

Trade, FDI and Economic Integration in the South China Sea Region

Yue Feng

Department of Economics, University Oslo

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Preface

This thesis is a part of a project at SUM (Center for Development and the Environment): 'Energy and Security in the South China Sea'.

Many thanks to Mads Greaker for introducing me to the project and giving me considerable guide. As my supervisor, he showed me the way of research step by step and helped me to build up the foundation of my independent research ability. I benefited quite a lot from his solid economic knowledge and serious attitude toward work.

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Summary

The South China Sea region has been seen as a potential conflict area. Some countries and Chinese territories in this region claim sovereignty over Spratlys, Paracels and some other areas. Further more, there are energy, fishery resources and environmental problems. To solve these problems calls for cooperation in this region.

These economies experienced a high economic growth before the Asian crisis in 1997 and their economic achievement might have effects on the regional cooperation. This thesis will focus on the causes of international trade and the extend of economic integration in the SCS region.

One opinion of the peace scholars is trade will reduce the possibility of violent conflict when both sides benefit from trade. The more and the more equal the gain from the trade is, the more costs of trade declines, the less possible will violent conflict be. Also a Free Trade Area is one form of economic integration. Free trade leads to integration and less conflict. Foreign Direct Investment(FDI) brings labour division and integration within one industry. FDI plays key role in the economic growth of developing countries and the recovery of the SCS economies from the crisis.

In this thesis, two international trade theories, which might be able to explain the trade pattern in the SCS region, are presented: comparative advantage theory and intra-industry trade theory. The take-off of the SCS economies was contributed by the utilization of their comparative advantages: the NIEs export labour-intensive goods and import capital-intensive goods or hi-tech goods during their initial industrializing period, when their labour costs increased they became the investors and import labour-intensive goods.

The experience of EU shows economic integration leads to significant increase in intra-industry trade. Even the economic integration is in a low level in the SCS, intra-industry trade happens in some high technological industries.

After presenting the theories, I study the economic integration in the SCS region by trade and FDI data. There is economic complement between the first generation of NIEs and the other economies. Singapore, Hong Kong and Taiwan export capital, high technology manufactured goods while the others export labour-intensive goods. 30 percent of the SCS economies' import are intra-regional imports. The low-income SCS economies, such as Vietnam, depend on the FDI and trade within the region. AFTA will bring more trade by reducing the tariff and other trade restrictions; even China and Taiwan are excluded from AFTA.

On the other hand, the SCS economies rely on the markets in the developed countries. A big share of their export is to developed countries and they import intermediate goods from the same markets. The SCS economies have similar factor endowment and export structure, especially the low-income ones. They compete for the market share in the industrial markets. They also compete for FDI inflow. The crisis worsens the situation because FDI is important for their recovery. The four Chinese provinces don't have the close economic relationship with the other SCS economies except with Hong Kong and Taiwan.

The economic integration is in the initial stage in the SCS and it is difficult to assert the tendency of regional integration. Economic integration is a motivation of political integration. Very likely the economic integration precedes political integration. There are positive parts as well as negative parts on the regional integration. the tendency depends on which one overweight the other one.

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Chapter 1 Introduction

When we say the South China Sea region the following countries and provinces are included: Brunei; East and West Malaysia; Singapore; Thailand; Cambodia; Vietnam; Taiwan; the Chinese provinces of Guangxi, Hainan, Guangdong, Fujian and Hongkong; the Philippine islands of Luzon and Palawan; the Indonesian island groups Natuna and Riau; East Sumatra and north-western Kalimantan(Tonnesson, 1999).

Eight of them are Association of South East Asian Nations(ASEAN) members. China is a dialogue partner of ASEAN and participates in the ASEAN Regional Forum(ARF). Taiwan is excluded from official multilateral conception, but has ties and trade with all the regional countries. The SCS countries and territories are at a different development level. Three of them --Singapore, HongKong and Taiwan--are first generation of Newly Industrializing Economies(NIEs) with higher-income. The others are in the lower level than NIEs.

The South China Sea region has been regarded as a potential conflict area. All states in this region claim sovereignty of a part of the sea. Many of the parties feel pressure from their people not to loose any territory. Oil and gas findings is one of the most important motivations behind the conflict. For these developing economies, vast and cheap energy can be an engine for their economic development.

Conflicts are in the fields of fishery and environmental problems as well. Fisheries are unregulated. Fish and other species are overexploited. The sewage is discharged into the sea because of the absence of internationally administration in the SCS. Further, the SCS is a major trade channel in this region. Every economy wants to control more on the sea to guarantee the freedom of foreign trade(Swanstrom 1999). Hence, the SCS region is given widespread attention. I would like to study the problems in this region from economic point of view.

Countries trade because they have more benefits from trade than in an autarky¹ situation. According to Polachek and other scholars(1999), bilateral trade reduces the possibility of violent conflict when both sides benefit from it. A cessation of trade will bring costs to trade partners. The more and the more equal the gain from trade is, the more costs of trade declines,

¹ A situation where a country isolates itself from international trade by restrictions such as tariffs, in an attempt to be self-sufficient, usually for reasons of employment or politics.

the less possible will violent conflict be. The fear of losing the gain from trade could deter the conflicts. Promoting free trade between countries is a means of reducing conflict.

Trade is mobility of goods while Foreign Direct Investment(FDI) is mobility of capital. Nowadays, FDI plays more and more important role for the economy of developing countries. FDI could also reduce the likelihood of conflict.

This research will focus on trade and FDI relationship in this region. The thesis will analyze the following questions:

- a. What and how much trade in the region? Is there FDI between the SCS economies? (including current position and problems)
- b. What theories of international trade can explain the reasons for trade in the South China Sea region?
- c. To what extent could one say that the economies of the SCS region is integrated?

The purpose of the thesis is to consider the relationship between the SCS economies: has increased trade and cross-border interests led to regional integration, and to a positive attitude toward regional cooperation? This thesis is based on the opinion that trade relieves the conflicts and will not discuss the possibility that trade increases the conflict.

In chapter 2 I'll review the theory of economic integration briefly. In chapter 3 and 4 I will present two international trade models which can explain the causes of trade and effects of trade from theoretical point of view. In chapter 5, I'll move to the real world and give a general picture of trade and FDI performance of the South China Sea countries and their position in world trade. Chapter 5 will also focus on the economic integration among these economies, the trade role of Chinese provinces: Fujian, Hainan, Guangdong and Guangxi in the region, and try to predict the trend of integration according to the theory and data for the last years. Chapter 6 is the conclusion of the thesis.

Chapter 2 Theory of Economic Integration

Regional economic integration is a process whereby various economies of a region undergo a progressive removal of the barriers to free movement of goods, services, capital and labor. Reduction or removal of tariffs and non-tariff barriers among the economies of a region will obviously promote economic integration within the region by facilitating the flow of goods. Likewise, reduction or removal of restrictions and controls on the international flows of services, capital and labor reinforces regional economic integration(Park 1999).

There are the following types of economic integration:

- a) Preferential trade agreement(PTA) is the lowest level of economic integration. Member countries have lower tariffs on the imports from other members than the imports from the rest of the world.
- b) Free trade area(FTA). Member countries have no trade barriers, but each member country maintain their own tariff on the rest of the world.
- c) Customs union. Member countries abolish all trade restrictions. They have common tariffs with non-member countries.
- d) Common market. Realize free movement of capital, labor, service or other factors.
- e) Economic union. A high degree of coordination in economic policy as well as the common market.
- f) Monetary union. Fixed exchange rate among member countries or one common currency as well as the common market. European Union is in this stage.
- g) Super-national union. This is the highest level of economic integration. Member countries surrender their sovereignty.

It is not necessary for all member economies to benefit from the economic integration. Some may loose because economic integration has negative and positive effects. The elimination of tariffs will encourage more trade. Member country enhance their comparative advantage and produce more since they face a larger market. It is called trade creation.

But in another case, member countries have to import goods within the region, rather than the cheapest source, it is a potential loss. It is called trade diversion. For example, B and C produce a good with price 4 and 1.5 respectively. A has a 100% tariff on this good. B has a

200% tariff of this good. Before integration, A imports from C. Consumers face a price 3. If A and B integrate and adapt B's tariff to the union, no tariff in the union, A imports this good from B with price 4. Good from C face the 200% tariff. It is a lose for A because now A doesn't import from the cheapest source. Whether the country loose or gain depends which effect has higher weight.

Most often, the integration happens between similar countries. If the development level and income are similar among countries before integration, the gain from integration will be larger and integration will be easier(Park 1999).

Integration between similar countries leads to the extension of intra-industry trade. Integration allows the production process within an industry to be subdivided, with individual firm specializes in certain part of the process and realize the scale economies. Consumers benefit from the diversity of the products(Either 1995). The world witness the prevalence of intra-industry trade in EU. We'll see closely the intra-industry trade theory in chapter 4.

Economic integration calls for the cooperation of macroeconomic policies among member countries. For instance, member countries should reduce the exchange rate fluctuations to encourage the capital mobility. The success of integration requires a strongly political will of cooperation among member countries.

I'll focus on trade in the following chapters to study the economic integration in the South China Sea region.

Chapter 3 Theories of International Trade: Comparative Advantage

About the 'Asian Miracle' economists have many explanations from many aspects. Most explanation focus on the comparative advantage based on factor endowment (Wang 1997). Let's see closely what the comparative advantage theory says.

The principle of comparative advantage is a classical explanation of international trade. The basic idea was developed in the early nineteenth century and evolved over last hundred years. The original version is the Ricardian model. Compared with the Heckscher-Ohlin model the Ricardian model assumes trade partners are identical except technology. But a one-factor model can say nothing about the effects of trade on a country's factor distribution of income. Swedish economists Heckscher and Ohlin developed modern theory of international trade. The Heckscher-Ohlin theory emphasizes trade partners are same except factor endowment. Samuelson gave the Heckscher-Ohlin theory a mathematical foundation. It is called the Heckscher-Ohlin-Samuelson model.

