# On the Impacts of Regional Trading Arrangements on FDI: The Case of the China-Japan-Korea FTA

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# On the Impacts of Regional Trading Arrangements on FDI: The Case of the China-Japan-Korea FTA

The paper examines the impacts of the Northeast Regional Trading Arrangements (RTAs) on inward FDI to Korea.

It constructed a fixed effect regression model where inward FDI was regressed on wage and interest differentials between home and source countries, exchange rates, GDP, trade volume, and the number of labor disputes. Our empirical results show that the inward FDI to Korea is of both horizontal and vertical character. We argue that the China-Japan-Korea FTA is very likely to encourage FDI inflows to Korea.

Empirical results also show consistent negative signs on real wage differential variable across industries. It is expected that the elasticity of the inward FDI with respect to the real wage differential is going to be much higher once the CJK FTA is formed. It is also expected that the negative effect of labor dispute on the inward FDI will aggravate when the FTA is created.

A channel through which FTA may promote the FDI to Korea is growing domestic market size. FTA in general prompts economic growth through enlarged international trade. Therefore, growing consumers' purchasing power under the FTA could attract more FDI into Korea. Whether FTA will discourage or encourage the inward FDI depends on the relative magnitude of positive and negative impacts the FTA will bring. But our temporary verdict is that the CJK FTA is more likely to encourage the inward FDI in general as the Korean labor market is becoming more flexible.

*Keywords*: FDI, fixed effect regression, horizontal integration, vertical integration, market size

*JEL Classification Number*: F15, F21

# Ⅰ. Introduction

Since the financial crisis in 1997, inward FDI has been regarded as an important investment source in Korea. The inward FDI is expected to generate jobs, technology innovations, improvement of managerial skills, and growth. Some empirical studies confirm the argument. For example, Blomstrom et al (1994), Balasubramanyam et al (1996) and Borensztein et al (1998), Barrel et al (1997), Borensztein et al (1998) all present empirical evidences that foreign direct investment transfers technologies and promotes economic growth.

With this notion the Korean government has taken some policy measures to attract FDI, as will be discussed in the next chapter, but the performance is still far from satisfactory. Compared with other countries, the inward FDI to Korea is near to bottom. As table 1-1 shows, Korea's inward FDI stock as a percentage to GDP is the lowest in Asia after Japan. Furthermore, the inward FDI has drastically declined since 2001. With prolonged stagnation and high unemployment, Korea is in need of the direct investment from foreigners.

**<Table 1>** **Inward FDI stock as a percentage of GDP(2002)**

| | Stock of inward FDI (100 million dollars) | Percentage to GDP (%) |
|---|---|---|
| Korea | 436 | 9.2 |
| China | 4,479 | 36.2 |
| Japan | 596 | 1.5 |
| Malaysia | 565 | 59.4 |
| Indonesia | 558 | 32.2 |
| Vietnam | 171 | 50.2 |
| Asia | 14,025 | 33.3 |
| World | 71,225 | 22.3 |

Source : 2003 World Investment Report, UNCTAD

Another policy issue along with the declining inward FDI in Korea concerns about the possibility of an FTA in Northeast Asia. Until recently, Northeast Asian countries - China, Japan, and Korea did not show much interests in any regional trading arrangements such as Free Trade Agreements (FTAs), despite the global wave of regionalism. After the financial crisis, however, these countries began to show a great interest in establishing bilateral FTAs with major trading partners and Northeast Asian FTA. Also, a trilateral FTA between China, Japan and Korea (hereinafter CJK FTA) was raised as a possibility to counterbalance other regional economic blocks such as EU and NAFTA.

The three countries made an official attempt to discuss stronger economic cooperation in Northeast Asia during a trilateral summit meeting in Manila in 1999. Three years later, then Chinese Premier Zhu Rongji proposed a study of the trilateral FTA during the summit meeting in Phnom Penh, November 2002. Since then, the Trilateral Joint Research has been carried out to examine the Economic Effects of a FTA among China, Japan and Korea. The research results were reported at the trilateral meeting in Bali, October 2003 and then a study for sectoral impacts and policy of a CJK FTA has been undertaken in 2004.

The significance of a CJK FTA would be highlighted not only in terms of Korea's national interests, but also in terms of regional integration. The CJK FTA will bring about massive economic benefits to the three countries in terms of production, trade and economic welfare. Moreover, the establishment of a CJK FTA will also contribute to introducing suitable arrangements that will accelerate trade and investment in the region. Truly, a trilateral FTA will be much more beneficial to all the three countries in the region than any bilateral FTA among those countries. A CJK FTA can also function as a bridge to establish the goal of an East Asian FTA, implying that the trilateral FTA should first be developed as a form of solid economic integration.

With the observations on these issues, the immediate question is how an FTA will affect the FDI inflows into Korea. One of the main purposes in the paper is to explore this question. In this paper, we will first study the theoretical background of the relations between RTAs (Regional Trading Arrangements) and FDI and then analyze the major determinants of the inward FDI to Korea. Then, this paper intends to derive some implications on FDI promotion policies and examines how the trilateral FTA,

once launched in the Northeast Asia, will affect the inward FDI to Korea.

There exist some literatures that deal with the relationship between regional integration agreement and FDI. Yeyati et al (2002) used data on bilateral outward FDI stock from OECD to 60 host countries to show that regional integration promoted the FDI. Their finding suggests that the FDI is complementary with trade. Earlier studies like Molle et al (1991), examining the effect of EC on the inward FDI, support in general that the regional integration helped the inward FDI from both members and outsiders increase.

However, the empirical results were mixed when attention was paid to the impacts of regional integration on individual countries' inward FDI. For instance, Mayes (1983) and Grant(1983) found that the creation of EC had no effect on FDI to UK. Nor did Winters (1996) find that Greece benefited from joining EC. Blomstrom et al (1997) argued that the inflows of FDI to MERCOSUR were not distributed equally to all participating countries. They pointed out that Paraguay did not appear to be benefited in FDI by joining MERCOSUR.

Since the prior studies do not provide a clear-cut expectation about the impacts of an FTA on the inward FDI, an in-depth study is needed to evaluate the possible impacts on the inward FDI that the CJK FTA would bring about.

This paper basically consists of two parts. One is to review theoretical linkages between an FTA and an inward FDI. Theoretical discussion will identify factors that are believed to affect the inward FDI. The other is to empirically characterize the inward FDI to Korea, followed by discussion on the implications that the possible creation of the CJK FTA will have. Empirical analysis will use data that is broken down to industry-level. This helps us understand industry-specific impacts of the CJK FTA.

