulatory capital controls; this can be captured via price-based measures.[65] Since this study focuses on the regulatory aspects of capital account openness, I consider the KAOPEN Index an appropriate indicator.

The KAOPEN Index has been widely used in empirical analysis. For example, Chinn and Ito (2002, 2006) use the index to examine the relationship between capital controls and financial development. Ito (2006) also uses the index to investigate whether financial openness leads to financial development, after controlling for the level of legal/institutional development, and whether trade openness is a precondition for financial openness. More recently, the study of Arestis and Caner (2010) has made use of this index.

Figs. 6-1 to 6-4 show the KAOPEN Index and the Gini coefficient for Asia and three regions in Asia. From the figures,[66] we can see two things. First, there seems to be a positive correlation between the KAOPEN Index and the Gini coefficient, not only for the whole of Asia but also for each of the three regions. Second, changes in the KAOPEN Index and the Gini coefficient are not uniform within each region.

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[64] Examples are those based on the interest rate parity (UIP or RIP) approach (Montiel, 1995) or on deviations from no-arbitrage-profit conditions (De Gregorio, 1998).

[65] A drawback of price-based measures, on the other hand, is that they can reflect changes in macroeconomic conditions, even when there have been no regulatory changes vis-à-vis capital account transactions.

[66] The countries that comprise Asia and its regions in all analyses in this study are as shown in Table 6-A-1.
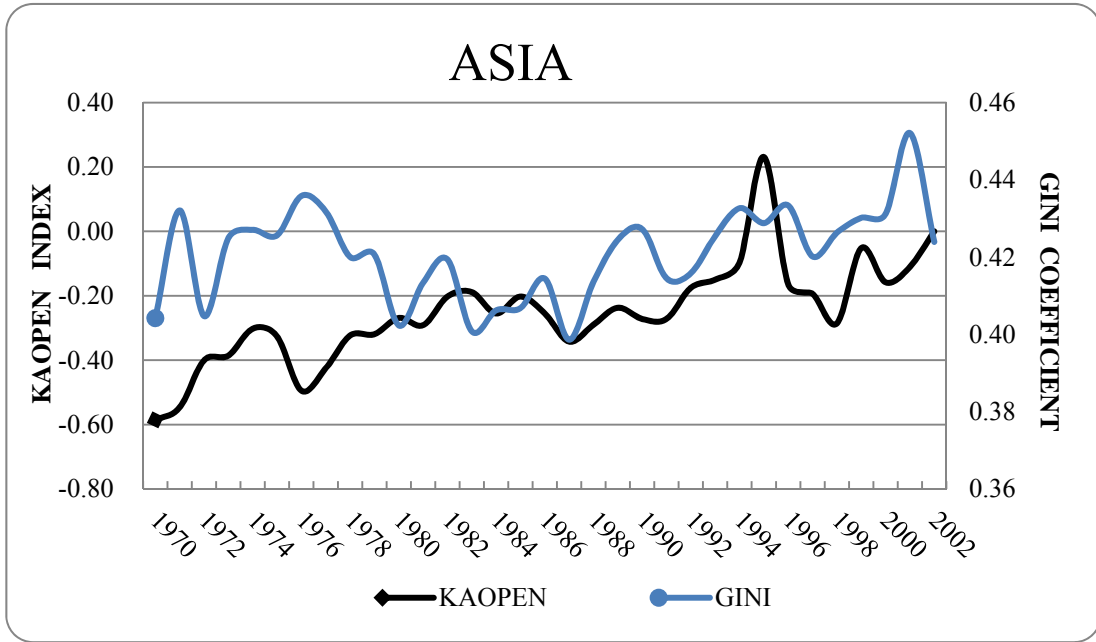
Fig. 6-1: Plots of the KAOPEN Index versus the Gini coefficient (Asia)
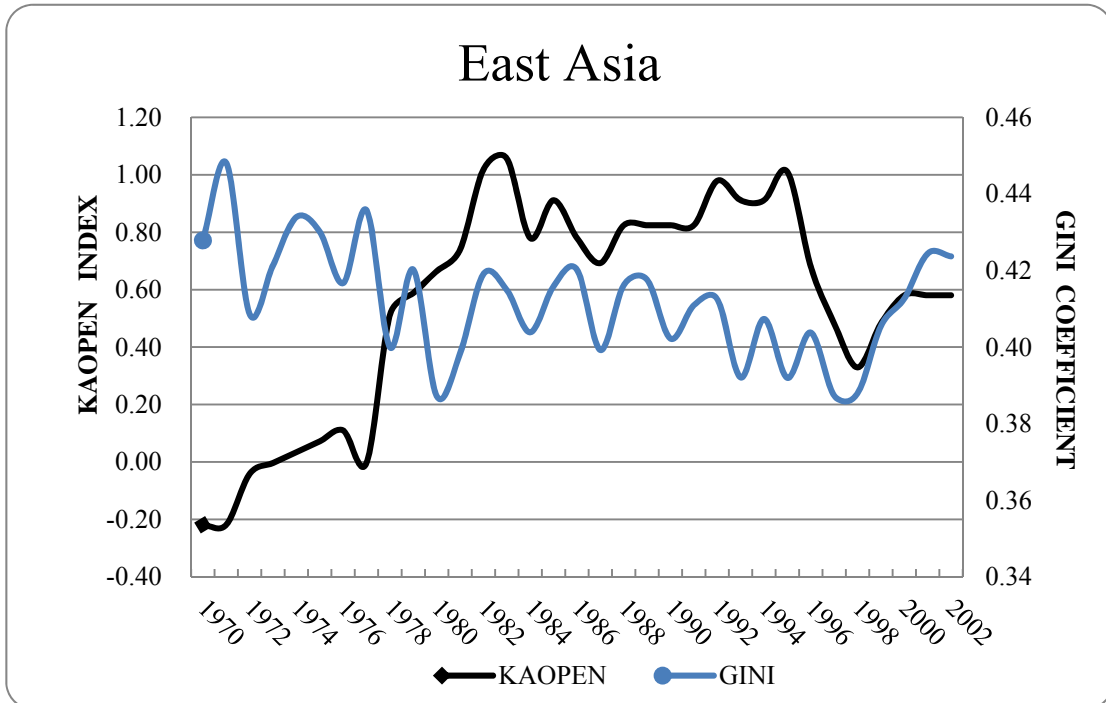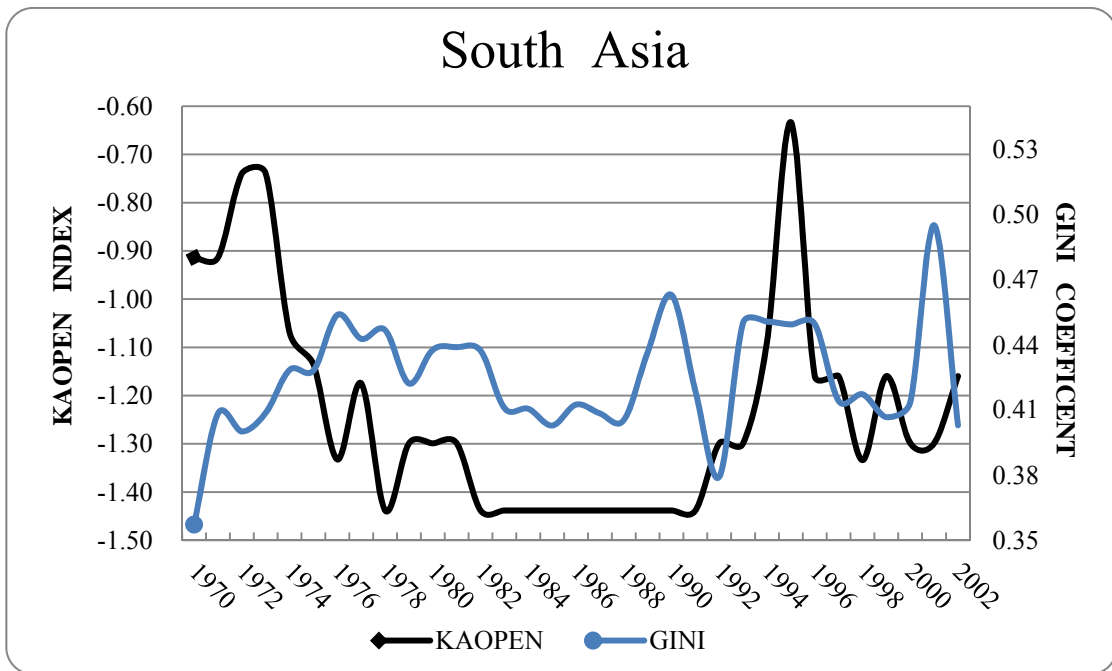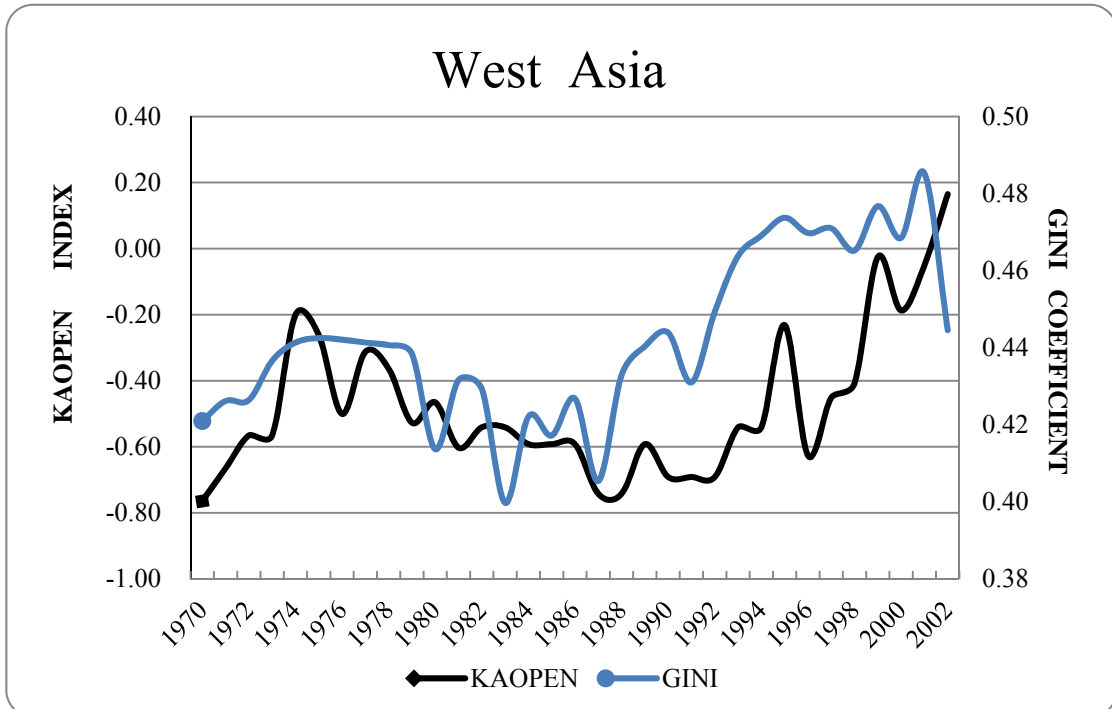