Assumptions:(Ethier 1995)

1. there are two countries, two goods, and two factors of production(call them capital and labor)
2. the two factors are available in fixed amount in each of the two countries, are fully mobile between industries within each country, but are immobile between countries; all markets have free and perfect competition.
3. the two countries are alike in every respect except for their endowments of the two factors. In particular, the technologies for producing the two goods are available to both countries, and they have identical tastes in the sense that if they face identical prices for the two goods they will consume them in identical proportions.
4. for each of the two goods there is given technology(available to both countries) indicating how capital and labor can be combined to produce output. This technology possesses constant returns to scale(varying both capital and labor in the same proportion will vary output in that proportion)

Assumption 1 & 4 are set up to make the model simple. Assumption 2 distinguishes international trade and domestic trade. Perfect competition is fundamental for comparative advantage. Only based on perfect competition the prices, can reflect the real relationship of

supply and demand. Assumption 3 guarantee that the study focus on the effect of different factor endowment. We start by looking at one country which faces fixed world market prices on its products.

The model

$$(1) \quad x_i = F_i(K_i, L_i) \quad i = 1, 2$$

$$(2) \quad p_1 \frac{\partial F_1}{\partial K_1} = p_2 \frac{\partial F_2}{\partial K_2} = r$$

$$(3) \quad p_1 \frac{\partial F_1}{\partial L_1} = p_2 \frac{\partial F_2}{\partial L_2} = w$$

$$(4) \quad L_1 + L_2 = L$$

$$(5) \quad K_1 + K_2 = K$$

denotations and explanations:

L = total employment within one country

K= total capital used within one country

L_i = labor used in the production of good i

K_i = capital used in the production of good i

p_i = price of good i

x_i = output of good i

w = wage rate

r = rental of capital

Equation 1 is the production functions. Because of constant return of scale the production functions are homogenous of degree 1. Output is a function of capital and labor. Equation 2 & 3 are deduced from cost minimization behavior. We'll see the deduction in the following text. From equation 2 we know that the marginal productivity of capital is equal to the rental rate. Equation 3 says that the marginal productivity of labor is equal to the wage rate. Equation 4 & 5 come from assumption 2: the total employment and capital are fixed. It also means full employment of factors.

The endogenous variables are: $L_1, L_2, K_1, K_2, x_1, x_2, r$ and w

The exogenous variables are: p_1, p_2, L, K

We have 8 unknown variables. Equation 1, 2, 3 include two equations respectively. So we have 8 equations. The system may be determined.

Derivation of equation 2 and 3

Because of the assumption of constant returns to scale there is no profit maximization. The more you invest the more you get with the same proportion. So we study the cost minimization.

$$(6) \quad \min_{L,K} \quad wL + rK \quad \text{subject to} \quad F(L, K) = \bar{x}$$

$$l = -(wL + rK) - \lambda[F(L, K) - \bar{x}]$$

$$FOC : \quad w = \lambda F'_L(L, K) \quad r = \lambda F'_K(L, K)$$

From first order condition we get

$$(7) \quad \frac{w}{r} = \frac{F'_L}{F'_K}$$

The right hand side of this expression is the technical rate of substitution, the rate at which capital can be substituted for labor while maintaining a constant level of output. The left hand side of this expression is the economic rate of substitution, at what rate capital can be substituted for labor while maintaining a constant cost. Cost minimization behavior requires the two substitutions are equal. From perfect competition each producer has zero profit

$$(8) \quad px - wL - rK = 0$$

px is the value of output. wL is labor cost. rK is the capital cost.

The total differential of production function is

$$(9) \quad F'_L L + F'_K K = x$$

Insert equation 9 into equation 8, we get

$$(10) \quad pF'_L L + pF'_K K = wL + rK \Rightarrow (w - pF'_L)L + (r - pF'_K)K = 0$$

From equation 7 we have

$$(11) \quad F'_K = \frac{r}{w} F'_L \quad \text{insert in equation 10}$$

$$(12) \quad (w - pF'_L)L + (r - p \frac{r}{w} F'_L)K = 0 \Rightarrow$$

$$(w - pF'_L)L + \frac{r}{w}(w - pF'_L)K = 0 \Rightarrow w = pF'_L$$

This is the equilibrium wage rate. Combine equation 12 and 7 we get equilibrium rental

$$(13) \quad r = pF'_K$$

They are equation 2 and 3 in the model.

The model is used to develop four basic propositions:

1. the Heckscher-Ohlin theorem
2. the Factor-Price equalization theorem
3. the Stolper-Samuelson theorem
4. the Rybczynski theorem

I'll focus on the Heckscher-Ohlin theorem because it is closest to the topic of this thesis. The theorem says a country has a comparative advantage in the good that is relatively intensive produced by the country's relatively abundant factor. If we denote the two factors as capital and labor with free trade, the capital-rich country will export the capital-intensive good, and import the other good.

Let's explain some definitions first.

definition $\left(\frac{K}{L}\right)_A > \left(\frac{K}{L}\right)_B \quad \text{or} \quad \left(\frac{r}{w}\right)_A < \left(\frac{r}{w}\right)_B$

Suppose the two factors are capital and labor, two countries A and B. When we say country A is capital abundant relative to labor compared to country B it means capital per labor in country A is larger than capital per labor in country B or rental in country A is relatively cheaper in autarky price.

At perfect competition we also can say country A has comparative advantage at capital-intensive good when autarky price of capital-intensive good is relatively cheaper. The other definition: at identical wages and rents industry 1 is capital intensive to labor compared to industry 2 when industry 1 employs more capital per labor than does the industry 2. It means $k_1 > k_2$

The pattern of Trade: the Heckscher-Ohlin theorem (two factor case)

What we are interested is which country exports and imports which good with given factor endowment.

Since the production function is homogenous of degree one we have

$$(14) \quad x_i = L_i F_i\left(\frac{K_i}{L_i}, 1\right) = L_i f_i(k_i) \quad k_i = \frac{K_i}{L_i}$$

k is capital per labor. f is the production per labor. From homogeneity we will have simple calculation.

$$(15) \quad \frac{\partial F_i}{\partial K_i} = L_i F_i' \left(\frac{K_i}{L_i}, 1 \right) \frac{1}{L_i} = f_i'(k_i)$$

$$(16) \quad \frac{\partial F_i}{\partial L_i} = F_i \left(\frac{K_i}{L_i}, 1 \right) + L_i F_i' \left(\frac{K_i}{L_i}, 1 \right) \left(-\frac{K_i}{L_i^2} \right) = f_i(k_i) - k_i f_i'(k_i)$$

Equation 15 is the marginal productivity of capital in industry i . Equation 16 is the marginal productivity of labor in industry i . The marginal productivity depend upon the factor proportion in each industry.

Rewriting equation 2 and 3 as

$$(2)' \quad p_1 f_1'(k_1) = r$$

$$p_2 f_2'(k_2) = r$$

$$(3)' \quad p_1 (f_1(k_1) - k_1 f_1'(k_1)) = w$$

$$p_2 (f_2(k_2) - k_2 f_2'(k_2)) = w$$

This is a sub-system of four endogenous variables: k_1 , k_2 , w and r . first, we have $k_1(p_1, p_2)$ and $k_2(p_1, p_2)$. Further, we have $w(p_1, p_2)$ and $r(p_1, p_2)$. r , w are homogenous of degree one. k_1 and k_2 are homogenous of degree zero in p_1 and p_2 .

$$(17) \quad \frac{w}{r} = G(p_1, p_2) = g\left(\frac{p_1}{p_2}\right)$$

Equation 17 says the relative factor price is solely determined by the relative commodity prices. Factor endowment does not influence the relative factor prices.

Equation 4 and 5 together with k_1 and k_2 can be used to solve for L_1 , L_2 , K_1 and K_2 .

$$K_1 + K_2 = K \Rightarrow L_1 * k_1 + L_2 * k_2 = K \quad \text{with equation 4 } L_1 \text{ and } L_2 \text{ are solved}$$

$$L_1 + L_2 = L \Rightarrow \frac{K_1}{k_1} + \frac{K_2}{k_2} = L \quad \text{with equation 5 } K_1 \text{ and } K_2 \text{ are solved}$$

Then, we have x_1 and x_2 from the production functions:

$$x_1 = x_1(p_1, p_2, L, K) \quad x_2 = x_2(p_1, p_2, L, K)$$

x_1 and x_2 are homogenous of degree one in L and K ; homogenous of degree zero in p_1 and p_2 because k_1 and k_2 are homogenous of degree zero. The relative output is

$$(18) \quad \frac{x_1}{x_2} = \varphi\left(p, \frac{K}{L}\right) = \varphi(p, k) \quad p = \frac{p_1}{p_2} \quad \varphi_p' > 0 \quad \varphi_k' > 0$$

two products in each country: 1 and 2. Define product 1 is relatively capital-intensive: $k_1 > k_2$.

The relative output is a function of relative price and capital per labor. This function increases in relative price and capital intensity. The prove is neglected here.

This is the supply side. Let's move to demand side:

$$\frac{c_1}{c_2} = h(p) \quad h' < 0$$

c_1 and c_2 denote the consumption in each country. The relative consumption is a function of the relative price. It is decreasing in p . When the relative price of product 1 increases, the relative demand of this product will decrease.

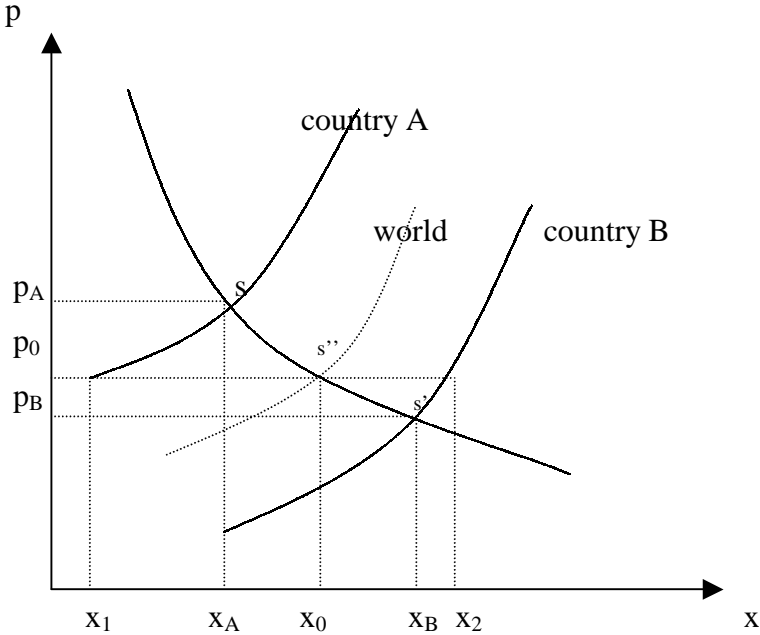


Figure I

In the figure, s is autarky equilibrium of country A, s' is autarky equilibrium of country B. Since $p_B < p_A$ and we suppose $k_1 > k_2$ in the above text, country A has comparative advantage in labor-intensive goods. Country B has comparative advantage in capital-intensive good because k is higher in country B than in country A. If now open for trade, the relative price in the world market must be between the two autarky prices. s'' is the equilibrium point in world market. p_0 is the equilibrium price with trade. x_0 is the consumption proportion in both countries. The relative consumption is same in both countries because consumers face the same relative price in both countries with trade.