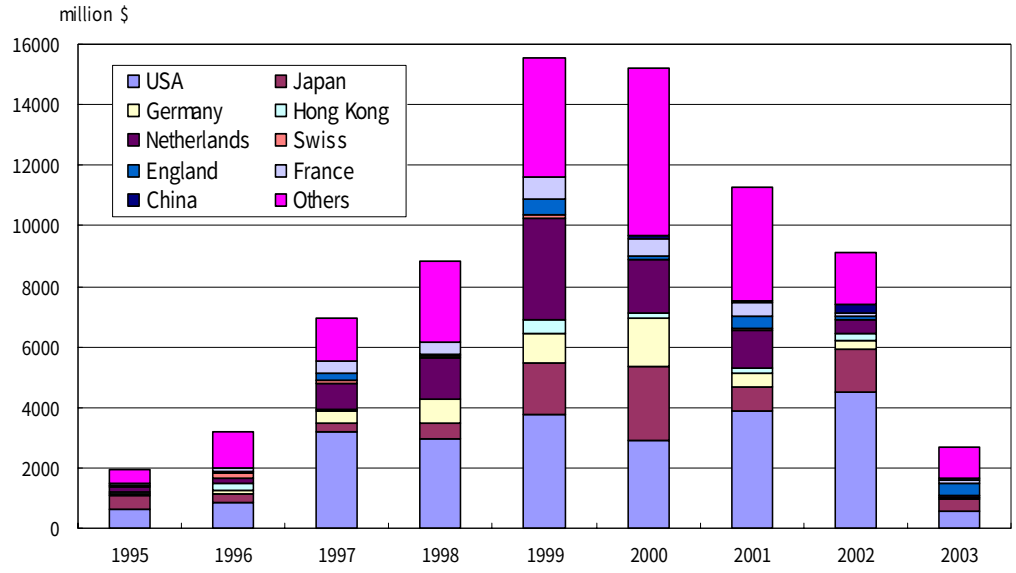
## II. Recent Trend and Patterns of FDI Inflows

Since the mid 1990s, complying with the Uruguay Round and OECD commitments, Korea has begun to remove its barriers to both incoming and outgoing foreign investment. As a result, Korea's overseas direct investment as well as foreign investment into Korea increased gradually throughout the mid 1990s. However, incoming FDI was not increased substantially until the Korean financial crisis, following drastic liberalization process.

After the financial crisis, the Korean Government has implemented comprehensive policy measures to promote inward foreign investment. The government has accelerated its liberalization schedule and undertook a liberalization of hostile Merger & Acquisition (M&A) and foreign land ownership in 1998. Since then, Korea has opened most of the business areas previously closed to foreign investment. Particularly, the financial market has been significantly opened. Foreign banks were allowed to establish subsidiaries. Bond markets were also completely liberalized. In the stock market, ceilings on foreigners' stock investments were lifted with the exception of some state-owned enterprises. In addition, most current account transactions related to the operation of financial institutions and corporations have been liberalized. Such liberalization was intended not only to attract foreign capital, but also to introduce market competition and international standards in the Korean economy.

Furthermore, the Korean Government has simplified and streamlined the overall investment process to attract more foreign investment. They declared that foreign investment be notified rather than approved. The Korean Government has reduced the number of application documents required for the establishment of businesses by foreign investors. In 1998, the Investment Service Center was established to provide "one-stop" services to foreign investors. Also, the Office of the Investment Ombudsman was established in 1999 to help foreign investors. Later, in the late 2003 the Korean government also set up a service agency for FDI, 'Invest in Korea' within the KOTRA.

**<Figure 1>** **FDI Inflows in Korea by the Source Country, 1995-2003**




**<Table 2>** **FDI Inflows in Korea by the Source Country, 1995-2003**

(unit: million $)

| | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|---|---|---|---|---|---|---|---|---|
| Total | 1,947 | 3,203 | 6,971 | 8,853 | 15,542 | 15,217 | 11,292 | 9,101 | 2,660 |
| USA | 643 | 875 | 3,190 | 2,971 | 3,739 | 2,921 | 3,889 | 4,500 | 582 |
| Japan | 424 | 255 | 265 | 504 | 1,749 | 2,448 | 772 | 1,404 | 367 |
| Germany | 45 | 95 | 398 | 785 | 960 | 1,599 | 459 | 284 | 44 |
| Hong Kong | 58 | 229 | 85 | 38 | 460 | 123 | 167 | 234 | 14 |
| Holland | 170 | 205 | 831 | 1,323 | 3,322 | 1,768 | 1,245 | 451 | 62 |
| Swiss | 10 | 162 | 103 | 76 | 140 | 25 | 46 | 31 | 3 |
| England | 87 | 79 | 259 | 61 | 480 | 84 | 432 | 115 | 431 |
| France | 35 | 90 | 411 | 369 | 750 | 607 | 426 | 111 | 96 |
| China | 11 | 6 | 7 | 8 | 27 | 76 | 70 | 249 | 26 |
| Others | 465 | 1,208 | 1,423 | 2,716 | 3,915 | 5,564 | 3,785 | 1,724 | 1,036 |

Source: National Statistical Office, KOSIS Data, homepage (http://www.nso.go.kr)

Under the progressive liberalization programs, FDI into Korea has been steadily growing since the beginning of the 1990s. Especially after the crisis, it sharply grew by 62.5% in 1998 and 90.4% in 1999. By 2003, cumulative FDI inflows (1962-2003) stood at US$ 88.6 billion, of which US$ 63.6 billion (71.8% of the total) entered Korea in the period of 1998 to 2003 after the financial crisis. Foreign Investment originated largely from US, Japan, Germany and the Netherlands. Notably, the European Union's FDI into Korea grew by 117% in 1999, making the European Union the largest source of foreign investment in Korea, surpassing the United States. However, FDI into Korea declined sharply since 2001. Recently, the Korean government has raised great concerns about the sharp drop in FDI inflows. Despite a recent decline, FDI inflows will be growing again if Korea marches on the path of continuous structural reforms.

Figure 1 shows the trends of FDI inflows to Korea by country. Before the 1997 crisis, FDI from the U.S. and Japan made up a dominant proportion. During the crisis period, Europe's share surged considerably. In particular, FDI from Germany, France, and the Netherlands grew tremendously after the 1997 crisis.

# III. Theoretical Analyses of FTA, FDI, and Their Relations

## 1. Theoretical Analysis of FTAs

Since the end of World War II, international trade has grown rapidly as trade barriers have fallen through the multilateral trade negotiations of GATT/WTO. In addition to the multilateral trade liberalization, various countries have agreed to reduce even further barriers to trade as well as investment among themselves. This way in which countries can achieve freer trade is through regional trading arrangements. As of the end of 2003, more than 200 regional trading arrangements were formed in the framework of GATT/WTO, but more than half of them were officially reported to the WTO after its launch in 1995.

