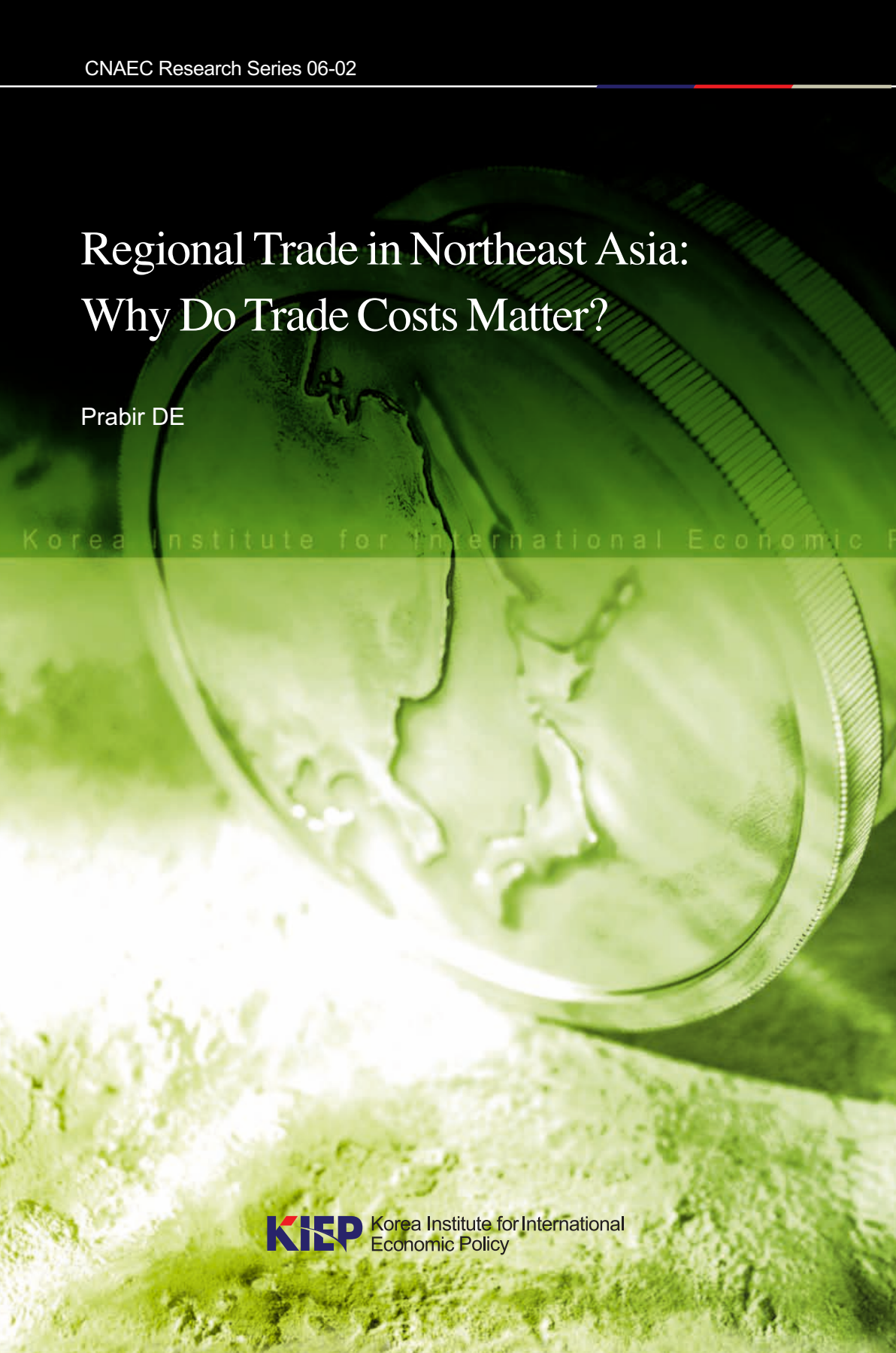
CNAEC Research Series 06-02

# Regional Trade in Northeast Asia: Why Do Trade Costs Matter?

Prabir DE




KIEP Korea Institute for International Economic Policy

CNAEC Research Series 06-02

# Regional Trade in Northeast Asia: Why Do Trade Costs Matter?

**Prabir DE**

KIEP
Korea Institute for International Economic Policy

**KOREA INSTITUTE FOR**
**INTERNATIONAL ECONOMIC POLICY (KIEP)**

300-4 Yomgok-Dong, Seocho-Gu, Seoul 137-747, Korea
Tel: 02-3460-1178 / FAX: 02-3460-1144
URL: http//www.kiep.go.kr

Kyung Tae Lee, *President*

---

KIEP CNAEC Research Series 06-02
Published JULY 7, 2006 in Korea by KIEP

## Executive Summary

Trade costs are often cited as an important determinant of trade volume. This paper provides sufficient evidence to ascertain that today's trade issues in Northeast Asia go beyond the traditional mechanisms of tariffs, and include "behind-the-border" issues. We find that variations in transaction costs along with trade mobility infrastructure facilities have significant influence on regional trade flows in Northeast Asia. This paper concludes that if tariffs were to become lower in Northeast Asia, the economies in that region could benefit substantially from higher trade, provided that trade facilitation measures were greatly strengthened.

**JEL Classification:** F02, F10, F15

**Key words:** Trade costs, transaction costs, trade mobility infrastructure, regional trade, tariffs

**Prabir De** is an associate fellow at the Research and Information System for Developing Countries (RIS), New Delhi. He completed his Ph.D. in Economics at Jadavpur University, Calcutta, India. His areas of interest are international economics, economic integration, regional economics, maritime economics, and so forth. He has also contributed several research papers on regional economics to international journals, and some of his recent articles include "Promotion of Trade and Investment between the People's Republic of China and India: Toward a Regional Perspective" *(Asian Development Review*, Vol. 22, No. 1, 2005), "Cooperation in the Regional Transportation Infrastructure