Countries change their output according with the adjusted world price. x_1 and x_2 are the relative output of country A and B respectively. The relative output of good 1 increase in country B and decrease in country A. Now country B exports good 1 and imports good 2. Country A exports good 2 and imports good 1.

Then, we have the HO theorem: country which is abundant in capital exports capital-intensive product and import labor-intensive product, while country which is abundant in labor exports labor-intensive good and imports capital-intensive good.

If the two countries are similar, the two supply curves will converge toward each other. When two countries are identical, s and s' will be the same point. There is no trade. HO theorem says countries trade because they are different.

There might exist redistribution problem with trade. As Figure one says, trade leads to the change of relative price. In equation 17, the relative factor price will change when the relative commodity price changes. If the former changes faster or slower than the later, there will be redistribution problem.

Comparative advantage (many goods and factors)(Falvey 1994)

Now we generalize the two factor case to many goods and factors. Suppose equilibrium 0 is autarky and 1 is free trade. Since free trade equilibrium is at least as good as autarky

$$(19) \quad P^0 D^1 \geq P^0 D^0 = P^0 X^0$$

equilibrium, it implies that bundle D^1 can not be purchased at autarky price P^0

P, D, X are vectors. At autarky situation output is equal to consumption. Profit maximization behavior means at autarky price X^0 is the optimal output.

$$(20) \quad P^0 X^0 \geq P^0 X^1 \Rightarrow P^0 D^1 \geq P^0 X^1 \Rightarrow P^0 (D^1 - X^1) = P^0 M^1 \geq 0$$

At free trade prices trade is balanced

$$(21) \quad P^1 M^1 = 0$$

From equation 20 and 21, we get

$$(22) \quad P^0 M^1 - P^1 M^1 \geq 0 \Rightarrow (P^0 - P^1) M^1 \geq 0$$

When autarky price is higher than free trade price home country will import; when autarky price is lower than free trade price home country will export. For foreign country

$$(23) \quad (P^{*0} - P^1) M^{*1} \geq 0$$

Foreign country obey the same rule. Free trade equalizes production prices. So we have identical P^1 in both countries. Home country's import is foreign country's export

$$(24) \quad M^{*1} = -M^1$$

Combine equation 22 and 23

$$(25) \quad P^0 M^1 \geq P^1 M^1 \geq P^{*0} M^1 \Rightarrow (P^0 - P^{*0}) M^1 \geq 0$$

Country will import goods with higher autarky prices and export goods with lower autarky prices.

In the above study, capital and labor are two supposed factors. But it is not necessary that the two factors are capital and labor. It could be skilled and unskilled labors as well. Actually, the distinct of skilled and unskilled labor could be one explanation of Leontief Paradox which we'll see next.

Is the comparative advantage theory coincident with the reality? In 1953, Wassily Leontief published his famous empirical study on the trade pattern of United States. He found out US export labor-intensive goods and import capital-intensive goods based on the assumption that US is relatively capital abundant. This finding is called the Leontief Paradox. Economists try to explain the Leontief Paradox from different points of view. There is no generally accepted answer about this paradox. At least, it says comparative advantage is not able to give a comprehensive answer for the causes of international trade. A complement explanation is economy of scale. We'll discuss this in the next chapter.

Chapter 4 Intra-industry Trade Theory

According to comparative advantage theory countries trade because they are different. Countries are different in technology, factor endowment, taste, consumer preference... But in real world trade also happens between similar countries. It looks opposite with the comparative advantage theory.

One explanation is scale economy. In HOS model one assumption is constant return of scale in the firm level. If we relax this assumption and allow increasing returns to scale in firm level, it means *an equiproportional increase in all inputs increase output in greater proportion*(Eicher 1995). Firms internalize their costs. When the producer's average costs depend on the worldwide size of the economy it is called international economies of scale. If two countries produce two products they may specialize in one product for each and import the other to lower the costs. Or they might produce both, but different parts of one product. If it is the later case, intra-industry trade happens. They exchange the unfinished and finished products.

Intra-industry trade is based on international economies of scale, rather than comparative advantage. Besides the average cost and increased output, product differentiation can lead to intra-industry trade as well. Consumer can enjoy the increased variety. We'll see this from the model.

The requirement of intra-industry trade is similarity of two countries. Intra-industry trade happens when two countries are identical. If they differ in costs, technology and so on, each will specialize in one product(Eicher 1995). Since the SCS economies are similar in some degree, intra-industry trade theory might be another explanation of the cause of trade in this region. We also want to see the pattern of trade between similar products.

Krugman(1996) modeled the intra-industry trade with three motivations: a) Explain trade between countries with similar factor endowment; b) Why is trade in similar products; c) The non-existence of income-distribution problems. The model is:

Assumptions:

- a. two industries in one economy: industry 1 and industry 2

- b. factors of production are mobile within the industry, immobile between industries
- c. no transportation costs
- d. full employment
- e. producers always can differentiate their products without costs, say, by different brand. It means no homogenous goods. There exist scale of economies. Average cost falls with increasing output. There exists fixed cost
- f. consumers have same preference implying same utility function
- g. free entry of firms

The Basic Model:

$$(1) \quad U = \ln \left(\sum_{i=1}^{N_1} c_{1,i}^\theta \right)^{1/\theta} + \ln \left(\sum_{j=1}^{N_2} c_{2,j}^\theta \right)^{1/\theta}, \quad 0 < \theta < 1$$

$$(2) \quad c_{1,i} = (\lambda p_{1,i} \sum c_{1,i}^\theta)^{1/(\theta-1)} \quad c_{2,j} = (\lambda p_{2,j} \sum c_{2,j}^\theta)^{1/(\theta-1)}$$

$$(3) \quad x_{1,i} = -\frac{\alpha}{\beta} + \frac{l_{1,i}}{\beta} \quad i = 1, \dots, n_1, \quad x_{2,j} = -\frac{\alpha}{\beta} + \frac{l_{2,j}}{\beta} \quad j = 1, \dots, n_2$$

$$(4) \quad \sum_{i=1}^{n_1} l_{1,i} = L_1 = 2 - z, \quad \sum_{j=1}^{n_2} l_{2,j} = L_2 = z, \quad 0 < z < 1$$

$$(5) \quad \pi_1 = p_1 x_1 - (\alpha + \beta x_1) w_1$$

$$\pi_2 = p_2 x_2 - (\alpha + \beta x_2) w_2$$

$$(6) \quad \pi_1 = \pi_2 = 0$$

Denotations and Explanations of the model:

Equation one: N_1 and N_2 are potential number of differentiated products in each sector. We use n_1 and n_2 for the actual number of products. n_1 and n_2 are less than N_1 and N_2 . $c_{1,i}$ is consumption of the i th product of industry 1. $c_{2,j}$ is consumption of j th product of industry 2. The utility function exhibits constant elasticity of substitution (CES). This special form ensures that every product has same weight in the utility function. It will simplify the calculation as we see in the following text. θ measures the degree of substitutability among

products within an industry. The lower is θ , the more differentiated are products and the industry.

Equation 2: it is the consumption. $p_{1,i}$ and $p_{2,j}$ are prices of i and j products respectively. We get it from the consumers' maximization behavior.

Equation 3: $l_{1,i}$ is labor demand of i th product in industry 1. $l_{2,j}$ is labor demand of j th product in industry 2. $x_{1,i}$ is production of i th goods. $x_{2,j}$ is production of j th goods. Equation 3 says there exists fixed cost in two industries: $-(\alpha/\beta)$. Fixed cost is same in both industries.

Equation 4: L_1 and L_2 are two types of workers who work on industry 1 and industry 2 respectively. L_1 is only used in industry 1, L_2 is only used in industry 2. It comes from the assumption b. We use z as an index to measure factor proportion. Labor is the only input in this model. The total labor force is 2. The factor is abundant in industry one and scarce in industry two as long as $0 < z < 1$. When z is equal to one the two industries have same amount of workers.

Equation 5 shows the profit functions of two industries. w_1 and w_2 are wage in industry one and two respectively. p_1 and p_2 are prices of products. Since the factor is mobile within one industry, every product within the industry has the same price. x_1 and x_2 are output of industry 1 and industry 2. Because the firms are set up symmetrically, individual firm's output is same within one industry.

Equation 6: From free entry assumption every producer has zero profit. Because if there is positive profit it will attract new producers to enter the industry. Each firm faces less demand and reduces the profit to zero.

In the model endogenous variables are: U , $c_{1,i}$ and $c_{2,j}$, $x_{1,i}$, $x_{2,j}$, p_1 , p_2 , n_1 , n_2 , w_1 , w_2 , $l_{1,i}$, $l_{2,j}$, π_1 , π_2 , L_1 and L_2 . we have $3*(n_1 + n_2) + 11$ endogenous variables.

exogenous variables are N_1 , N_2 and z

θ , α and β are parameters.

N_1 and N_2 are determined by technology.

The parameters are given.

Now, let's solve the model

Case one: a closed economy

consumers' behavior

$$(7) \quad \underset{c_{1,i}, c_{2,j}}{\text{Max}} U \quad \text{subject to} \quad \sum p_{1,i} c_{1,i} + \sum p_{2,j} c_{2,j} = I$$

Lagrange function and first order condition is:

$$L = \ln\left(\sum c_{1,i}^\theta\right)^{1/\theta} + \ln\left(\sum c_{2,j}^\theta\right)^{1/\theta} - \lambda\left(\sum p_{1,i} c_{1,i} + \sum p_{2,j} c_{2,j} - I\right)$$

$$FOC: \quad \frac{\partial L}{\partial c_{1,i}} = \frac{1}{\left(\sum c_{1,i}^\theta\right)^{1/\theta}} * \frac{1}{\theta} * \left(\sum c_{1,i}^\theta\right)^{1/\theta-1} * \theta * c_{1,i}^{\theta-1} - \lambda p_{1,i} = 0$$

$$(8) \quad \Rightarrow c_{1,i} = \left(\lambda p_{1,i} \sum c_{1,i}^\theta\right)^{1/(\theta-1)}$$

A particular producer could treat the aggregate consumption as given if n is large enough.