Regional trading arrangements (hereinafter RTAs) can take several forms. The four types of RTAs are Free Trade Agreements (FTAs), Customs Unions (CUs), the Common Markets, and the Economic Unions. The simplest form of RTAs is an FTA in which member countries agree to abolish their tariffs on almost all trade among themselves while they retain trade barriers on trade with nonmember country outside arrangement. A basic difference between FTAs and CUs is how the member countries treat nonmember countries. A CU is a group of countries that agree to eliminate trade barriers among themselves and to adopt a common external barrier against nonmember countries. However, member countries of a FTA maintain their own individual tariff barriers against nonmember countries.

The view economists have looked at RTAs (FTAs or CUs) has changed over time. When the GATT was formed in 1948, RTAs were regarded as step toward freer trade. Provided new RTAs did not raise trade barriers vis-à-vis the rest of the world, they represent serious commitment toward freer global trade. Therefore, they were regarded as benign to the world economy. However, Jacob Viner (1950) changed this perception dramatically. He shows that an RTA does not always produce positive impacts on trade and investment because an RTA gives birth to two opposite types of effects, trade creation and trade diversion. The former is due to the removal of barriers to trade between member countries. A member country will displace some domestic

production of certain products with cheaper imports of the good. Therefore, this will result in an improved allocation of global resources in a sense that goods are now produced where they are cheapest.

By contrast, trade diversion results from the discrimination against goods produced by nonmember countries. Some low cost imports from nonmember countries outside an FTA can be displaced by higher cost imports from member countries inside. This means that global resources are less efficiently allocated than before. Then the net impact of a RTA (an FTA or a CU) on trade volume of a member country depends upon the relative size of these two opposite effects. If trade creation effect exceeds trade diversion, a RTA will be trade expanding, so welfare enhancing. That is, it will expand world trade and improve global economic welfare. If, however, trade diversion exceeds trade creation, the reverse will be valid.

Yet, there is a fundamental difference between FTAs and CUs, which brings about another trade effect. What differentiates the FTA from the CU is that an individual country within an FTA independently makes its own decision about tariffs against imports from nonmember countries. By contrast, a CU sets a common external tariff. This gets around one of the problems faced by FTAs, namely trade deflection.

Trade deflection is the possibility that nonmember countries might deflect their trade through the member country with the lowest external tariff. For example, if country A has a lower tariff on a certain product than country B and they form an FTA, a third country C will choose to export this product to B through A rather than directly to B. Country B will lose tariff revenue to A and its tariff protection toward the nonmember countries will be undermined. Therefore, an FTA needs to introduce strict rules of origin to ensure that only products substantially produced within an FTA are allowed to move freely between member countries. However, rules of origins are often difficult to agree and to enforce strictly.

Still, an FTA cannot avoid indirect trade deflection even though it implements strict rules of origin. For example, suppose that country A has a lower tariff on a certain product than country B before they form an FTA. After an FTA is formed, country A may choose to export all the products to B, but import from nonmember countries the product for domestic consumption. Country A produces trade deflection to take advantage of lower tariff structure. This will result in larger trade volume within an

FTA, while the same trade volume is maintained with nonmember countries outside an FTA.

In theory, member countries of an RTA could manipulate their tariff structure, lowering them as necessary, to leave their total trade volume with nonmember countries unchanged. In this case, trade diversion would not occur and an RTA would be unambiguously beneficial. This is called “Kemp-Wan proposition”.[1)] However, in reality this proposition is far from practical. Unfortunately, the member countries of a CU hardly agree to adjust their common external tariff to avoid trade diversion. Rather, it is much easier for FTAs to follow Kemp-Wan logic, as long as member countries could decide to lower their own tariffs to offset any trade diversion.

Some conclusions emerge from the analysis of trade creation and diversion. First, the larger the area of an FTA (or CU) covers, the less the scope for trade diversion and the greater the opportunities for trade creation. This is reasonable because if all countries were to be in the same FTA, there could be no trade diversion at all. A corollary is that the larger the FTA is, the greater the harm will be to those left outside it. Second, the greater the degree of complementarity of the member countries is, the greater the likelihood of trade diversion will be. Third, the greater the degree of competitiveness of the member countries is, while being potentially complementary, the greater the likelihood of trade creation will be.

So far, we have examined FTAs (or CUs) only in terms of static effects. It is likely, however, that FTAs (or CUs) will also have dynamic effects, which would expand the production possibilities curves of the member countries. Balassa (1961) views these dynamic effects as one of the many ways through which an FTA (or a CU) may influence the growth rate of the member countries. Some ways in which an FTA (or a CU) can affect the economic growth is through economies of scale, increased competition, the stimulation of investment, and encouraging technical changes. These dynamic effects can be categorized as follows:

1) See Kemp, M.C. and H.Y. Wan (1976)

**(Competition effects)**

Reducing trade barriers brings about more competitive environment than before, thus raising production efficiency as well as encouraging the adoption of new technologies. Also, FTAs (or CUs) may stimulate greater investment in the member countries from both domestic and foreign sources.

**(Scale effects)**

A larger market means that industries can realize economies of scale and then enjoy lower average costs of inputs. The economies of scale may result in specialization in certain types of a product, thus leading to greater intra-industry trade rather than inter-industry trade.

In some successful examples of FTAs (or CUs), dynamic effects have far outweighed any negative static effects from trade diversion. Therefore, impressive economic growth was realized with a formation of an FTA due to improved competition and the economies of scale. More recently, in search for rationale for FTAs, economist sand policy makers have emphasized these dynamic gains that can accrue from the formation of FTAs.

Following Viner's pioneering work in 1950, a number of trade theorists demonstrated that some of his predictions may not hold. In particular, they provided examples where the importing country to which trade is diverted may gain when trade diversion occurs. Among them are Grehrels (1956, 57), Lipsey (1957), and Michaely (1965). However, most of these papers used models of a single country because of the limited methodology at that time. All of these early models are limited in dimension to models with three countries and only two or three goods and employed only simple structures of the economies.

Recently, a variety of models have been used to analyze the effects of an RTA. Used in the work of Baldwin and Venables (1995), general equilibrium models with trade can be grouped into three generations. The first is the traditional trade models that assume constant returns to scale, perfect competition, and a fixed number of goods. The second generation includes the models known as the New Trade Theory. These models assume increasing returns to scale in some industries and allow imperfect

competitive behavior. It is also assumed that the goods are differentiated and the number of the varieties is endogenous. The third generation is the recent models that introduce dynamic and growth effects. However, the first generation models are still relevant and many of computable general equilibrium models basically follow this tradition.

## 2. Motivations of FDI Theoretical Analysis of FTAs

In order to assess what impacts the creation of the CJK FTA would bring on the inward FDI, we need to figure out why multinational corporations invest in different countries in the first place. Once the motivations behind FDI are identified, one could assess the impacts of an FTA since the formation of an FTA can either enforce or weaken the FDI motivation of the multinationals. Three motives for FDI are found in literature; horizontal vs. vertical integration, and product varieties.