Sector in South Asia" (*Contemporary South Asia*, Vol. 14, No. 3, 2005), "Effects of Infrastructure on Regional Income in the Era of Globalisation: New Evidence from South Asia", (*Asia Pacific Development Journal*, Vol. 12, No. 1, 2005), and "Investigating the Linkage between Infrastructure and Regional Development: Era of Planning to Globalisation" (*Journal of Asian Economics*, Vol. 15, No. 1, 2005). Email: prabirde@hotmail.com.

# Contents

# Tables

# Figures

# Regional Trade in Northeast Asia: Why Do Trade Costs Matter?

Prabir DE

## Ⅰ. Introduction

Successful globalization across countries of very diverse dimensions has yet to be attained in full (Stiglitz 2003; Friedman 2005), but the process initiated during the last decade has explicitly given rise to growing regionalization in all regions of the world with varying success. The growth of regionalism has been one of the major developments in international relations in recent years; all countries are now members of at least one bloc and many belong to more than one.[1] In general, regionalism efforts have shared the objective of reducing trade barriers—both quantitatively and qualitatively.

A growing body of literature has documented the negative impact of trade costs on trade volume.[2] Most of these studies show that integration is the resultant of the reduced costs of transportation in particular and other infrastructure services in general. Direct data on border costs shows that tariff barriers are now low in most countries, on average (trade-weighted or arithmetic) less than 5 percent for rich countries, and with a few exceptions are on average between 10 to 20 percent for developing countries (Anderson and van Wincoop 2004). Poor institutions and a poor infrastructure penalize trade

1) Regional Integration Agreements (RIAs) have been around since 1664, space when a custom union of the provinces of France was proposed (Schiff and Winters 2003). As of January 2005, 312 RTAs have been notified to the GATT/WTO (of these, 170 are currently in force) and a further 65 are estimated to be operational, although not yet notified (Crawford and Fiorentino 2005).