Then we could get the price elasticity of demand from the first order condition

$$El_{p_{1,i}}^{c_{1,i}} = \frac{dc_{1,i}}{dp_{1,i}} * \frac{p_{1,i}}{c_{1,i}} = \frac{1}{\theta-1} \left(\lambda p_{1,i} \sum c_{1,i}^\theta\right)^{1/(\theta-1)-1} \lambda \left(\sum c_{1,i}^\theta\right) * \frac{p_{1,i}}{c_{1,i}} = -\frac{1}{1-\theta}$$

The elasticity is constant. It is negative because the slope of demand curve is negative.

Maximum problem for industry 2 goods is set up systemically and the elasticity of demand is same as industry 1.

Now let's move to producer's behaviour:

The producers in industry one maximize profit by adjusting output:

$$(9) \quad \underset{x_1}{\text{Max}} \quad \pi_1 = p_1 x_1 - (\alpha + \beta x_1) w_1$$

Since producers are able to differentiate their goods without costs every producer could be seen as a monopolist in his product. Then the maximization problem will be

$$(10) \quad \underset{x_1}{\text{Max}} \quad \pi_1 = p_1(x_1) x_1 - (\alpha + \beta x_1) w_1$$

$$FOC: \quad p_1(x_1) + \frac{dp_1}{dx_1} x_1 - \beta w_1 = 0$$

$$(11) \quad p_1(x_1) \left[1 + El_{x_1}^{p_1}\right] = \beta w_1$$

Since producers should consider consumers behaviour, then

$$El_{x_1}^{p_1} = 1 / El_{p_1}^{c_1} = -(1 - \theta)$$

we get from first order conditions:

$$(12) \quad p_1 = \theta^{-1} \beta w_1, \quad p_2 = \theta^{-1} \beta w_2$$

where p_1 and p_2 are the equilibrium prices of any products in industry 1 and industry 2. βw_1 and βw_2 are marginal costs. Prices are larger than marginal costs. It is the result of monopoly behaviour. When θ is lower the differentiation of products is larger. Each firm has more power in the market. The price is higher. When θ approaches one the market will be like a perfect competition: price is equal to marginal cost.

Because of zero profits we have the equilibrium output for two industries:

$$(13) \quad p_1 x_1 - (\alpha + \beta x_1) w_1 = 0 \Rightarrow x_1 = \frac{\alpha w_1}{p_1 - \beta w_1} = \frac{\alpha w_1}{\theta^{-1} \beta w_1 - \beta w_1}$$

$$\Rightarrow x_1 = x_2 = \frac{\alpha}{\beta} * \frac{\theta}{1 - \theta}$$

Output is equal for all the firms and independent on wage and price. High α means high fixed cost. It requires high output to ensure the firm could run with zero profit. Since each firm has equal size. From equation 5 and 6 we get the equilibrium size of each industry:

$$(14) \quad \sum l_{1,i} = n_1 l_1 = 2 - z \Rightarrow n_1 = \frac{2 - z}{\alpha + \beta x_1}, \quad n_2 = \frac{z}{\alpha + \beta x_2}$$

From equation 8 we have

$$(15) \quad p_1 = \frac{\theta c_1^{-(1-\theta)}}{\lambda n_1 c_1^\theta} \Rightarrow p_1 c_1 = \frac{\theta}{\lambda n_1} \Rightarrow n_1 p_1 c_1 = \lambda^{-1} \theta \quad \text{similarly, } n_2 p_2 c_2 = \lambda^{-1} \theta$$

Because of full employment there is no competition for employment between sectors. Price is a make-up on wage rate, thus wages must clear product markets. We are able to calculate how much will be spent on each product group:

$$p_1 n_1 x_1 = L_1 w_1 = (2 - z) w_1; \quad p_2 n_2 x_2 = L_2 w_2 = z w_2 \Rightarrow$$

$$(16) \quad (2 - z) w_1 = z w_2 \Rightarrow \frac{w_1}{w_2} = \frac{z}{2 - z}$$

The result we get is the wage ratio. It is only dependant on z . When industry 2 has less labor than industry 1 type 2 workers receive higher wage than type 1 worker. The factor price is higher in factor scarce sector. We see that only relative wages are determined. However, when the price level is fixed, all variables are determined.

Case two: two economies with trade

Here Krugman introduces a measure of the extent of intra-industry trade from Hufbauer and Chilas 1974 & Grubel and Lloyd 1975:

$$(17) \quad I = 1 - \left(\sum_k |X_k - M_k| \right) / \left[\sum_k (X_k + M_k) \right]$$

X_k is a country's exports in industry k , M_k is imports of that industry. If the country imports as much as exports I is equal to 1. If the country only specializes in imports or exports I equals 0. For example, if a country has industry 1 and 2. This country imports and exports same amount product of industry 1. It means $X_1=M_1=1$. The situation is same in industry 2: $X_2=M_2=1$. The amount of intra-industry trade is maximized. Then $I=0$. If there is no intra-industry trade this country specializes in industry 2 and imports all what its needs of goods of industry 1, $X_1=0$, $M_1=1$, $X_2=1$, $M_2=0$, I is equal to 0.

Suppose there are two countries: home country and foreign country. The home country is the same as we described before. The foreign country is a mirror image of the home country. In foreign country industry 1 has less labor. The labor force in industry 1 in foreign country is same amount as the labor force in industry 2 in home country. We use * to represent the foreign country.

$$(18) \quad L_1 = 2 - z, L_2 = z, L_1^* = z, L_2^* = 2 - z$$

Consumers in home country maximize utility function

$$(19) \quad U = \ln \left(\sum_{i=1}^{n_1+n_1^*} c_{1,i}^\theta \right)^{1/\theta} + \ln \left(\sum_{j=1}^{n_2+n_2^*} c_{2,j}^\theta \right)^{1/\theta}$$

we will have the same elasticity of demand for a particular product $1/(\theta-1)$ in both countries.

The maximum problem for producers in industry 1 is:

$$(20) \quad \begin{aligned} \pi_1 &= p_1(x_1)x_1 - (\alpha + \beta x_1)w_1 \\ \pi_1^* &= p_1^*(x_1^*)x_1^* - (\alpha + \beta x_1^*)w_1^* \end{aligned}$$

The technology is same in both countries. We have the prices:

$$(21) \quad p_1 = \theta^{-1} \beta w_1, p_2 = \theta^{-1} \beta w_2, p_1^* = \theta^{-1} \beta w_1^*, p_2^* = \theta^{-1} \beta w_2^*$$

Because of the symmetry of the factor endowment, we have

$$(22) \quad w_1 = w_2^* \quad w_2 = w_1^*$$

Because free trade without any cost will equalize the product price, we have

$$(23) \quad \begin{aligned} p_1 &= p_1^* \quad p_2 = p_2^* \Rightarrow \\ w_1 &= w_1^* = w_2 = w_2^* \end{aligned}$$

From equation 23 we see trade equalizes the factor price. The zero-profit condition determines the equilibrium output. Because of the same elasticity and same wage rates output is same for both industries in both countries. It is also same as the closed economy.

$$p_1 x_1 - (\alpha + \beta x_1) w_1 = 0 \Rightarrow x_1 = \frac{\alpha w_1}{p_1 - \beta w_1}$$

$$(24) \quad \Rightarrow x_1 = \frac{\alpha \theta}{\beta(1-\theta)} = x_1^* = x_2 = x_2^*$$

Same as the closed economy full employment determines the sizes of the industries

$$n_1 = n_2^* = \frac{2-z}{\alpha + \beta x}$$

$$(25) \quad n_2 = n_1^* = \frac{z}{\alpha + \beta x}$$

Until now we have the equilibrium product prices, factor prices, output and industries sizes when two countries trade. Suppose γ is the income in home country (foreign country has the same income); X_1 is the exports of industry 1 in home country; X_2 is exports of industry 2 in home country; M_1 and M_2 are imports in two industries respectively. Since every products has the same share of expenditure within one industry. We have

$$(26) \quad X_1 = \frac{1}{2} \gamma \left(\frac{n_1}{n_1 + n_1^*} \right) = \frac{1}{2} \gamma \frac{2-z}{2}$$

$$X_2 = \frac{1}{2} \gamma \left(\frac{n_2}{n_2 + n_2^*} \right) = \frac{1}{2} \gamma \frac{z}{2}$$

$$M_1 = \frac{1}{2} \gamma \left(\frac{n_1^*}{n_1 + n_1^*} \right) = \frac{1}{2} \gamma \frac{z}{2}$$

$$M_2 = \frac{1}{2} \gamma \left(\frac{n_2^*}{n_2 + n_2^*} \right) = \frac{1}{2} \gamma \frac{2-z}{2}$$

The equation 26 says the total world expenditure on each industry is $(\frac{1}{2})\gamma + (\frac{1}{2})\gamma = \gamma$. Half comes from foreign country. The exports of each country depend upon their market share in each industry. For instance, the export of industry 1 in home country is equal to its market share of the industry times the expenditure on this industry in foreign country.

Since the total exports of home country is equal to half income. It is nothing to do with z . It means the similar countries trade as much as dissimilar countries.

If we insert equation 26 into equation 17 we get $I = z$. When the similarity of factor endowment is increasing the intra-industry trade is also increasing. The more similar are the countries, the more intra-industry trade they have.