### A. Horizontal integration

According to horizontal integration arguments (Markusen, 1984), a reason why a firm sets up production facilities in foreign countries is to avoid trade costs such as trade barriers, transportation costs and tariffs. If there have not been such trade costs, establishing production facilities in multiple countries would not make any sense, because by doing so the firm cannot exploit economies of scale. If a firm concentrates its production in a geographically bounded area on a large scale and exports the products, the firm may enjoy economies of scale. But such a strategy at the same time entails tariffs, transportation costs, and other indirect costs associated with various trade regulations. Therefore the firm faces a tradeoff between economies of scale from production concentration incurring trade costs and saving the trade costs by setting up local production facilities. To emphasize the significance of tariff as a trade barrier, the case where motivation of FDI is to circumvent tariff is often called tariff-jumping FDI.

The horizontal integration arguments imply that FDI and trade are substitute. It should be noted that except the trade costs mentioned above, market size in terms of purchasing power of host country is also an important factor that determines whether a firm decides to set up production facility in the host country. The more a multinational

corporation sells in the domestic market of the host country, the more profitable it becomes to produce locally.

**B. Vertical integration**

Another reason for setting up local production facilities is to take advantage of cheap production factors such as law materials, labor and/or knowledge base of the host country (Helpman 1984, Helpman and Krugman 1985). Although the traditional trade theory predicts factor price equalization across countries through trade, in reality there are many factors that prevent the equalization from taking place. If the price of a certain production factor is lower in the host than in the source country, a firm using the factor in question intensively will find it more profitable to move production lines to the host country. Once the goods are produced in the host country, the goods can be exported either to the source country or to a third country. Then more inward FDI necessarily results in more trade of the host country. In this sense FDI and trade are complements.

**C. Advantage for product varieties**

One of the prominent features observed in FDI between developed countries is that most of the FDI could be categorized into neither horizontal nor vertical integration framework. Trade costs such as tariffs and non-tariff barriers are relatively low, especially among European countries. This means that the motivation for tariff-jumping FDI is weak. Moreover factor endowments are quite homogeneous across those countries implying there would be no strong reasons for the traditional vertical integration FDI. Nevertheless a large volume of FDI is taking place between the developed countries.

To explain this kind of activity, Yeyati et al (2002) points out the advantage of cross country FDI in producing good varieties. The advantage of cross-country FDI could be related to differences in preferences across countries. Yeyati et al (2002) offers an example of Honda products. They argue that Honda produces its Odyssey minivans in North America, a market that seems to love this variety of automobiles, and not in Japan. According to their explanation, a key difference between this and the traditional horizontal model of FDI is that the production of each plant is not just for domestic

consumption, but rather for both countries. If this product variety argument holds, FDI and trade are complements rather than substitutes.

## 3. Effects of an FTA on the inward FDI

Now we discuss the possible impacts of the creation of an FTA on inward FDI. As Yeyati et al (2002) offers an excellent analysis on the topic, this paper will present most of the theoretical discussion based on their work. The impacts of an FTA on the inward FDI can be grouped into the two separate impacts on FDI from FTA members and non-member countries.

### A. FDI from FTA members

Whether the formation of an FTA would encourage or discourage inward FDI among member countries depends on the nature of the FDI among the potential member countries. If the motives of inward FDI are of horizontal character like tariff-jumping, a creation of FTA is expected to discourage the FDI. This is because the FTA will surely tear down tariff and non-tariff trade barriers, with the result of weakening incentive for establishing local plants. Under this circumstance, firms would exploit economies of scale by concentrating their production plants in the most cost-favorable region. Therefore, for example, Japanese firms' FDI to Korea may decreases when the FTA with Japan is introduced if their motives for FDI in Korea are of horizontal nature.

If the inward FDI is based on vertical integration strategy, on the other hand, an FTA will encourage FDI inflows. Trade costs will go down with FTA. Raw materials and intermediate as well as final goods can move more freely and cheaply across border. Thus, with the formation of an FTA multinational corporations would find it more profitable to establish multiple manufacturing facilities in line with different production stages in different countries, taking advantage of differences in factor prices.

The same logic can be applied to FDI for product varieties. Reduction of trade barriers under an FTA agreement will reinforce the incentive to produce a variety in the country where locals' preferences best fit the variety. At any rate, the vertical FDI among member countries is expected to increase with an FTA.

**B. FDI from outside FTA**

FDI from non-member countries to the FTA region as a whole is expected to expand regardless whether the FDI is horizontal or vertical. The formation of an FTA enlarges the market size as a whole, which will attract FDI of any kind. NAFTA, for example, has become more attractive FDI destination because multinational firms can easily make inroad into any member country once they establish local production facilities in the NAFTA.

But the fact that an FTA brings more FDI into the region as a whole does not necessarily mean that all the members would equally benefit from the FDI inflows. As Yeyati et al(2002) suggests, there would be winners and losers in terms of which country catches how much portion of the enlarged pie. Some country may even witness existing FDI stock being relocated away to other countries. This is because multinational corporations view the FTA as a single market, and so move their plants to the most favored site to take advantage of relative prices of production factors. Under this circumstance, factors which indirectly affect production costs such as labor relationship, transparency of institutions, policy predictability, corruption and so on would exert strong influence on which country to be winner or loser.

The Following table summarizes the impacts of an FTA on inward FDI.

**<Table 3>** **Effects of an FTA on inward FDI**

| Motivations | FDI from members | FDI from nonmembers |
|---|---|---|
| Horizontal | - | +/ - |
| Vertical | + | +/ - |
| Variety | + | +/ - |

# IV. Empirical Analysis

## 1. Empirical model

To characterize inward FDI to Korea, we set up the following empirical model;

$$\log(1+FDI_{it}) = C + \beta_1 \log(W_t / W_{it}) + \beta_2 (r_t - r_{it}) + \beta_3 \log(RE_t / RE_{it}) + \beta_4 \log Y_t + \beta_5 \log NLD_t + \beta_6 \log(TV_t / Y_t) + \gamma_i \sum_{i=1}^{N-1} CONDUMMY_i + \delta_t \sum_{t=1}^{T-1} YRDUMMY_t + \varepsilon_{it}, \quad (1)$$

where $FDI_{it}$ stands for foreign direct investment flows to Korea from country *i* in year *t*. *W* is an hourly dollar wage in manufacturing sector; *r* is real interest rate; *RE* is real exchange rate; *Y* is real GDP in US dollars; *NLD* is the number of labor dispute cases; *TV* is trade volume defined by export plus import in US dollar term; $CONDUMMY_i$ is a dummy variable for a source country $i$; $YRDUMMY_t$ a dummy variable year $t$; and $\varepsilon_{it}$ is assumed to be governed by $N(0, \sigma^2)$. The year dummy variables are added to control the fixed effects. The subscripts *i* and *t* stand for source country *i* and time *t*, respectively. Following Eichengreen *et al* (1997), we added one to the dependent variable in order to avoid data loss in cases of zero FDI.