2) Refer the study by Anderson and van Wincoop (2004), which elaborately covers the major studies carried out on this subject.

differently across countries. Therefore, today's trade strategy goes beyond the traditional mechanisms of tariffs and quotas and includes "behind-the-border" issues, such as the role of infrastructure and governance in supporting a well-functioning trading economy. For instance, many studies show that the liberalisation of international transport services fosters international trade in very much the same way that tariff liberalization does (Baier and Bergstrand 2001; Andriamananjara 2004). In taking this route, attention is now being focused on the minimization of trade costs through the facilitation of merchandise and services trade logistics, both inbound and outbound.

In our particular case, the three Northeast Asian countries, namely, China, Japan, and Korea, together constituted more than 1.46 billion people (23 percent of the world population), and boasted a GDP of $6.32[3] trillion (17 percent of world GDP) in 2005. Japan and Korea are termed high-income economies, whereas China is seen to be a low-to-middle income country.[4] While Korea is becoming a mature economy and catching up to Japan, China on the other hand, has emerged as an engine of growth, not only for Northeast Asia, but also for the entire world. The rapid trade among China, Japan, and Korea has demonstrated broader prospects for regional cooperation. In 2005, China became the largest trading partner of Korea and the second largest trading partner of Japan. Remarkable growth in China's two-way trade with Korea and Japan has resulted in the robust growth of the economies in Northeast Asia. Despite all this, Northeast Asia is still characterized by its relatively lower level of regional integration, notwithstanding the fact that the economies in the region are to a large extent complementary and could potentially benefit from deeper economic integration.[5]

In recent years, Northeast Asia has received growing attention as a region that has successfully begun the process of integration into the global economy,

3) Currency in US dollars unless otherwise indicated.

4) According to the World Bank (2005).

5) Progress toward forming a regional economic bloc in Northeast Asia has been very slow since its inception. According to Yip (2001), Northeast Asian regionalism has been delayed owing to political factors rather than economic reasons.

as well as its neighbouring regional economies.[6] Considering the increase in the trade interdependency of the three economies in Northeast Asia,[7] the need for an FTA in the region has gained high momentum in recent years. This has been reflected in a growing number of studies conducted in last few years that aim to explore the feasibility of an FTA in Northeast Asia.[8] The latest is Lee (2005), which, using a CGE model, shows that integration through trade (read: FTA) in Northeast Asia would lead to GDP growth of 5.15 percent for Korea, 1.54 percent for China, and 1.21 percent for Japan, and altogether is likely to generate an economic welfare gain of $30 billion in the region (Lee 2005).

The fact is that without any regional trade agreements (PTAs or FTAs), the tariff barriers among the three countries in Northeast Asia have become low; the weighted average tariff in 2004 of the three economies was less than 6 percent, as compared to more than 20 percent in 1991, with the exception of China's average 40 percent tariff on imports from Japan and Korea in 1991. Over time, tariffs have been reduced to the extent that the regional trade volume in Northeast Asia increased from $56 billion in 1991 to $325 billion in 2004.[9] However, despite the higher intraregional trade observed in Northeast Asia, there has been no evidence of decreasing trade costs in the region. For example, bilateral transaction costs between China and Japan have been hovering around 27 to 28 percent for last one and a half decade, while the same between Korea and Japan has been around 2 to 4 percent. It seems that regional trade would have been much higher, had the costs of trade among

6) In view of the recently concluded East Asia Summit 2005, Northeast Asian countries are now looking toward deeper trade integration with ASEAN. An FTA among ASEAN+3 will lead to a welfare gain of approximately $129 billion (Yungling 2005).

7) For a detailed study on trade interdependency in Northeast Asia, refer to Lee (2005). According to Lee (2005), the trade concentration ratio in Northeast Asia increased from 1.09 in 1990 to 1.65 in 2004, and has exceeded that of the European Union since 2001.