Gains and losses from the trade

Trade leads to redistribution problems among two industries. Because individual expenses his income w equally among two industries and also equally among products within one industry. From the former utility function we have a simplified form:

$$(27) \quad U = \ln \left[n_1 \left(\frac{w}{2n_1 p_1} \right)^\theta \right]^{1/\theta} + \ln \left[n_2 \left(\frac{w}{2n_2 p_2} \right)^\theta \right]^{1/\theta}$$

$$= -2 \ln 2 + \ln \frac{w}{p_1} + \ln \frac{w}{p_2} + \frac{1-\theta}{\theta} \ln n_1 + \frac{1-\theta}{\theta} \ln n_2$$

Consumption of i th product of industry 1 is equal to the wage income which is expended in this industry divided by the price of this product and the number of products of this industry. So we express it like the following

$$c_{1,i} = \frac{w}{2n_1 p_1}$$

Because there are n_1 products with same expenditure in industry 1. $c_{1,i}$ times n_1 is the aggregate consumption of industry 1. The second term in the equation 21 is the real wage in terms of price of industry 1. The third term is the real wage in terms of the price of industry 2. We could neglect the constant part in the equation. The utility functions of industry 1 and industry 2 workers of home country are

$$(28) \quad U_1 = \ln \frac{w_1}{p_1} + \ln \frac{w_1}{p_2} + \frac{1-\theta}{\theta} \ln n_1 + \frac{1-\theta}{\theta} \ln n_2$$

$$U_2 = \ln \frac{w_2}{p_1} + \ln \frac{w_2}{p_2} + \frac{1-\theta}{\theta} \ln n_1 + \frac{1-\theta}{\theta} \ln n_2$$

We have two effects from trade: first, because the trade equalizes the factor price there is redistribution effect.

$$(29) \quad \frac{w_1}{p_1} = \frac{w_1}{\theta^{-1} \beta w_1} = \frac{\theta}{\beta} \quad \text{before trade}$$

$$\frac{w_1}{p_1} = \frac{\theta}{\beta} \quad \text{after trade}$$

Compared with the situation in the closed economy real wage in industry 1 has no change in terms of the price in industry 1 since we suppose the parameters are same. But real wage will increase when the factor endowment is abundant in industry 1.

$$(30) \quad \frac{w_1}{p_2} = \frac{w_1}{\theta^{-1}\beta w_2} = \frac{\theta z}{\beta(2-z)} \quad \text{before trade}$$

$$\frac{w_1}{p_2} = \frac{\theta}{\beta} * 1 \quad \text{after trade}$$

Because $z/(2-z) < 1$. Then type 1 workers are better off after trade. We can also verify that real wage in industry 2-- w_2/p_1 --decreases because the factor endowment is scarce. In the foreign country the situation is opposite because the factor endowment is opposite. Trade benefit industry 1 workers and hurt industry 2 workers in home country.

The second effect is the increased variety of products. Both types of workers benefit from being part of a larger market.

$$n_1 = \frac{2-z}{\alpha + \beta x_1} \quad \text{before trade} \quad n_2 = \frac{z}{\alpha + \beta x_2} \quad \text{before trade}$$

$$n_1 + n_1^* = \frac{2}{\alpha + \beta x_1} \quad \text{after trade} \quad n_2 + n_2^* = \frac{2}{\alpha + \beta x_2} \quad \text{after trade}$$

From the former calculation we know that x has no change before and after trade. Then the number of products of both industries increase after trade. From equation 28 we could see the number of products is a term in the utility functions. The utility functions increase in n_1 and n_2 . After trade the welfare of both types of workers increases.

Considering these two effects we can say type 1 workers are absolutely better off. For type 2 workers their welfare after trade depends on which effect has higher weight. If we use a prime to symbolize the situation after trade the change of utility of type 2 workers is

$$(31) \quad U_2' - U_2 = \ln \left(\frac{w_2' * p_1}{p_1' w_2} \right) + \frac{1-\theta}{\theta} \ln \frac{n_1'}{n_1} + \frac{1-\theta}{\theta} \ln \frac{n_2'}{n_2}$$

$$= \ln \frac{z}{2-z} + \frac{1-\theta}{\theta} \ln \frac{2}{2-z} + \frac{1-\theta}{\theta} \ln \frac{2}{z}$$

The first term of equation 31 is negative since the real wage decreases. The rest terms are positive because of a larger market. The sign of the whole equation depends on which effect outweigh the other. If we write equation 31 in another way

$$(32) \quad U_2' - U_2 = \frac{2\theta-1}{\theta} \ln z - \frac{1}{\theta} \ln(2-z) + \frac{2-2\theta}{\theta} \ln 2$$

If $\theta < 0.5$, the first term is positive. The third term is larger than the second term. The sign of the equation is positive. The scarce factor will gain from trade. Because θ measures the substitutability of products within one industry it means when products are sufficiently differentiated both types of workers gain from trade.

If $\theta > 0.5$ the situation is a little complex. Because

$$\frac{d(U_2' - U_2)}{dz} > 0$$

the result of equation 25 is monotonically increasing in z . z is from zero to one. When z approaches one equation 25 approaches $((2-2\theta)/\theta)\ln 2 > 0$. When z approaches zero equation 25 approaches minus infinity. Hence when z is larger than a certain level the scarce factor will gain. If z is less than this level the scarce factor will lose from trade. But z is the index of factor endowment similarity of two countries this result tells us when two countries are similar enough both of them will gain from trade. Because equation 25 is decreasing in θ higher θ requires higher z to insure the positive sign.

In comparative advantage model, we assume two factors for production and factors are mobile between industries within one country. But in intra-industry model, we assume one factor for production and factor is not mobile between industries. Intra-industry model says similar countries trade as much as dissimilar countries (equation 20). When products are not sufficiently differentiated, it requires higher similarity between countries for both countries gaining from trade. But in HO theorem, the more difference between countries, the more trade as we know from the Figure I.

Intra-industry trade model could explain trade between countries with similar factor endowment in some ways even though it depends on some assumptions.

Chapter 5 The Application of the Theories in the Real World

5.1 Trade and Foreign Direct Investment(FDI) of the whole South China Sea region

Industrialization of South-East Asia came in 1960s. Started from the first generation NIEs: HongKong, Singapore, Taiwan and South Korea. Then came the second wave: the poor but populous economies of Southeast Asia. And finally the astonishing take off of China. The takeoff of these economies brought a dramatic change in Asian role in the world economy. I'll study their performance by statistics up to the Asian crisis in 1997.

Table 1 total GDP Growth Rate in select year 1989-1995 (relative to previous year)

	1989	1991	1993	1995
Brunei	-1,1	4	0,5	1,8
Cambodia	-1,9	1	5,7	7,6
P.R China	5,1	9,2	13,5	10,5
HongKong	2,6	5,1	6,1	5,8
Indonesia	7,5	6,9	6,5	8
Malaysia	9,2	8,7	8,1	9,6
Philippines	6,2	-0,6	2,1	4,8
Singapore	9,6	7,3	10,4	8,8
Thailand	12,2	8,6	8,5	8,8
Vietnam	8	6	8,1	9,5
Taiwan	8,2	7,6	6,3	6

Source: *Statistical Yearbook 1997 UN & Taiwan statistical data book 1999* Council for Economic Planning and Development

Five countries in the region — China, Indonesia, Malaysia, Singapore, Thailand and Vietnam, as well as Taiwan has had a very high GDP growth rate in late 1980s and the first half of 1990s. Let me reference the average GDP growth in the Asia-Pacific region. By the statistics of UN the GDP growth rates 6%, 4%, 4% and 6% in year 1989, 1991,1993 and 1995 respectively in the Asia-Pacific region. The growth rates of most SCS economies were higher than the average level. No economy has raised so quickly before.

Countries in the South China Sea region have been increasingly transmitting to market-oriented and export-led economies. Accompanied with the economic growth is increased trade and FDI in the region and in the world at large. The SCS countries have not only been

export-led, but have also been increasingly open to imports and investments from abroad. All of this has been closely linked together. Let's study exports first:

Export performance of the South China Sea countries

The SCS had a big export share of GDP. Their economic growth depend on exports.

Table 2 Exports of Goods and Services (as percent of GDP)

	1990	1992	1994	1996	1997
P.R China	19	16.8	21.8	20.6	22.6
Indonesia	25.6	26.7	25.5	25	29.4
Malaysia	76.4	76.9	91.3	92.2	94.9
Philippines	25.8	27.3	25.1	35.5	34.4
Singapore	180.2	166.6	170.7	168.2	164.2
Thailand	34.2	37.1	38.8	38.6	47.1

source: *International Financial Statistics Yearbook 1999* IMF

We are able to see from Table 2 that Singapore and Malaysia had higher export proportion than the others. These two countries heavily depend on trade. Thailand is in the middle class. China is relatively low in export proportion. It doesn't depend on export as much as the others. All of these countries experienced increase in their export-GDP ratios except Singapore from 1990 to 1997.

But even has a decrease in the ratio, Singapore still exported 164,2% of its GDP in 1997 because Singapore is a resource-poor city state which pursues an aggressive export-led and FDI-led development strategy. Also because a large part of Singapore's import is re-export. No data from Cambodia in the yearbook. Brunei, Taiwan, Vietnam are excluded.

Because of their high growth and growing foreign debt these economies play a more and more important role in world trade. We can see this from Table 3. I calculate the sum of export value of the South China Sea economies including HongKong, but no Taiwan and divided by the total world value and total export of developing countries respectively.

The SCS region is a vital exporter in the developing world. These economies had 15 percent of total world export in 1996, and more than half of all developing countries. This proportion increases obviously during the observed period. These economies adopt export-led policy; use

the export as the fundamental factor in their economic growth. Since 1979 China implement ‘open-door’ policy to integrate with the world economy.

There was an interesting stagnation from 1995 to 1996. Just before the 1997 crisis. Partly because Latin America promoted their export and stole the market share of the SCS economies. Partly because the demand in world market for electronics decreased. Electronics is a main export product of the SCS economies.

Table 3 the total export value of the SCS economies relative to world total export and developing countries’ total export

	1985	1990	1992	1994	1996
SCS/world	8 %	10 %	13 %	15 %	15 %
SCS/developing	33 %	43 %	49 %	53 %	51 %

Source: calculated from *Handbook of International Trade and Development Statistics 1996/1997* United Nations

Let’s see the structure of export by destination. We know from Table 4 that all of them except Cambodia export half or more of their export to industrial countries. Even though only Cambodia, China and Vietnam increase their export proportion to industrial countries we still can conclude that access to developed markets is a key factor in the development of these economies. Among the lower-income SCS countries they have intensive labor force (except Malaysia) and little capital. All of them export labor-intensive goods. They compete with each other for the market share. We’ll see more of this topic in the following.

Table 4 industrial countries’ share of exports from the SCS countries

	1990	1992	1994	1996
Brunei	63,1	61,5	73,2	48,5
Cambodia	12,8	27,8	15,7	37,5
China	35	35,1	51,2	54,2
HK	53,1	49,7	48	46,4
Indonesia	70,2	62,5	66	66,4
Malaysia	50,6	50,6	50,6	48,1
Philippines	79,2	79,5	74	69,7
Singapore	49,6	48,8	43	43
Thailand	67,1	64,8	57	54,4
Vietnam	20,9	38	43,6	61,6

Source: *Direction of Trade Statistics Yearbook 1997* IMF

Now let's see the export structure by goods. A striking feature of South China Sea countries' export is the shift from primary goods toward manufactured products. All of them have a share above 80% or close to 100% of manufacture export in total export value except Indonesia which is 51,4%. Except HongKong all experienced an increasing manufactured goods' share of total exports(in percent).