Fig. 6-2: Plots of the KAOPEN Index versus the Gini coefficient (East Asia)

Fig. 6-3: Plots of the KAOPEN Index versus the Gini coefficient (South Asia)

Fig. 6-4: Plots of the KAOPEN Index versus the Gini coefficient (West Asia)

6.4. Empirical analysis

6.4.1. The empirical specification and data used

This study examines the long-term effect of capital account openness on income distribution in Asia, and in East Asia in particular. The period of investigation for the purpose of this study is 1970–2002. This choice of timeframe is entirely driven by data availability. I conduct panel data analysis, on account of its two advantages. One is its ability to identify country-specific effects; the other is its ability to preclude potential problems that relate to time-series data, like nonstationarity, co-integration, and autocorrelation (Macnair et al., 1995).

A basic panel regression model is expressed as follows:[67]

$$GIN_t^i = \beta_0 + \beta_1 KAO_t^i + X_t^i \Gamma + D + u_t^i \tag{1}$$

where t stands for period and i represents country, GIN is the Gini measure of inequality, and KAO is the capital account openness index. D is the regional or period dummy, and u is the error term.

The vector X contains various control variables: (a) "PCG," the log per-capita income, which I include because I am interested in estimating the direct effect of capital account liberalization after controlling for the growth effect; (b) "SPCG," the square of log per-capita income, included to check the Kuznets inverted-U hypothesis regarding the degree of equality of income distribution; (c) "SER," secondary school enrollment, included as an indicator of human capital; this kind of proxy variable has been widely used in the income inequality literature (e.g., Bergh and Nilsson, 2010); (d) "LFR," the log fertility rate, which is expected to have a positive sign, since large households are expected to be poorer; and (e) "LLE," log life expectancy. Details of the basic data are provided in Table 6-1.