8) Refer to page 31 of Lee (2005) for the list of studies that have dealt with the feasibility of an FTA in Northeast Asia. Also refer to Cheong (2005).

9) The share of intraregional trade in Northeast Asia increased from 12.40 percent in 1990 to 23.90 percent in 2004 (Lee 2005).

three countries been lowered along with reduced tariffs.

Some studies have indicated that the cost of trade facilitation, specifically trade documentation and procedures, is high, between 4 to 7 percent of the value of goods shipped. In 1996, APEC conducted a study that highlighted the benefits of effective trade facilitation. For example, the gains from streamlining customs procedures exceeded those resulting from trade liberalization, such as tariff reduction. Gains from effective trade facilitation accounted for about 0.26 percent of the real GDP of APEC members (about $45 billion), while the gains from trade liberalization were 0.14 percent of real GDP (about $23 billion).[10] According to the World Bank, raising performance across the region to halfway up to the level of the APEC average could result in a 10 percent increase in intra-APEC exports, worth roughly $280 billion (World Bank 2002).[11]

Although the systematic development of trade facilitation in Northeast Asia has for some time been an important consideration, there is a clear lack of a broader policy framework, which is required for long-term development. Moreover, there is a dearth of studies that establishes an appropriate causality of the factors required for a trade facilitation policy framework. The question then arises: how do the non-price determinants of international trade such as infrastructure and transaction costs affect the integration of Northeast Asia? This paper attempts to answer the above question for the following three reasons.

First, the reason for focusing on trade costs in Northeast Asia is pressing if we look into the region's trade coverage. When most of the Northeast Asian economies—either through ASEAN+3, APEC, or a combination of both[12]—are

10) Similar indications were obtained for countries in APEC (Cernat; 2001; World Bank 2002; Wilson et al. 2003).

11) In a study, De (2004) showed that for most Asian countries, trade costs work as a stronger barrier to trade integration than tariffs. By estimating a structural gravity model of economic geography using cross-country data on income, infrastructure, transaction costs, and the trade of selected Asian economies, De provided evidence that transaction costs are statistically significant and important in explaining variations in trade in Asia. In addition, this study also found that port efficiency and infrastructure quality are two important determinants of trade costs.

planning to promote regional trade, integration of the whole region is limited by the lack of integrated and improved transportation and customs procedures.

Second, since the countries in Northeast Asia are planning to intensify economic cooperation through bilateral FTAs (China-Korea, Korea-Japan, China-Japan), a trilateral FTA (China-Japan-Korea), an interregional FTA (ASEAN+3), and a multilateral FTA (WTO), these countries should display small trade costs. These FTA events are expected to put added competitive pressure on the Northeast Asian economies, particularly on trade and through investments.

Third, in order to gain anything from a liberalised trade regime in Northeast Asia, it is necessary to control trade costs, which could not only multiply the welfare emanating from a liberalised trade environment but also strengthen the trade capacity of the region in this era of globalisation.

In view of the above, this study attempts to assess the impact of trade costs on regional trade in Northeast Asia and propose policy measures that would facilitate trade in the region. The remainder of the paper proceeds as follows. Section 2 deals with the definition of trade costs and their relevance. Data and methodology are dealt with in section 3. Section 4 describes the broad profile of trade and trade costs in Northeast Asia. Section 5 provides some estimates on the impact of trade costs and discusses the results. Finally, section 6 is the conclusion.

12) Some of the Northeast Asian countries are also members of other extra-regional arrangements too. For example, three Northeast Asian countries are members of APEC, and two (China and Korea) are also members of the Bangkok Agreement, renamed the Asia Pacific Trade Agreement (APTA).