Table 5 percentage of manufactured goods in total exports

	1990	1995	1996
China	71,6	84	84,4
HK	94,5	93,6	93,4
Indonesia	35,5	50,6	51,4
Malaysia	53,8	74,7	75,9
Philippines	37,9	41,5	43,7
Singapore	71,7	83,9	83,5
Taiwan	92,5	92,7	93,1
Thailand	63,1	73,1	...

Source: *Handbook of International Trade and development Statistics 1996/1997* UN

There is also a shift from exporting low technology manufactured goods such as food processing, textiles to exporting high technology goods such as electronics in the SCS countries.

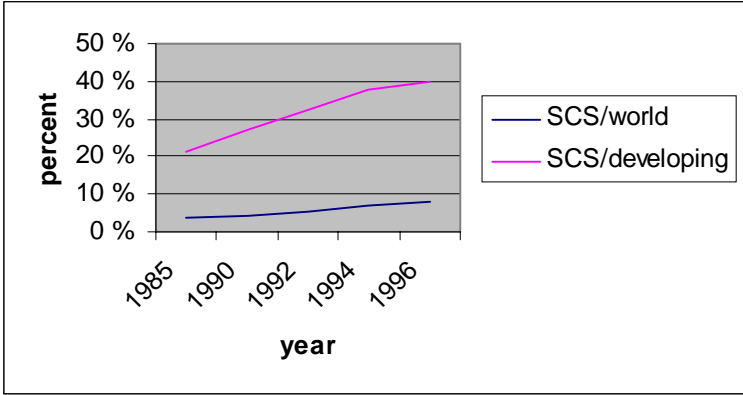
According to the study of Tran Thi Anh-Dao(1999), in 1996, 48.9% of Malaysia's export was electronics; 52% in Philippines; 27.3% in Thailand. Indonesia, Vietnam, Brunei and Cambodia have lower share. But please note that these countries which export electronics depend on imported intermediate goods. In the total electronics export, 60.1% was imports of parts in Thailand; 38.5% in Malaysia; 26.7% in Indonesia in 1994. Taiwan supports the export by domestic produced goods. The share of imports of parts as total electronics export in Taiwan was only 12.6% in 1994. It says these countries don't improve the technology capacities as much as the export data shows.

Except Singapore, HongKong and Taiwan, all countries have relatively abundant factor endowment in labor(while Malaysia imports labor). Learn from the comparative advantage theory, labor-intensive goods are cheaper in these countries because of the lower input costs, The they are competitive in exporting labor-intensive goods. Actually the statistics from the real world is in line wit the prediction of the HO theory: these countries have similar export

structure. They export textile, cloth, chemicals with similar proportion. From this point of view they are competitors.

Just as an increase in the share of manufactured goods, service export means the upgrading of export structure and industrial structure as well. From Figure II we can see the service exports of the South China Sea countries has a smaller share in the total world service export—less than 10% in 1996, and among the developing countries—40% in 1996.

Figure II the proportion of service export value of SCS in world total and developing countries' service exports



Source: calculated from *Handbook of International Trade and Development Statistics 1996/1997* UN

Import performance

One reason for the increasing import is increasing export. Higher exports share means higher imports share of intermediate goods². It also means higher income and higher demand. From Table 6 we can see every country has increasing import except Singapore. It is coincident with Table 2.

² A good which is used at some point in the production process of other goods, rather than final consumption

Table 6 Imports of Goods and Services (as percent of GDP)

	1990	1992	1994	1996	1997
P.R China	15,5	15,7	20,4	18,5	18,2
Indonesia	24	25,1	24,7	26,1	29,2
Malaysia	74,3	75,5	92,9	91,1	93,5
Philippines	31,5	31,8	40,6	49,9	61,4
Singapore	173,4	156,8	155,9	154,7	151,4
Thailand	42	41,8	44	45,1	47,1

source: *International Financial Statistics Yearbook 1999* IMF

It should point out that the SCS countries in low development level have export competition as well as import competition. They compete for intermediate goods.

Explanation of export growth

Why did the South China Sea countries have this amazing exports performance? According to Lin(1999), the SCS economies with higher development level used their comparative advantage very well on every step of their development: in 1950s and 1960s the capital was scarce and labor was relatively abundant. The exports were labor intensive goods. With the accumulation of the capital and higher capital per labor their exports were capital intensive, technology intensive and even information intensive products. They are the successful example of comparative advantage theory.

On the other hand, some countries didn't utilize their comparative advantages. They moved the limited capital to one or two 'strategic' capital intensive industries for upgrading the industrial structure. The problem is, the upgrading of export and industrial structure is a result of improved factor endowment³. In the initial period of development capital is relatively scarce. If capital is distributed to one or two capital intensive industries other industries are not able to get enough capital. So the supported industries are not competitive enough because of the over protection and the other industries are also less competitive because of the loss of capital. Most population are poor. The real content of economic development is the promotion of capital intensity, but not the development of one or two industries.

³ the level of availability of factors of production in an area, or country

According to comparative advantage if a country is relatively labor intensive the industry which uses labor intensively will have cheaper price. The product which has cheaper price is more competitive and is more profitable. It is a 'virtuous circle' for capital accumulation. The by-results are higher employment, higher wage rate and better living condition. Actually we witness this 'virtuous circle' from the first and second generation of NIEs in Asia(Lin 1999). In 1991 China abandoned the export subsidies to trade sector. Then it makes export according to comparative advantage possible.

But in 1996 the export of some South China Sea countries declined sharply because of the shift of electronics production into Mexico. Thailand's overall exports declined by -1%, while Singapore's grew only 5%, and Malaysia's 6%... This worsened these countries' trade balance and foreign debt. The investment environment became unfavorable. They pegged their currencies to the US dollars and didn't devalue before they were forced to do so in 1997. But Devaluation of their currencies didn't promote export because the export sectors depend on imported parts and input which have higher price.

After the 1997 crisis people rethought the developing model of the South-East Asia. HOS model predicts a gain from trade. But when this is exhausted we have no further growth. This seems to be in line with Krugman's explanation of the Asian crisis. Krugman(1999) points out that the high growth was mainly achieved through intensive inputs. But total factor productivity⁴ was growing slowly. In according with his research, the growth of Britain and United States were accompanied by the increased factor productivity. The increasing of factor productivity is a result of improved technology. But for the case in two generations of NIEs their growth were contributed by the intensive input. Its growth was the product of resource mobilization rather than efficiency, of perspiration rather than inspiration. The marginal productivity of factors will decline without the improvement of technology. So when these countries input more and more, the growth slow down unavoidably.

Our previous statistics also show the export of electronics came from the large amount of import of intermediate goods, rather than their own technology. It is too early to say whether the development way of these economies is right or not. But it is a fact that they had a big achievement.

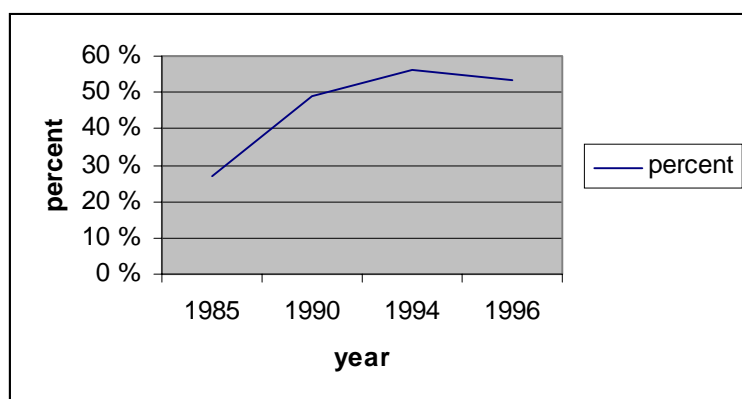
⁴ output per unit of input employed. In common use, the term is generally confined to labor productivity

Foreign Direct Investment(FDI)

The dramatically FDI inflow to these economies contribute to the economic growth. The SCS economies make favorable and sustainable policies to attract foreign investors. China offers preferential treatment to foreign investment in coastal countries since 1979. Now, central government aims to attract foreign investment to northwestern part. After 10 years' hesitation, foreign investors are confident with sustains of the policy. After 1990, FDI inflow in China achieved unprecedented growth. In 1997, China was the largest recipient of FDI among developing countries(Coughlin&Segev 2000).

Foreign Direct Investment(FDI) is a change in book value of an asset owned and controlled by an investor in another country. The asset is an affiliate if the stake is more than ten percent, or a subsidiary(majority-owned affiliate) if the stake exceeds 50 percent. Th owner is the parent company, which, by definition, is a multinational enterprise(Rutle 1997). Rutle points out in the paper the activities of multinational companies are reflected in statistics on FDI. These companies have impact on international trade. They account for at least one-third of international trade. FDI enforces the economic integration. It is complementary to intra-industry trade. Intra-industry trade increases with the increasing FDI.

Figure III share of FDI inflow to SCS in FDI inflow to developing countries and territories



Source: calculated from *Handbook of International Trade and development Statistics 1996/1997* UN

In the handbook the measure of developing countries FDI inflow does not include eastern Europe. Taiwan is not included. From Figure III we can see the share was higher in 1996 than

in 1985. There is also a stagnation on the eve of the 1997 crisis. It is consistent with the stagnation of export as we know from table 3.

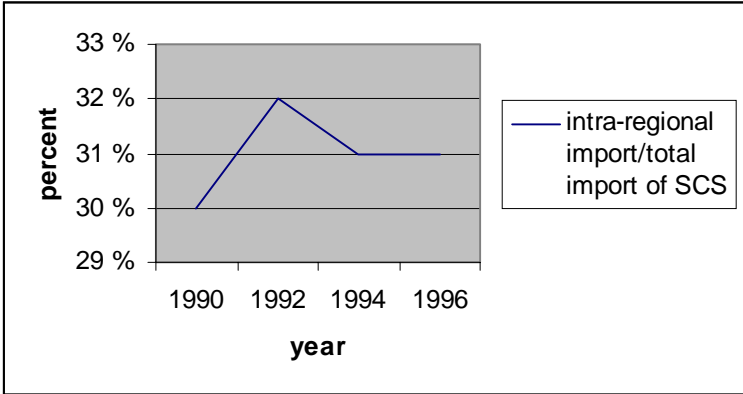
From Lee(1999)'s study, after the crisis foreign investment is one of the key factors for the recovery of SCS countries, especially for lower development level countries. These countries compete for foreign investment for their individual interests as the export competition for foreign market share. Even though China survived from the crisis, the future is risky. No devaluation of the currency, reduced export, contraction of SCS markets... All of these threaten the economic growth of China. For averting such a crisis, China have to keep the continuation of export growth, attractiveness of FDI. The competition is sharper among these economies.