We estimate equation (1) by a fixed effects model for each industry and each year. $\beta_j$ $(j = 1, 2, .., 6)$ are assumed to be constant for all country and time dummies. We estimate the model using GLS procedure to correct a possible cross-section heteroskedastic problem. There are two data sets: one consisting of the inward FDI by source country (1980-2003) and the other consisting of the inward FDI by sector and source country (1998-2003).

The whole industries are split into twenty three sectors and the model (1) is applied for each sector; food, textile & clothes, timber & paper, chemical products, medicine, nonferrous metals, ferrous metals, machinery and equipment, electronics, transportation equipment, other manufacturing, retail and wholesale, restaurants and hotels, transport and storage, communication, finance and insurance, real estate and renting, business service, culture and recreation, public and other services, utility and

construction. The data set consisting of the inward FDI by sector and source country is a panel of 10 source countries and 23 sectors over 1998-2003. The countries include U.S., Japan, China, Hong Kong, Germany, Britain, France, Netherlands, Switzerland, and Russia. The data set consisting of the inward FDI by source country covers more years from 1980 till 2003 and more countries up to twenty one. The FDI data are provided by the Ministry of Commerce, Industry and Energy and most explanatory variables are collected from IFS data set.

## 2. Theoretical implications of the explanatory variables

### A. Relative labor cost

Relatively high wage rate of host to source country is expected to have a negative impact on the inward FDI since the labor cost is one of the most important factor costs. Many prior studies confirm this fact. The magnitudes of the impact of a wage increase on FDI, however, will depend on the motivation of FDI. If FDI aims at taking advantage of cheap labor for re-exporting goods, the impact of wage increases in host country would be grave. On the other hand, if the motivation of FDI is tariff-jumping, the size of impact could be trivial.

### B. Real interest rate differential

Theory suggests that real interest rate differential between host and source countries may have a positive impact on inward FDI. This is because foreign investors who raise relatively cheap fund in the source country have higher competitiveness over rivals in host country (Grosse et al, 1996). But the direction of the impact could be in reverse if the foreign investors depend on host country's capital market when raising FDI fund.

### C. Real exchange rate

How real exchange rates affect inward FDI is the most controversial issue. There have been two lines of discussion on the issue in literature. One is about the effect of exchange rate volatility, the other is about the effect of exchange rate level itself. Theories suggest that exchange rate volatility can either encourage or discourage

inward FDI. Unstable foreign exchange market gives rise to an economic uncertainty, which is a barrier to FDI inflow. In this case, high exchange rate volatility is detrimental to FDI. But the very uncertainty generated by high exchange rate volatility may induce multinational firms to increase FDI because the multinational firms can reduce cost uncertainty by relocating manufacturing facilities to the host country (Firoozi, 1997). Most empirical tests, though, show that the exchange rate volatility hinders FDI.

When it comes to the impacts of the level of exchange rate on FDI, two theoretical relationships are observed in the literature. If investors' motivation for FDI is to penetrate host country's domestic market rather than re-export goods manufactured in the host country to a third countries, the FDI and trade are substitutes, and an appreciation of the currency of the host country expands inward FDI. This is because the purchasing power of consumers in host market is increased and also because barriers to trade usually tend to increase in such a context (Benassy-Quere, 2001). Alternatively, if the multinational firms aim to utilize cost advantages of host country and to re-export goods, trade and FDI are complements. In this case, host country's currency appreciation will make the country less attractive by increasing production costs.

The real exchange rates used in our empirical test are defined by won/dollar real exchange rate divided by source countries' currency/dollar real exchange rates.

**D. Market size**

A large volume of the previous research showed that the market size of host country has a positive effect on FDI. Theories predict the effect will be greater when the motivation of the inward FDI is to catch local market rather than re-export. Therefore, as Markusen and Maskus (1999) pointed out, a large coefficient on the host country's market size implies that the motivation of the FDI is horizontal, not vertical integration. We use real GDP as a proxy for domestic market size.

**E. Labor dispute**

It is often argued that the instability in labor market is to be blamed for dramatic shrinkage of the inward FDI to Korea in recent years. We want to statistically prove or

disprove such an argument. Of interest is to identify which industries in particular are sensitive to the labor disputes and how big the impacts are. Few previous research considered the labor dispute variable in empirical models.

**F. Degree of openness**

Whether the degree of market openness in the host country has a positive or a negative effect on FDI is an important indicator predicting the impacts that joining FTA will have on inward FDI. Greater openness due to joining FTA will encourage inward FDI when trade and FDI are complements. On the other hand, greater openness will impede inward FDI when they are substitutes. The sign of coefficient on the openness variable will help us identify in which industry FDI would increase or decrease with FTA. Following Chakrabarti (2001), among many previous studies, we use trade volume (import plus export) divided by GDP as a proxy for openness.

**G. Impact of financial crisis**

Korean financial crisis in 1997 may have influenced FDI toward Korea. Two mechanisms might have worked during the economic crisis. One is for foreign investors to buy up Korean 'fire-sale' stock, namely, FDI through merge and acquisition[2)]. This would have increased FDI in the post-crisis period, 1998-2000. The other mechanism through which the financial crisis might have affected inward FDI is uncertainty. Economic uncertainty created in the midst of the crisis would have a negative impact on FDI.

2) Our data does not discern M&A FDI from 'green field' FDI.

# V. Estimation Results

In this section, we will now present the estimation results and make discussion on the results.

In table 4, we report the regression results for the whole industries. Every estimate is statistically significant. The estimates for domestic market size and trade volume have positive signs. The positive sign of the estimate of trade volume suggests that multinational enterprises tend to export their products rather than to distribute domestically. In that case, domestic market may not shrink, and FDI and trade are complements. So the result implies that the CJK FTA may have a positive effect on the inward FDI. As far as the CJK FTA expands the domestic market as the result of enhanced growth rate and increased trade volume, the inward FDI may be increased.

The real wage and interest rate differentials have negative and positive signs respectively. These indicate that the multinational enterprises also consider the cost advantage when they decide to invest. It supports the fact that FDI is considered to be the outcome of broad corporate strategies and investment decisions of profit-maximizing firms facing world-wide competition, where significant differences in cost structure, due to the factor productivity and remuneration differentials across countries, justify cross-border investment and production relocation. For the host country, this result suggests that the financial incentive policy may be effective to attract more FDI.

The labor disputes have a statistically significant negative sign. This is consistent with results from many surveys on barriers on doing business in Korea. The labor market flexibility has been one of the key factors to increase the inward FDI and to improve the business environment in Korea.