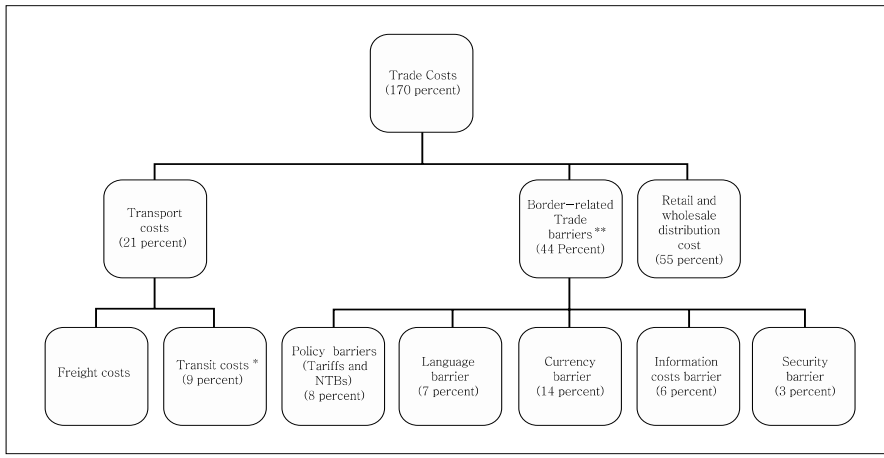
# Ⅱ. Definition of Trade Costs and Their Relevance

Broadly defined, trade costs are all the costs incurred in getting goods to a final user other than the marginal cost of producing the goods themselves: this can include transportation costs (both freight costs and time costs), policy barriers (tariffs and non-tariff barriers), information costs, contract enforcement costs, costs associated with the use of different currencies, legal and regulatory costs, and local distribution costs (wholesale and retail). Trade costs are reported in terms of their ad valorem tax equivalent. In Anderson and van Wincoop's (2004) terms: the 170 percent 'representative' trade costs in industrialized countries breaks down into 21 percent transportation costs, 44 percent border-related trade barriers, and 55 percent retail and wholesale distribution costs (figure 1).

In general, an exporter or importer incurs trade costs in all phases of the export or import process, starting from obtaining information about market conditions in any given foreign market and ending with receipt of final payment. One part of trade costs is trader-specific and depends upon his operational efficiency. The magnitude of this trade cost diminishes as the efficiency level of the trader increases under the prevailing framework of any economy.

The other part of trade costs is specific to the trading environment and is due to the built-in inefficiencies of the trading environment. This can include institutional bottlenecks (transport, regulatory, and other logistics infrastructures), information asymmetry, and administrative power, all of which give rise to rent-seeking activities by government officials at various steps of the transaction. This may cost traders (or a country) time and money, including demurrage charges, making transactions more expensive.

**Figure 1. Estimated Trade Costs in Industrialized Countries**




Notes: * Tax equivalent of the time value of goods in transit. Both are based on estimates from US data.

** A combination of direct observation and inferred costs, which, according to the author, is an extremely rough breakdown.

Source: Drawn from Anderson and van Wincoop (2004).