5.2 Economic integration between the SCS countries and territories

Intra-regional trade

Economic integration should be companied with increasing intra-regional trade.

Figure IV intra-regional import/total import of the SCS countries



Source: calculated from *Direction of Trade Statistics Yearbook 1997*, IMF & *Handbook of International Trade and development Statistics 1996/1997* UN

I added all economies' export from the other SCS economies, then divided by the total import of the SCS economies to get the proportion. No data of Taiwan. The change of the proportion fluctuant in a small range: between 30% to 32%. From 1990 to 1996 bilateral trade didn't develop, and didn't decline in relative value. Please be careful not to overestimate the role of

HongKong and Singapore because they are 'middle man' in intra-regional trade. 80% and 40% of their imports are re-exported respectively(Tran Thi Anh-Dao 1999).

With the proportion of 31%, intra-regional trade is an unneglected power in the economic growth of the SCS countries and territories. Among these economies, Brunei, Cambodia, HongKong and Vietnam import more than fifty percent from the region. Indonesia and Philippines import 17% and 19% respectively.

In the region, ASEAN members have closer relationship than their trade relationship with China. To promote trade and FDI, ASEAN member countries have agreed to establish the ASEAN Free Trade Area(AFTA). Even the integration is still in the initial period, it is a trend in this region. AFTA provides for free trade in the region of 500 million people by year 2002(some countries later) through the removal of tariff and non-tariff barriers to intra-regional trade(Chia Siow Yue 1999).

AFTA requires the members regulate the international trade despite they have their own trade policies for outsiders. Because member countries with higher tariff are not able to maintain the effective tariff without cooperated management. For example, Singapore has lower tariff, Vietnamese importers can import goods from Singapore and transport them to Vietnam, Vietnam will loose the tariff revenue.

In European Union (EU) 60% of foreign trade is intra-regional trade. Compared with EU the ratio of the intra-regional trade between ASEAN is low: 21.7% in 1995. The level of the complementary among ASEAN economies is low. They are not complemented as much as competed against each other (Mai Khu Thi Tuyet 1999).

For two outsiders of ASEAN, China and Taiwan, we have to do a separate calculation. China's import from ASEAN(excluding two non-SCS countries Laos and Myanmar) was 8% of its total import in 1996. The absolute value was 10725 millions of US dollars. In the same year ASEAN(excluding two non-SCS countries Laos and Myanmar)'s export to China was only 3% of their total exports. These countries' export to Taiwan was also 3% of their total export. The absolute value were 11318.8 and 10766 millions of US dollars respectively.

The trade relationship between China and ASEAN is not tight. From my calculation there was no obvious increase of their trade proportion. Since the bilateral trade value between China and ASEAN via HongKong is hard to get I didn't consider this amount of trade.

But the increase of absolute value is exciting. According to ASEAN's release(2000), The economic relationship between ASEAN and China is getting close. *ASEAN exports to China increased 102.5% over 1993 figure. China's exports to ASEAN increased 14.4% in 1996. A significant number of ASEAN investors have set up joint ventures with the Chinese in numerous economic sectors in China, ranging from real estate development and discount retail chain stores to motorcycle production and chicken farms. On the other hand, Chinese investors, relative newcomers in ASEAN, have begun to establish their presence in Singapore and Indonesia.*

Intra-regional FDI

With the Achievement of these economies some of them became investor in the world economy. Among the SCS countries and territories the investors in order in 1996 were: HongKong, Singapore, Taiwan, Malaysia, China, Indonesia and Philippines.

Then FDI inflows from relatively higher level countries and territories in the SCS region have become the major input sources for the growth of the region's lower-income economies. We can know this from the table 7.

Why is this case? A suggested explanation could be comparative advantage theory. From chapter 3 we know HOS model is static. It should be combined with dynamic analysis. Since the development of higher-income economies, capital is increasing relative to the labor over time. The labor is less abundant. Then wage is increasing. The cost of labor-intensive goods is larger. They lost the comparative advantage in labor-intensive products. The return of capital is decline. Since the nature of chasing profit, capital moves to the lower-income countries in this region because of their ample, cheap labor.

Table 7 FDI inflow from the SCS region in 1997

Recipients	Source	% of total
Malaysia	HongKong	,,
	Taiwan	11,89
	Singapore	11,31
Thailand	HongKong	,,
	Taiwan	3,9
	Singapore	21,9
	Malaysia	2,3*
Indonesia	HongKong	0,74
	Taiwan	10,05
	Singapore	6,77
	Malaysia	1*
Philippines	HongKong	,,
	Taiwan	0,7
	Singapore	,,
China	HongKong	46,44
	Taiwan	7,26
	Singapore	5,76

Source: <http://idic.tier.org.tw> & Lee 1999 * the data in 1999

In the first half year of 1998, Singapore had 63.3% of FDI inflow to Vietnam. Taiwan had 9.3%; HongKong 6.6%; Malaysia 0.9%; Philippines 0.5%; Thailand 0.4%. Vietnam depend on the intra-regional FDI more than the others. A big share of FDI to China from HongKong, while Singapore is an important investor of Thailand. The three NIEs: HongKong, Taiwan and Singapore play significant role in the intra-regional investment, even though the share is not large. Vietnam and Cambodia are more dependent on ASEAN investment. There is economic complement between high-income economies and low-income economies in the SCS region.

Intra-industry trade

Intra-industry trade is one of the features of economic integration. Either(1995) pointed out the formation of the European Economic Community(EEC) was followed by a significant

increase in the amount and relative importance of intra-industry trade among all the partners. With the emerge of FDI, intra-industry affiliate is a main source of intra-industry trade.

The industrial integration develops in two ways: vertically integrated and horizontally integrated. Vertical integration means labor are divided on different stages of the production process. While horizontal integration means similar products are produced in different countries simultaneously.

Since late 1980s, the intensification of intra-industry trade which is generated by vertical integration of production activities has made the SCS economies more interdependent. It has developed in a number of skill and capital-intensive products(Tran Thi Anh-Dao 1999). Hopefully, there will be more intra-industry trade in the SCS region when the tariff is being reduced.

5.3 Four Chinese provinces

Even China is a SCS country, four Chinese provinces are of especial interests because China is a large country in geography.

a) Fujian

Fujian is a coastal province which is located on the one side of the Taiwan strait. Its GDP in 1998 ranked 11th among China's provinces. Both its import and export ranked 5th in 1997. FDI inflow was the fourth in 1997. Fujian province has numerous ties with the Chinese communities in the SCS countries.

Table 8 Fujian's export to the SCS countries unit: USD 10000

	1990	1995	1997
Brunei	6	250	309
Cambodia	1	25	100
Indonesia	577	4012	5952
Malaysia	1204	5636	8981
Philippines	901	10355	11933
Singapore	5566	19744	20212
Thailand	1100	3553	3037
Vietnam	19	590	1518
Export to the	9373	44165	52042
SCS			
Province total	223813	930822	1158909
export			

Export Share 4 % 5 % 4 %
to the SCS

Source: *Fujian Foreign Trade Yearbook* Fujian Foreign Trade Commission

Statistics of HongKong and Taiwan are not included because HongKong is not the final destination of most of Fujian's export and data of Taiwan is not available even though Fujian has highly, special relationship with Taiwan. Singapore is the main export destination of Fujian. Export to the SCS countries has a share of 4% of the Fujian's total export. It is really a small proportion. This proportion has no obvious change during the observed period. But the absolute value has changed a lot. We can see this from the table.

Fujian's import from the SCS countries excluding HongKong and Taiwan has a share of 6% in its total import value in 1997. Not much change from 1990 to 1997. The main import partner are Singapore and Malaysia. Malaysia exported a little bit more than Singapore to Fujian in 1997.

Now let's study the FDI inflow to Fujian from the SCS countries.

Table 9 investment to Fujian unit: USD 10000

	1990	1995	1997
Brunei	9
Cambodia
Indonesia	22	1890	1137
Malaysia	4	5950	5253
Philippines	84	7394	11348
Singapore	431	16028	11559
Thailand	453	2220	63
Vietnam
Investment from the SCS	994	33482	29369
Total investment to the province	37968	413996	436963
Investment share of the SCS	3 %	8 %	7 %

Source: *Fujian Foreign Trade Yearbook* Fujian Foreign Trade Commission

Investment from the SCS countries was increasing both in absolute value and share in the province total foreign investment from 1990 to 1997. The Philippines and Singapore contribute much to the investment to Fujian. The only investment data from Taiwan which I have is for 1991, Taiwanese invested 424 millions dollars in Fujian. Much more than any other SCS country. Since there is no separate statistics for FDI from each country we have to estimate it from total FDI percent. In 1997, FDI proportion in total foreign investment was 96%. In 1990, this proportion was 76%. So the main part of foreign investment is FDI.

Fujian exports food, textile, cloth, footwear to developed markets; exports TV, machinery to the SCS countries. Taiwanese textile companies have moved actually all of their factories to Fujian because the labor cost became too high in Taiwan, like the comparative advantage says.

According to Li(1998)'s study, Investment from Taiwan is increasing, especially during the crisis. The investment and economic circumstances are worse both in Taiwan and in Southeast Asia after the crisis. It urged Taiwan enterprises to invest a large part of their capital in the mainland. In order to prevent Taiwan economy from over-depending on the mainland, Taiwan authorities forbade Taiwan investors to invest in large-scale infrastructure and other large-scale projects of the mainland, and adopted 'south forward policy'. However, these policies didn't work because of the crisis.

b) Hainan

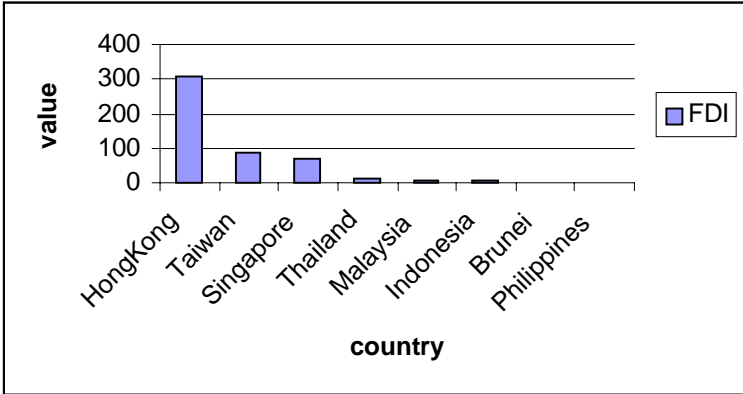
Hainan island is the second largest island in China after Taiwan. Hainan province includes Hainan island, Spratlys, and their waters. Hainan is a new province. It was under managed by Guangdong until 1988. Its GDP is much less than most provinces: 438.92 million yuan in 1998 which was ranked in the last fourth. The export of Hainan in 1997 ranked the last eighth among all provinces. But its average export ratio of GDP was 22.4% during 1988 and 1997, higher than average ratio in China—20%.