6.4.2. Empirical results

6.4.2.1. Empirical results for the whole of Asia

To conduct panel data analysis for the whole of Asia, a regression model is expressed as follows:

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[67] The model used with the whole of Asia differs slightly from the model used with East Asia.

$$GIN_t^i = \beta_0 + \beta_1 KAO_t^i + X_t^i \Gamma + DE + DS + u_t^i \tag{2}$$

The difference between equations (1) and (2) is that equation (2) includes regional dummy variables such as DE and DS, which indicate East Asia and South Asia, respectively.

Table 6-1: Variable definitions and sources

Variable		Definition	Source
Dependent Variable:			
GIN	**Gini Coefficient**	Household Income Inequality	EHII Dataset 2008 (revised)
Independent Variable:			
KAO	**KAOPEN Index**	Chinn–Ito Index Financial Openness Index 2010	http://web.pdx.edu/~ito/ Chinn-Ito_website.htm
PCG	**Log (GDP per capita)**	GDP per capita is gross domestic product divided by mid-year population.	World Bank (2011)
SPCG	**Square of log (GDP per capita)**		
KOF	**KOF Index**	Overall index of globalization (KOF Index of Globalization 2012)	http://globalization.kof.ethz.ch/
SER	**School enrollment, secondary (gross)**	The ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown.	World Bank (2011)
LLE	**Log (life expectancy)**	The number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to remain the same throughout its life.	World Bank (2011)
LFR	**Log (fertility rate)**	The number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with prevailing age-specific fertility rates.	World Bank (2011)
DE	**Dummy of east Asia**	Equal to unity for the countries of east Asia, and 0 otherwise.	
DS	**Dummy of south Asia**	Equal to unity for the countries of south Asia, and 0 otherwise.	
D1997	**Dummy of 1997**	Equal to unity after 1997, and 0 otherwise.	

Table 6-2 presents evidence of the relationship between capital account liberation and income inequality in Asia. The estimated coefficients of interest are those for KAO (second row). For each capital account liberation variable, the coefficient has a positive sign and is statistically significant. In other words, during this study's analysis period, the Asian countries with more liberalized capital account regimes had higher income inequality. A one-percentage-point increase in the capital account indicator increases the Gini coefficient by about 0.47–0.92%.

I also found that a higher per-capita growth rate is usually associated with a higher Gini coefficient, and that this effect is statistically significant. Meanwhile, because the SPCG coefficient is negative and statistically significant, the Kuznets inverted-U hypothesis is verified; we can therefore expect economic growth to reduce income imbalance in the long term. As for other control variables, although the SER coefficients shown in columns 2–5 were negative and significant as expected, their values are small. Most of the LLE coefficients are not statistically significant.

Table 6-2: Gini growth and financial liberalization in Asia (1970-2002)

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
KAO	0.47***	0.58***	0.54***	0.58***	0.63**	0.92*	0.65*	0.90*
PCG	6.89**	7.80**	8.64**	7.63***	6.82***	4.10**	2.81	3.07
SPCG	-0.58*	-0.60**	-0.56**	-0.60**	-0.52**	-0.29**	-0.18	-0.23
SER		-0.07**	-0.06***	-0.07**	-0.08**	0.02	0.01	0.02
LLE			10.32***		11.23	-3.26	-5.52	-3.76
LFR				-0.63	0.51	4.59*	6.16*	4.54*
DE						-1.62***		-1.77**
DS							-0.07	-0.71
Constant	24.18***	22.84	-29.49	24.69	-21.41	36.26**	46.18**	42.75**
Number of observations	485	398	398	398	398	398	398	398
Number of countries	18	17	17	17	17	17	17	17
Adj. R-sq	0.47	0.50	0.48	0.50	0.50	0.23	0.22	0.23
FE or RE [#]	2FE	2FE	FE(C)	2FE	2FE	FE(T)	FE(T)	FE(T)

Notes: Asterisks indicate statistical significance of parameter estimates: *** at 10%, ** at 5%, and * at 1%. FE, fixed effects; RE, random effects; 2FE, two-way fixed effects model; (T), time effects; C, individual effects.

I obtained slightly different empirical results by introducing regional dummy variables. First, while the coefficient for DE is significant, it is not significant for DS. Furthermore, what is interesting is that the significance of the KAO and LFR coefficients increases when regional dummy variables are introduced. This suggests that the effects of capital account liberalization and fertility on income inequality vary by region in Asia. Since the impact of the East Asia dummy variable was especially pronounced, I will conduct in subsection 6.4.2.3 more detailed analysis of the positive effect of financial liberalization in this region on income inequality.