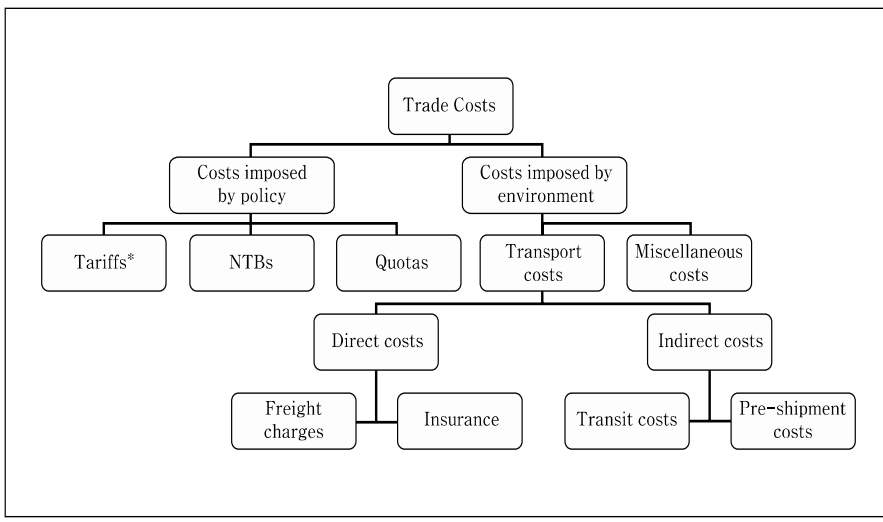
Trade costs are large, even aside from trade policy barriers and even between apparently highly integrated economies. In explaining trade costs, Anderson and van Wincoop (2004) referred to the example of Mattel's Barbie doll, discussed in Feenstra (1998), which indicated that the production costs for the doll were $1, while it sold for about $10 in the United States. The cost of transportation, marketing, wholesaling, and retailing represent an ad valorem tax equivalent of 900 percent. Anderson and van Wincoop (2004) commented:

> The tax equivalent of representative trade costs for rich countries is 170 percent. This includes all transport, border-related and local distribution costs from foreign producer to final user in the domestic country. Trade costs are richly linked to economic policy. Direct policy instruments (tariffs, the tariff equivalents of quotas and trade barriers associated with the exchange rate system) are less important than other policies (transport infrastructure investment, law enforcement and related property rights institutions, informational institutions, regulations, language).

Direct transport costs include freight charges and insurance, which is customarily constituted by the freight charge. Indirect transport user costs include holding costs for the goods in transit, inventory costs due to buffering the variability of delivery dates, preparation costs associated with shipment size (full container loads vs. partial loads), and the like. Indirect costs must be inferred. Alongside tariffs and NTBs, transport costs look to be comparable in average magnitude and in variability across countries, commodities, and time.

Trade costs have large welfare implications. Current policy related costs are often worth more than 10 percent of national income (Anderson and van Wincoop 2002). Obstfeld and Rogoff (2000) commented that all the major puzzles of international macroeconomics hang on trade costs. Details of trade costs also matter to economic geography. For example, the home market effect hypothesis (big countries produce more of certain goods due to scale economies) hangs on differentiated goods, with scale economies having greater trade costs than homogeneous goods (Davis 1998). The cross-commodity structure of policy barriers is important to welfare (e.g., Anderson 1994).

**Figure 2. Trade Costs and Their Components**



As shown in figure 2, here we only deal with those components of trade costs that are imposed by both policy (tariffs) as well as environment (transport and others). In this study, we term the costs imposed by the environment transaction costs.[13)]

13) Despite structural differences, trade costs are often termed transaction costs in literature. We avoid dealing with indirect trade costs, such as auxiliary transaction costs, which exporters incur in terms of speed money (bribes) and delays. The auxiliary transaction costs represent a real resource cost as well as costs that may just be ways of sharing economic rents. For example, delays on the road, in customs, etc., represent real resource costs but "speed money" is a way of transferring income.

# Ⅲ. Methodology and Data

The case of Northeast Asia is highly appealing as the countries are exhibiting rising trade costs, despite the drastic fall in tariffs. Focusing on the three countries, China, Japan, and Korea, this study is undertaken in two stages. Firstly, we provide some estimates of trade costs at the regional (pooled) level. We stress that the specifications of the gravity equation, together with the choice of the distance measure, are crucial for evaluating the size of the barriers. Secondly, we assess the impact of trade costs on regional trade based on panel data, following which, policy conclusions are drawn.

## 1. Measuring Transaction Costs

Despite a wide range of theoretical derivations of the gravity equation, the majority of the authors do not model transport costs explicitly, exceptions being Bergstrand (1985, 1989), Davis (1998), Deardorff (1998), Limao and Venables (2001), Fink et al., (2002), Clark, Dollar, and Miucco (2004), Redding and Venables (2004), Hummels (2001a, 2001b), and Wilson et al., (2003). However, except for Limao and Venables (2001) and De (2004), none have incorporated both infrastructure and trade costs in the model.