The real exchange rate against source country’s currency has a positive effect on the inward FDI. This means that depreciation of Korean won promotes the inward FDI. This result strengthens other results that the multinationals utilize cost advantages (real wage and interest differentials) of host country and tend to export their final products (positive sign of trade volume). Therefore, depreciation accelerates the inward FDI since it widens real wage and interest differentials and boosts export.

These results imply that the inward FDI into Korea may be both domestic- and

export market-oriented one that has enough quality mobile asset so that it may overcome cost disadvantages(high real wage differentials and strong labor unions).

Most empirics on the effects of the CJK FTA on the Korean economy consistently suggest that the growth rates of GDP and trade volume may be increased (Park, 2003). Based on these empirical results on the CJK FTA, our results indicate that the inward FDI into the manufacturing sector will be enlarged as a result of the CJK FTA.

The real wage differential, however, is expected to indirectly impede the inward FDI as a result of the CJK FTA. Low wage cost in China may be more attractive to MNEs(multinational enterprises) which seek the cost advantage. But this might be better to the Korean economy in terms of industrial restructuring. The Korean economy is changing into more knowledge based one. So any MNE that seeks cheap labor cost cannot enter into Korea due to a relatively higher cost structure.

Tables 5-26 show the impacts of independent variables on the industry specific FDI. Even though the number of observations is reduced due to unavailability of the data, overall estimation results are similar to the one for the whole industries over 1980-2003 in Table 4. Therefore these results from individual industries also strengthen the result from the whole industry.

As a policy implication, under the current circumstance of low domestic investment, low interest rate, and low growth rate in Korea, some outward development strategy with particular emphasis on export-led development and attracting direct foreign investment can be considered. In this case the inward FDI can hold the complementarity between domestic and foreign investments. That is, foreign investment does not crowd-out rather, at least, can crowd-in domestic investors. In this case, FDI can contribute to overall economic growth.

The Korean economy has sought the export-led development strategy. The precondition of export-led development is ‘export dynamism’ or ‘spillover effect of export’ defined as the transmission of export growth to the non-export economy. However, current situation of the Korean economy is a dual structure between export and non-export industries, meaning that export dynamism is not transmitted to non-export industries and the economy as a whole. This is because the industrial linkage relationship is loosened. If the export dynamism is really transmitted to the economy as a whole, one would expect the economy to grow faster.

# VI. Conclusion

In conclusion, our empirical results suggest that FDI into Korea is both to capture domestic markets and to utilize the Korea economy as a manufacturing base to re-export the final goods to source and/or a third countries. That is, the inward FDI is of both horizontal and vertical character. This result gives us an important clue to evaluate the potential effects of the CJK FTA on the inward FDI. We argue that the FTA is very likely to encourage FDI inflows to Korea. It is empirically found that the trade volume variable has a positive impact on the inward FDI in all industries, implying that trade and FDI are complements in many Korean industries.

Empirical results show consistent negative signs on real wage differential variable across industries. It is expected that the elasticity of the inward FDI with respect to the real wage differential is going to be much higher once the CJK FTA is formed. It is because multinational firms can take advantage of lower labor costs by moving to China, or by leaving the Korean market under the FTA. For the similar reason, it is expected that the negative effect of labor disputes on the inward FDI will aggravate when the FTA is created. For policy consideration, policy measures to make the labor market more flexible are needed to attract more inward FDI.

A channel through which FTA may promote the FDI to Korea is growing domestic market size. FTA in general prompts economic growth through enlarged international trade. Therefore growing consumers' purchasing power under the FTA could attract more FDI into Korea. Whether FTA will discourage or encourage the inward FDI depends on the relative magnitude of positive and negative impacts the FTA will bring. But our temporary verdict is that the CJK FTA is likely to encourage the inward FDI in general.

The industrial linkage relationship needs to be strengthened to break the current dual structure between export and non-export industries to attract more inward FDI and hence to enhance the economic growth. For instance, domestic materials and components industries and small- and medium-sized enterprises need to be strategically fostered by both private and public sectors.