6.4.2.2. Robustness check

In terms of robustness analysis, I question whether a particular region is determining or skewing the overall results. To answer this question, I exclude the regions from the regressions, one by one. Table 6-3 presents my findings: my results are qualitatively the same. In particular, the KAO coefficients are positive and statistically significant in all cases. Estimates for the growth effect seem to be most influenced by sample restriction. In Case 3, which excludes East Asia from the sample, the PCG coefficient becomes negative and insignificant. In addition, SER is not significant in any of the cases; this is due, to some extent, to a sizable reduction in sample size.

6.4.2.3. Empirical evidence from East Asia

The Asian crisis forced policy-makers to face the conundrum of financial globalization. Despite the experience of the late 1990s, East Asian policy-makers have appeared not to have abandoned the path of financial liberalization. Rather, as is best exemplified by the Chiang Mai Initiative, they appear to have re-emphasized economic development through more integrated financial markets in the region. In this subsection, I will analyze the effect of capital account liberalization on income distribution in East Asia, by taking into consideration the Asian financial crisis. The specification is:

$$GIN_t^i = \beta_0 + \beta_1 KAO_t^i + \beta_2 KOF_t^i + X_t^i \Gamma + D_{1997} + u_t^i \tag{3}$$

What is noteworthy compared to equation (2) is that equation (3) introduces the KOF Index[68] and D_{1997}.

The empirical results are shown in Table 6-4. The KAO coefficients, which indicate capital account openness, are mostly positive and statistically significant. Moreover, their values are

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[68] The KOF Index is explained in detail in Chapters 4 and 5.

larger than the corresponding figures in Table 6-2. In other words, the effect of income inequality due to financial liberalization is greater in east Asia than in the whole of Asia. The PCG coefficients also indicate the same tendency.The signs and significance of the KAO coefficients do not change, even when the dummy variable D_{1997} is introduced. Moreover, the dummy variable itself is positive and significant at the 1% level. Thus, financial liberalization following the Asian financial crisis has led to a compounding of income inequality.

Table 6-3: Robustness check: Regional influences. Dependent variable: Gini Index

	[1]			[2]			[3]		
	East Asia & West Asia			South Asia & East Asia			South Asia & West Asia		
Constant	5.45	1.12	-48.07	31.25	34.41	81.47	53.19	43.97	54.95
KAO	0.53	0.64	0.57	0.83	0.80	0.70	1.27	1.29	1.05
	(0.20)	(0.22)	(0.27)	(0.23)	(0.26)	(0.25)	(0.41)	(0.44)	(0.48)
PCG	10.47	11.35	8.36	4.50	3.65	8.41	-2.09	0.77	-0.96
	(2.67)	(2.93)	(3.82)	(1.84)	(2.11)	(2.72)	(2.34)	(2.40)	(2.64)
SPCG	-0.73	-0.78	-0.53	-0.41	-0.38	-0.54	0.11	-0.10	0.06
	(0.16)	(0.18)	(0.24)	(0.12)	(0.13)	(0.15)	(0.16)	(0.16)	(0.19)
SER		0.01	-0.02		0.02	0.01		0.01	0.003
		(0.02)	(0.03)		(0.03)	(0.03)		(0.03)	(0.03)
LLE			13.59			-18.24			-2.95
			(7.36)			(7.71)			(5.89)
LFR			2.44			3.62			3.26
			(1.82)			(1.32)			(2.02)
Number of observations	389	322	322	326	263	263	255	211	211
Number of countries	14	13	13	12	11	11	10	10	10
Adj. R-sq	0.13	0.09	0.02	0.22	0.19	0.27	0.11	0.19	0.19
FE or RE	FE(T)	RE(C)	RE(C)	FE(T)	FE(T)	FE(T)	FE(T)	FE(T)	FE(T)

Notes: Robust standard errors are in parentheses.
 FE, fixed effects; RE, random effects; (T), time effects; C, individual effects.

Finally, I would like to direct your attention to the introduction of the KOF Index. Once the KOF variable is included, the KAO coefficient loses its effect. I would like to explain this from two perspectives. One of them is that, as shown in Table 6-A-2, the KOF Index and the KAOPEN Index have a certain level of correlation in East Asia, and this influences the empirical results. Another is that it has been often argued that countries need to liberalize their

goods markets prior to liberalizing their financial sectors (McKinnon, 1991).[69] In other words, an open economy (and especially open trade) becomes a precondition for financial liberalization. This hypothesis has already been verified by Chinn and Ito (2002, 2006) and Ito (2006).