In 1998, the export value of Hainan was only 885 million dollars, almost same as the previous year. The import declined 3.3%. In the structure of export, the share of manufactured goods was 79.16% in 1998. 33.62% of the export to HongKong; 3.51% to Vietnam; 1.16% to Taiwan. Asia is the main part of Hainan's export. 53.68% of its export was for Asian countries.

Among the main import partners Singapore had 4.02% in Hainan's total import in 1998. Taiwan 3.37%, HongKong 2.21%, Thailand 1.80%, Malaysia 1.58%, Vietnam 1.22%. Hainan imported Hi-tech goods from developed countries. We can see from the statistics that the main export and import partners of Hainan are developed economies. Since 1998 the policy for trade with Taiwan was less strict. But because trade with Taiwan is just a small part in Hainan's foreign trade there is not obvious effect on the trade value of Hainan.

In 1998, FDI inflow of Hainan was only 717.15 million dollars. Increased just 1.6% from 1997. Most FDI was invested in manufacture industry and service industry(tourism). HongKong was the top one investor in 1998: 307.88 million dollars. Please remember some of them from other countries and territories, say, Taiwan. Let's see Figure 4:

Figure 4 FDI inflow to Hainan in 1998 million of dollars



Source: Hainan Yearbook of Economy 1999

69% of Hainan FDI inflow from the SCS region. If we exclude FDI from HongKong the percent is 26%. Taiwan was in the third position among the investors. 1.05 million dollars from Philippines. Compared with 1990 FDI increased dramatically. But since 1995 there is a sag of Hainan economy.

c) Guangdong

Guangdong has the best economic performance among all provinces except HongKong. Its GDP was highest. Its export and import value have been largest since 1986. Its average export growth rate is 22.1% over last 20 years. Its total trade value had a share of 40.1% in China in 1998. It had most FDI inflow in 1997 and 1998. 40% of its export are electronic, machinery, transportation equipment and other high added-value products. Since 1993 the average export

growth to ASEAN is 16.9%. Over last 20 years the average growth of FDI is 36.9%. In 1998, Guangdong had a share of 25.6% in foreign investment in China. The direction of foreign investment changes from processing industries to infrastructure and hi-tech products; from labor-intensive goods to capital-intensive goods and hi-tech goods. Now there is the biggest computer production base of China in Guangdong. Until 1998, foreign investment in manufactured goods has a share of 65.5%. More than 70% of foreign investment are from HongKong.

Table 10 trade with ASEAN unit: USD 10000

	1990		1997	
	Amount	Percentage in province total	amount	Percentage in province total
Export to ASEAN	25011	2.4	101416	1.4
Import from ASEAN	21287	3.7	61584	1.3

Source: *Statistical Yearbook of Guangdong 1998* Statistic Bureau of Guangdong

Asia is the main market of Guangdong. In 1997, Guangdong exported 91.3% of its total export value to Asia. The import proportion was 94%. But the share of ASEAN market is small. The percentage of export to ASEAN decreased from 2.4 to 1.4 during our observation period, even though the absolute value increased largely. With the development of economy and trade the relationship with ASEAN is loose. Guangdong exports 1.7% of its total export to Taiwan and imports 9.9% from Taiwan in 1996. Taiwan is a main import source of Guangdong.

Table 11 trade with individual countries in 1997 Unit: million of dollars

	export	% of province total	import	% of province total
HongKong	291,85	39 %	46,19	8 %
Taiwan	14,26	2 %	104,61	19 %
Philippines	2,51	0 %	1,76	0 %
Thailand	4,2	1 %	9,62	2 %
Malaysia	4,58	1 %	12,85	2 %
Singapore	14,19	2 %	22,16	4 %
Indonesia	4,41	1 %	7,67	1 %

Source: *Statistical Yearbook of Guangdong 1998* Statistic Bureau of Guangdong

We can see from Table 11 that in the South China Sea region, HongKong Taiwan and Singapore are main trade partners of Guangdong. A little trade with the other four countries.

d) Guangxi

In 1998, GDP of Guangxi ranked 16th among all Chinese provinces. Export value ranked 10th in 1997. 83.3% of its export were manufactured goods in 1998. After the crisis trade with Vietnam increased 20.4% because Vietnam has less negative impact from the crisis. Export to other SCS countries and territories decreased except Taiwan. In 1998, foreign investment from Asia increased, but investment from developed countries declined. HongKong, Taiwan, Vietnam and Thailand are in the top ten investors. 18% of its export go to ASEAN. 13% of its import are from ASEAN.

Table 12 main trade partners of Guangxi unit: USD 10,000

	export	% of province total	Import	% of province total
HongKong	68013	38 %	1288	2 %
Indonesia	497	0 %	889	1 %
Malaysia	900	0 %	1412	2 %
Singapore	2494	1 %	561	1 %
Thailand	2006	1 %	967	2 %
Vietnam	25394	14 %	3929	6 %
Taiwan	4732	3 %	3312	5 %

Source: *Guangxi Yearbook 1999* Statistics Bureau of Guangxi

HongKong and Taiwan are main export market of Guangxi as well as SCS countries.

Among the four provinces, Guangdong and Fujian are relatively independent from the SCS countries and territories except HongKong. Hainan depends on FDI inflow from the SCS economies. Guangxi has more close trade relationship with the SCS countries and territories. Since the economic development level are higher in Guangdong and Fujian I suppose that with the development of Hainan and Guangxi the relationship between the two provinces and the SCS countries(except HongKong and Taiwan) will be loose. Actually the local governments of all the four provinces aim at the pluralistic strategy with the world economy. They try to establish economic relationship with different countries, especially with developed economies.

Another feature of the four provinces is they don't have strong economic cooperation. From 1985 to 1992, inter-provincial export and import rose 6.9% and 4.8% in China. Compared with the increase of external export and import: 28% and 20% respectively, inter-provincial trade is weak. Another statistics show the inter-provincial trade as percentages of GDP is decline over time, even lower than the inter-member trade of the European Community in 1989 and that of the former Soviet Union in 1990. Local protectionism is prevail(Tang 1998). Learning from Tang's study, I suppose the four provinces behave individually in the SCS region. It limits their power in the SCS region.

5.4 Summary

From our study so far, there are positive effects as well as negative effects on the economic cooperation in the SCS region.

The positive effects are: the industrialization of Singapore, HongKong and Taiwan leads to economic complement between them and the other SCS countries; They are relatively abundant in capital, hence they export capital to the other labor abundant countries; the SCS economies with high development level export high technology manufactured goods while countries in lower lever export low technology goods; the later depend on the capital and technology transfer from the former; with the reduced tariff and increased intra-regional FDI intra-industry trade is developing, it makes the SCS economies more integrated; intra-regional trade has a significant share in their total trade; Free Trade Agreement brings to a bright future of cooperation; It is more difficult for outsiders to occupy the market in other regions with the development of other regional unions such as NAFTA and EU, it pushes the SCS economies search for cooperation in region level.

But there also exist negative effects on the conflict: most SCS economies implement export-led policies, developed countries are extremely important for their export performance and economic development; at the same time the lower development level countries have similar factor endowment and export structure, they compete for the market share in developed countries; since FDI's role in economic growth, these countries compete for FDI inflow; after the crisis the situation gets worse, the recovery is up to export and FDI inflow, but almost all currencies are devaluated, they don't benefit much from devaluation; the demand in the world market is not favorable; the intra-regional FDI and trade reduced since almost all economies

are involved in the crisis; ASEAN didn't show its ability for coping with the crisis, member countries turned to the help from world organization and developed countries, they compete for their own interests; the SCS region includes eight ASEAN members and China, HongKong and Taiwan, according to my calculation ASEAN has small market share in China and Taiwan, the closer relationship among ASEAN members might strength the conflict between China and ASEAN.

Under these negative and positive effects the future of regional economic integration is ambiguous. It depends on which one overweight the other.

Chapter 6 Conclusion

Free trade is one of the important features in economic integration. In the above study, two theories of international trade are present: comparative advantage and intra-industry trade theory. The former is a classical explanation of international trade. It is correct partly in today's world. We saw this in chapter five. It seems to be the SCS economies used their comparative advantage to realize the take-off of their economies. With the development of FDI and economic integration, intra-industry trade emerges. Known from the European experience, member economies have more intra-industry trade when the economies are more integrated.

In chapter 5, I try to use the theories to analyze the questions which are presented in chapter one. The SCS economies had astonishing economic growth and export achievement. With the development of their economies the regional circumstances plays more and more active role in the economic performance of the Southeast Asia countries. Industrialization, economic development and growth create a favorite circumstance for economic integration. The competition for FDI is fierce in worldwide. It pushes the SCS economies to cooperate because the cooperation in the region will be attractive to investors. The crisis shows the need for cooperation mechanisms since one country's mismanagement could affect the others' economic performance. It might motivate the SCS economies monitor each other and coordinate their economic policies.

On the other hand, industrial markets are important for the Southeast Asia countries with export-led policy. The Southeast Asia economies have no strong incentive to develop regional cooperation. Those in low development level have similar comparative advantage and industrialization strategy. So they face more fierce competition with each other (Lee 1999). The recession after the crisis reduces the market size and trade among the SCS countries. It makes them rely more on the developed markets. There exists the competition for market shares in the developed markets and FDI among the lower income SCS countries. The trend of economic integration in the SCS region is complex. ASEAN member aims to set up AFTA. But there is no clear target in the integration between ASEAN, China and Taiwan. They don't even have PTA which is the basic form of economic integration. It is very likely that political

integration brings about economic integration. The later is byproduct of the former. Economic integration rarely proceeds and foster political integration(Either 1995).

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