To estimate bilateral transaction costs in this study, we follow the model introduced by Limao and Venables (2001), following the difference of cif (cost, insurance and freight) and fob (free on board) values.[14)]

14) Many measures have been constructed to measure transport costs. The most straightforward measure in international trade is the difference between the cif and fob quotations of trade: The difference between these two values is the measure of the cost of getting an item from the exporting country to the importing country. See, Brakman, Garretsen, and Marrewijk (2001) for further details. There is another way to obtain data for transport costs from industries or shipping firms. Limao and Venables (2001) obtained quotes from shipping firms for a standard container shipped from Baltimore to various destinations. Hummels (2001a) obtained indices of ocean shipping and air freight rates

Importing countries report the value of imports from partner countries inclusive of cif, and exporting countries report their value on fob, which measures the cost of the imports and all charges incurred in placing the merchandise aboard a carrier in the exporting port. Let $T_{ij}$ denote the unit cost of shipping a particular good from country $j$ to country $i$. We suppose that it is determined by:

$$T_{ij} = f\ (x_{ij},\ X_i,\ X_j,\ \mu_{ij}), \qquad (1)$$

where $x_{ij}$ is the vector of characteristics relating to the journey between $i$ and $j$, $X_i$ is the vector of characteristics of country $i$, $X_j$ is the vector of the characteristics of country $j$, and $\mu_{ij}$ represents all unobservable variables.

Denoting the fob price shipped from $j$ to $i$ by $p_{ij}$, we define $t_{ij}$, the ad valorem transaction cost factor, as:

$$t_{ij} = cif_{ij} / fob_{ij} = (p_{ij} + T_{ij}) / p_{ij} = t\ (x_{ij},\ X_i,\ X_j,\ \mu_{ij}), \qquad (2)$$

where the determinants of $T_{ij}$ are given in equation (1). The ratio of cif/fob provides the measure of transaction costs on trade between each pair of countries. Assuming that $t_{ij}$ can be approximated by a log linear

---

from trade journals, which are presumably averages of such quotes. Due to data limitations and the very large size of the resulting datasets, direct methods are best but not always feasible here. The most widely available (many countries and years are covered) is average ad valorem transport costs, and they are the aggregate bilateral cif/fob ratios from UN's COMTRADE database, supplemented in some cases with national data sources. Nevertheless, because of their availability and the difficulty of obtaining better estimates for a wide range of countries and years, the apparently careful work such as Harrigan (1993) and Baier and Bergstrand (2001) used the IMF (COMTRADE) database.

function up to some measurement error, the average observed transaction cost rate $t_{ij}$ appears as follows:

$$\ln t_{ij} = \alpha + \beta x_{ij} + \gamma \ln X_i + \delta \ln X_j + \omega_j. \qquad (3)$$

Following Limao and Venables (2001), $t_{ij}$ corresponds to the ratio [(cif/fob) – 1 = ($IM^t_{ij}$ / $EX^t_{ji}$) -1] for importing country $i$, in terms of the data. The ratio (cif/fob –1) represents the ratio of unit transaction costs to the fob price and thus provides a simple summary statistic of the transaction cost on imports. As pointed out by Limao and Venables (2001), cif/fob data does contain information about cross-sectional variations in transport costs, and the results from using this data are quite consistent with those obtained from using shipping cost data.[15)]

Here, the transaction costs, $TC^t_{ij}$ ( = $t_{ij}$), represents the costs of transactions between country $i$ and $j$ for the period $t$, $IM^t_{ij}$ stands for the imports (cif) of country $i$ from country $j$ for the period t, and $EX^t_{ji}$ denotes the exports (fob) of country $j$ to country $i$ for period $t$.