# <Appendix>

**< Table 4>** **Determinants of inward FDI, All industries**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -5.483*** | -3.99 |
| $r_t - r_{it}$ | 0.164*** | 2.79 |
| $\log(RE_t / RE_{it})$ | 2.504*** | 10.85 |
| $\log Y_t$ | 3.518*** | 4.43 |
| $\log NLD_t$ | -0.273** | -1.96 |
| $\log(TV_t / Y_t)$ | 18.746*** | 4.91 |
| Adj. $R^2$ | 0.69 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 5>** **Determinants of inward FDI, All Manufacturing**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -11.083 *** | -3.39 |
| $r_t - r_{it}$ | 0.928 *** | 2.98 |
| $\log(RE_t / RE_{it})$ | 0.832 *** | 2.87 |
| $\log Y_t$ | 65.977 *** | 3.66 |
| $\log NLD_t$ | -9.830 ** | -2.40 |
| $\log(TV_t / Y_t)$ | 165.748 *** | 3.69 |
| Adj. $R^2$ | 0.32 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 6>** **Determinants of inward FDI, Food**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -8.288 * | -1.68 |
| $r_t - r_{it}$ | 0.644 | 1.38 |
| $\log(RE_t / RE_{it})$ | 0.613 | 1.41 |
| $\log Y_t$ | 14.937 | 0.55 |
| $\log NLD_t$ | -0.481 | -0.08 |
| $\log(TV_t / Y_t)$ | 80.893 | 1.20 |
| Adj. $R^2$ | 0.17 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 7>** **Determinants of inward FDI, Textiles and Clothes**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | 1.704 | 0.51 |
| $r_t - r_{it}$ | -0.248 | -0.77 |
| $\log(RE_t / RE_{it})$ | -0.612 ** | -2.05 |
| $\log Y_t$ | -1.223 | -0.07 |
| $\log NLD_t$ | -1.167 | -0.28 |
| $\log(TV_t / Y_t)$ | -12.314 | -0.27 |
| Adj. $R^2$ | 0.18 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 8>** **Determinants of inward FDI, Timber and Paper**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -4.380 | -1.06 |
| $r_t - r_{it}$ | 0.682 * | 1.73 |
| $\log(RE_t / RE_{it})$ | 0.382 | 1.04 |
| $\log Y_t$ | 4.468 | 0.20 |
| $\log NLD_t$ | 1.928 | 0.37 |
| $\log(TV_t / Y_t)$ | 34.263 | 0.60 |
| Adj. $R^2$ | 0.21 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 9>** **Determinants of inward FDI, Chemical Product**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -12.374 *** | -2.68 |
| $r_t - r_{it}$ | 0.876 ** | 2.00 |
| $\log(RE_t / RE_{it})$ | 0.491 | 1.21 |
| $\log Y_t$ | 56.563 ** | 2.23 |
| $\log NLD_t$ | -8.402 | -1.46 |
| $\log(TV_t / Y_t)$ | 141.322 ** | 2.23 |
| Adj. $R^2$ | 0.37 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 10>** **Determinants of inward FDI, Medicine**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -6.908 ** | -2.09 |
| $r_t - r_{it}$ | 0.364 | 1.16 |
| $\log(RE_t / RE_{it})$ | 0.605 ** | 2.07 |
| $\log Y_t$ | -6.093 | -0.33 |
| $\log NLD_t$ | 3.551 | 0.86 |
| $\log(TV_t / Y_t)$ | 3.542 | 0.08 |
| Adj. $R^2$ | 0.17 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 11>** **Determinants of inward FDI, Nonferrous Metals**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -4.765 | -1.21 |
| $r_t - r_{it}$ | 0.927 ** | 2.48 |
| $\log(RE_t / RE_{it})$ | -0.323 | -0.93 |
| $\log Y_t$ | 40.856 * | 1.89 |
| $\log NLD_t$ | -4.497 | -0.91 |
| $\log(TV_t / Y_t)$ | 107.820 ** | 2.00 |
| Adj. $R^2$ | 0.44 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 12>** **Determinants of inward FDI, Ferrous Metals**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -13.831 *** | -3.17 |
| $r_t - r_{it}$ | 1.094 *** | 2.64 |
| $\log(RE_t / RE_{it})$ | 0.808 ** | 2.09 |
| $\log Y_t$ | 45.571 * | 1.90 |
| $\log NLD_t$ | -2.234 | -0.41 |
| $\log(TV_t / Y_t)$ | 115.820 * | 1.93 |
| Adj. $R^2$ | 0.37 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 13>** **Determinants of inward FDI, Machinery and Equipment**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -9.923 *** | -2.64 |
| $r_t - r_{it}$ | 0.836 ** | 2.34 |
| $\log(RE_t / RE_{it})$ | 0.285 | 0.86 |
| $\log Y_t$ | 53.955 *** | 2.61 |
| $\log NLD_t$ | -7.262 | -1.54 |
| $\log(TV_t / Y_t)$ | 120.930 ** | 2.35 |
| Adj. $R^2$ | 0.45 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 14>** **Determinants of inward FDI, Electronics**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -7.144 | -1.53 |
| $r_t - r_{it}$ | 0.693 | 1.57 |
| $\log(RE_t / RE_{it})$ | 0.297 | 0.72 |
| $\log Y_t$ | 98.909 *** | 3.86 |
| $\log NLD_t$ | -19.905 *** | -3.41 |
| $\log(TV_t / Y_t)$ | 237.689 *** | 3.72 |
| Adj. $R^2$ | 0.38 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 15>** **Determinants of inward FDI, Transportation Equipment**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -12.262 *** | -2.88 |
| $r_t - r_{it}$ | 1.235 *** | 3.05 |
| $\log(RE_t / RE_{it})$ | 0.473 | 1.26 |
| $\log Y_t$ | 69.082 *** | 2.95 |
| $\log NLD_t$ | -7.126 | -1.34 |
| $\log(TV_t / Y_t)$ | 169.612 *** | 2.90 |
| Adj. $R^2$ | 0.45 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 16>** **Determinants of inward FDI, Other Manufacturing**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -10.091 *** | -4.41 |
| $r_t - r_{it}$ | 1.135 *** | 5.22 |
| $\log(RE_t / RE_{it})$ | 0.458 ** | 2.26 |
| $\log Y_t$ | 39.205 *** | 3.11 |
| $\log NLD_t$ | -1.173 | -0.41 |
| $\log(TV_t / Y_t)$ | 113.691 *** | 3.62 |
| Adj. $R^2$ | 0.63 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 17>** **Determinants of inward FDI, All Service sectors**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -15.319 *** | -4.31 |
| $r_t - r_{it}$ | 1.552 *** | 4.60 |
| $\log(RE_t / RE_{it})$ | 1.215 *** | 3.87 |
| $\log Y_t$ | 34.650 * | 1.77 |
| $\log NLD_t$ | 4.035 | 0.91 |
| $\log(TV_t / Y_t)$ | 139.326 *** | 2.86 |
| Adj. $R^2$ | 0.46 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 18>** **Determinants of inward FDI, Retail and Wholesale**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -20.271 *** | -5.60 |
| $r_t - r_{it}$ | 1.902 *** | 5.53 |
| $\log(RE_t / RE_{it})$ | 1.719 *** | 5.36 |
| $\log Y_t$ | 56.070 *** | 2.81 |
| $\log NLD_t$ | -0.350 | -0.08 |
| $\log(TV_t / Y_t)$ | 177.652 *** | 3.57 |
| Adj. $R^2$ | 0.55 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 19>** **Determinants of inward FDI, Restaurants and Hotels**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -10.986 *** | -3.05 |
| $r_t - r_{it}$ | 1.206 *** | 3.52 |
| $\log(RE_t / RE_{it})$ | 0.107 | 0.34 |
| $\log Y_t$ | 56.053 *** | 2.83 |
| $\log NLD_t$ | -5.315 | -1.18 |
| $\log(TV_t / Y_t)$ | 164.486 *** | 3.33 |
| Adj. $R^2$ | 0.55 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 20>** **Determinants of inward FDI, Transport and Storage**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -8.194 ** | -2.20 |
| $r_t - r_{it}$ | 0.868 ** | 2.46 |
| $\log(RE_t / RE_{it})$ | 0.643 * | 1.96 |
| $\log Y_t$ | 40.694 * | 1.99 |
| $\log NLD_t$ | -3.103 | -0.67 |
| $\log(TV_t / Y_t)$ | 113.430 ** | 2.22 |
| Adj. $R^2$ | 0.13 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 21>** **Determinants of inward FDI, Communication**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | 1.545 | 0.45 |
| $r_t - r_{it}$ | 0.161 | 0.49 |
| $\log(RE_t / RE_{it})$ | -0.269 | -0.89 |
| $\log Y_t$ | 17.537 | 0.93 |
| $\log NLD_t$ | -3.064 | -0.71 |
| $\log(TV_t / Y_t)$ | 55.620 | 1.18 |
| Adj. $R^2$ | 0.29 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 22>** **Determinants of inward FDI, Finance and Insurance**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -10.405 ** | -2.56 |
| $r_t - r_{it}$ | 0.882 ** | 2.29 |
| $\log(RE_t / RE_{it})$ | 0.592 | 1.65 |
| $\log Y_t$ | 14.022 | 0.63 |
| $\log NLD_t$ | 4.456 | 0.88 |
| $\log(TV_t / Y_t)$ | 81.496 | 1.46 |
| Adj. $R^2$ | 0.44 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 23>** **Determinants of inward FDI, Real Estate and Renting**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -7.309 * | -1.78 |
| $r_t - r_{it}$ | 0.599 | 1.53 |
| $\log(RE_t / RE_{it})$ | 0.915 ** | 2.51 |
| $\log Y_t$ | 44.732 * | 1.98 |
| $\log NLD_t$ | -5.565 | -1.08 |
| $\log(TV_t / Y_t)$ | 150.842 *** | 2.67 |
| Adj. $R^2$ | 0.47 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 24>** **Determinants of inward FDI, Business Service**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -12.136 *** | -3.37 |
| $r_t - r_{it}$ | 1.443 *** | 4.22 |
| $\log(RE_t / RE_{it})$ | 0.606 * | 1.90 |
| $\log Y_t$ | 39.489 ** | 1.99 |
| $\log NLD_t$ | 2.334 | 0.52 |
| $\log(TV_t / Y_t)$ | 135.662 *** | 2.74 |
| Adj. $R^2$ | 0.48 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 25>** **Determinants of inward FDI, Culture and Recreation**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -7.755 * | -1.81 |
| $r_t - r_{it}$ | 1.022 ** | 2.50 |
| $\log(RE_t / RE_{it})$ | -0.124 | -0.33 |
| $\log Y_t$ | 27.169 | 1.15 |
| $\log NLD_t$ | 1.609 | 0.30 |
| $\log(TV_t / Y_t)$ | 125.459 ** | 2.13 |
| Adj. $R^2$ | 0.51 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 26>** **Determinants of inward FDI, Public and Other Services**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -5.357 * | -1.75 |
| $r_t - r_{it}$ | 0.595 ** | 2.04 |
| $\log(RE_t / RE_{it})$ | 0.162 | 0.60 |
| $\log Y_t$ | 13.890 | 0.82 |
| $\log NLD_t$ | 2.791 | 0.73 |
| $\log(TV_t / Y_t)$ | 40.917 | 0.97 |
| Adj. $R^2$ | 0.47 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