Table 6-4: Gini growth and financial liberalization in East Asia (1970–2002)

	[1]	[2]	[3]	[4]	[5]	[6]
Constant	-1.30	-2.37	55.5***	62.3**	9.20	25.26
KAO	1.16*	1.32*	0.66**	0.64**	0.41	
KOF					0.13**	0.12**
PCG	12.56*	12.65*	11.76*	11.24*	14.86*	18.08*
SPCG	-0.90*	-0.94*	-0.74*	-0.69*	-1.06*	-1.17*
SER		0.04	-0.004	-0.02		
LLE			-14.9***	-17.13**	-6.76	-14.59
LFR			3.14**	3.74*	4.54**	3.98**
D_{1997}				2.48*	1.38***	0.99
Number of observations	230	187	187	187	229	240
Number of countries	8	7	7	7	8	8
Adj. R-sq	0.34	0.26	0.37	0.39	0.69	0.28
FE or RE	FE(T)	FE(T)	RE(T)	RE(T)	FE(C)	RE(C)

Notes: Asterisks indicate the statistical significance of parameter estimates: *** at 10%, ** at 5%, and * at 1%.
FE, fixed effects; RE, random effects; (T), time effects; C, individual effects.

6.5. Concluding remarks

Rising inequality across most countries over the last two decades has posed one of the greatest challenges to economic policy-makers in developed and developing countries alike. Experts and scholars have made great efforts to confirm the factors that lead to income inequality, from a diversity of angles. Unfortunately, the direct relationship between financial liberalization and inequality is often overlooked, and especially, researchers since Quinn (1997) have not tested the causal relationship between capital account liberalization and income inequality.

This study aims to fill this literature gap by analyzing the relationship between financial liberalization and income inequality. Using new and more consistent data with respect to these

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[69] Martell and Stulz (2003) also argue that in order for financial systems to reap the benefits of financial liberalization, the systems themselves need to be developed to a certain level; this assertion implies the importance of a *sequence* of liberalization within the financial sector.

two variables, I investigate the impact of capital account liberalization on income inequality, while focusing in particular on Asia.

My analysis leads to three major findings.

First, my key finding is that a positive correlation between the capital account openness indicator and the Gini coefficient can be detected in Asia. The results are statistically significant and robust across various specifications, even when splitting the sample into three subgroup regions.

Second, the Kuznets inverted-U hypothesis is verified. Whether in Asia or in East Asia, we can expect economic growth to reduce income imbalance in the long term.

Third, for East Asia, I learned by introducing a dummy period variable that financial liberalization following the Asian financial crisis compounded income inequality. This finding is consistent with those of Galbraith and Lu (1999) and Diwan (1999).

Nonetheless, the finding that financial liberalization leads to greater income inequality does not automatically imply that any particular type of regulation is desirable. On the contrary, recklessly enacted regulation might induce a desire to exploit loopholes in the regulatory system, which could in turn incur social costs. Hence, the challenge for policy-makers is to design appropriate financial policy that not only promotes economic development but also is equitable.

Table 6-A-1: Country list of Asia (20 countries)

Region	Code	Country	Code	Country
East Asia	CHN	China	IDN	Indonesia
	JPN	Japan	KOR	South Korea
	MYS	Malaysia	PHL	Philippines
	SGP	Singapore	THA	Thailand
South Asia	AFG	Afghanistan	BGD	Bangladesh
	IDN	India	NPL	Nepal
	PAK	Pakistan		
West Asia	IRN	Iran	IRQ	Iraq
	ISR	Israel	JOR	Jordan
	KWT	Kuwait	SYR	Syrian
	TUR	Turkey		

Note: In this chapter, "East Asia" refers to the region comprising of Northeast Asia, which consists mainly of China, Japan, and South Korea, as well as several countries in Southeast Asia, which are also collectively referred to as the Association of Southeast Asian Nations (ASEAN) region. This classification has economic, rather than geographical, implications.

Table 6-A-2: Correlation between KAOPEN and KOF

	1970–2009	1970s	1980s	1990s	2000s
ASIA	0.87	0.80	0.56	0.19	0.77
East Asia	0.33	0.90	0.49	-0.72	-0.10
South Asia	0.30	-0.44	-0.19	0.35	0.41
West Asia	0.87	0.68	-0.61	0.74	0.71

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