**< Table 27>** **Determinants of inward FDI, Utility and Construction**

| | Estimates | t-value |
|---|---|---|
| $\log(W_t / W_{it})$ | -3.031 | -0.76 |
| $r_t - r_{it}$ | 0.160 | 0.42 |
| $\log(RE_t / RE_{it})$ | 0.342 | 0.97 |
| $\log Y_t$ | 46.125 ** | 2.11 |
| $\log NLD_t$ | -11.083 ** | -2.22 |
| $\log(TV_t / Y_t)$ | 147.323 *** | 2.70 |
| Adj. $R^2$ | 0.57 | |

Note: * significant at 10% level, ** significant at 5% level, *** significant at 1% level

## <References>

Balasubramanyam, V. N., M. Salisu and D. Sapsford (1996), "Foreign direct investment and growth in EP and IS countries", *The Economic Journal*, 106, pp. 92-105.

Barrel, R. and N. Pain (1997), "Foreign direct investment, technological change, and economic growth within Europe", *The Economic Journal*, 107, pp. 1770-1786.

Benassy-Quere, A., L. Fontagne and A. Lahreche-Revil (2001), "Exchange Rate Strategies in the Competition for Attracting Foreign Direct Investment", *Journal of the Japanese and International Economics*, 15, pp. 178-198.

Blomstrom, M. and A. Kokko (1997), "Regional and Foreign Direct Investment: A Conceptual Framework and Three Cases", Working Paper Series in Economics and Finance, 172, Stockholm School of Economics.

Blomstrom, M., R.E. Lipsey and M. Zejan (1994), "What explains the growth of developing countries", in W. J. Baumol, R.R. Nelson and E. N. Wolff (eds.), *Convergence of Productivity: Cross-national Studies and Historical Evidence*, New York: Oxford University Press.

Borensztein, E., J. De Gregorio and J.W. Lee (1998), "How does foreign investment affect economic growth?", *Journal of International Economics*, 45, pp. 115-135

Chakrabarti, Avik (2001), "The determinants of foreign direct investment: Sensitivity Analysis of Cross-Country Regression", *KYKLOS*, 54, pp. 89-114

Eichengreen, B. and D. Irwin (1997), “The Role of History in Bilateral Trade Flows”, in J. Frankel (ed.), *The Regionalization of the World Economy*, Chicago: University of Chicago Press.

Firoozi, Fathal (1997), “Multinationals FDI and uncertainty: an Exposition”, *Journal of Multinational Financial Management*, 7, pp. 265-273

Grant, R. (1983), “The Impact of EEC Membership upon the UK industrial Performance”, in R. Jenkins (ed.), *Britain and the EEC*, Proceedings of Section F of the British Association for the Advancement of Science, London: Macmillan.

Gross, R., and L. J. Trevino (1996), “Foreign Direct Investment in the United States: an analysis by country by origin, *Journal of International Business Studies*, 27(1), pp. 139-155.

Helpman, E. (1984) “A Simple theory of trade with multinational corporations”, *Journal of Political Economy*, 92, pp. 451-71.

Helpman, E., and P. Krugman (1985), *Market Structure and International Trade*, Cambridge, United States: MIT Press

Lloyd, P.J. and D. MacLaren (2003), “The case for Free Trade and the Role of RTAs”, Seminar on Regionalism and the WTO, Geneva, No. 14, 2003.

Markusen, J. (1984), “Multinationals, Multi-Plant Economies, and the Gains from Trade”, *Journal of International Economics*, 16, pp. 205-26.

Markusen, James R. and Keith E. Maskus (1999), “Multinational firms: reconciling theory and evidence”, NBER working paper, No. 7163.

Mayes, D.G. (1983), "EC Trade Effects and Factor Mobility", in A. M. El-Agraa (ed.), *Britain Within the European Community: The Way Forward*, London: Macmillan

Mikic, M. (1998), *International Trade*, New York: ST. Martin's Press.

Molle, W. and R. Morsink (1991), "Intra-European Direct Investment", in B. Burgenmeier and J. L. Muccielli (eds.), *Multinationals and Europe 1992: Strategies for the Future*, London: Rourledge.

Park, Inwon (2003), "A CGE Analysis of a Korea-China-Japan Free Trade Area," *Quarterly Economic Analysis*, 9(1), pp. 145-182.

Robson, P. (1998), *The Economics of International Integration*, 4th ed., London: Routledge.

Winters, L.A. (1996), "Lebanon's Euro-Mediterranean Agreement: Possible Dynamic Benefits", prepared for Lebanese Center for Policy Studies' Conference on "Lebanese-EU Relations", Beirut, July 1-2, mimeo.

Yeyati, Eduardo L., E. Stein, and C. Daude (2002), "Regional Integration and the Location of FDI", a working paper, Integration and Regional Programs Department Research Department, Intra-American Development Bank.