15) However, the cif/fob ratio has some drawbacks. The first is measurement error; the cif/fob factor is calculated for those countries that report the total value of imports at cif and fob values, both of which involve some degree of measurement error. The second concern is that the measure aggregates over all commodities imported, so it is biased if high transport cost countries systematically import lower transport cost goods. This would be particularly important if we were using exports, which tend to be concentrated in a few specific goods. It is less so for imports, which are generally more diversified and vary less in composition across countries (Limao and Venables 2001).

## 2. Measuring Trade Infrastructures

A country's infrastructure plays a vital role in conducting trade, a fact that has been widely dealt with in many studies. For example, by incorporating transport infrastructure into a two-country Ricardian framework, Bougheas et al. (1999) showed the circumstances under which it affects trade volumes.[16] According to Francois and Manchin (2006), transport and communication infrastructures and institutional quality are significant determinants, not only for a country's export levels but also for the likelihood of exports.

The infrastructure variables have explanatory power in predicting trade volume. Limao and Venables (2001) emphasized the dependence of trade costs on infrastructure, where infrastructure is measured as an average of the density of the road network, the paved road network, the rail network, and the number of main telephone lines per person. A deterioration of infrastructure from the median to the 75th percentile of destinations raises transport costs by 12 percent. The median landlocked country has transport costs which are 55 percent higher than the median coastal economy.[17] Inescapably, understanding trade costs and their role in determining international trade volumes must incorporate the internal geography of countries and the associated interior trade costs.

Therefore, for characteristics of a country, we focused on infrastructure measures—the country's ability to enhance the movement of merchandise. To assess the impact of infrastructure facilities on bilateral trade, we have constructed the trade mobility index (TMI), comprised of nine infrastructure variables for each individual country.[18]

---

16) Bougheas et al. (1999) estimated augmented gravity equations for nine European countries. They included the product of partner's kilometres of motorway in one specification and that of public capital stock in another, and found that these have a positive particle correlation with bilateral exports.

17) Limao and Venables (2001) also reported similar results using the cif/fob ratios from the IMF.

18) TMI was constructed based on the UNDP method. TMI measures the relative position of a country considering a set of observables. An index is calculated

The TMI index we use is designed to measure the costs of travel in and through a country. In theory, the fob and cif prices are border prices, and thus it would seem that a country's infrastructure and that of its trading partner as defined here should not affect these rates. It is possible that there are interactions between the cost variables, which would make a nonlinear form more suitable. The simplest example is that an increase in land distance should increase the cost of going through a given infrastructure.

## 3. The Augmented Gravity Model

In order to explore the impact of trade costs on trade flows, our empirical analysis considers an augmented gravity model, the most robust partial equilibrium model known to explain variations in trade flows. The gravity model provides the main link between trade barriers and trade flows.[19] The

following this general formula: Index = [(Actual-Minimum) / Maximum -Minimum)]. While indexing the infrastructure stocks of the countries, we consider following nine variables: (i) railway length density (km per sq. km of surface area), (ii) road length density (km per sq. km of surface area), (iii) air transport freight (million tons per km), (iv) air transport, passengers carried (percentage of total population), (v) aircraft departures (per airport), (vi) container traffic (per port), (vii) fixed line and mobile phone subscribers (per 1,000 people), (viii) internet users (per 1,000 people), and (ix) electric power consumption (kwh per capita). There are several other methods to construct an index, such as multivariate factor analysis, which can also be used to measure the infrastructure stock. Due space limitations, we avoid placing TMI and corresponding weights. Interested readers may contact the author for these.

19) The gravity model has been used extensively in social and behavioural sciences. In an analogy to the Newtonian gravity model, James Q. Stewart (1947, 1948) found strong correlations for traffic, migration, and communication between two places, based on the product of the population size and inversely related to their distance squared. This model became popular in the hands of Jan Tinbergen (1962) when it was applied to international trade. Since then, the gravity equation has become a standard analytical tool for the prediction of bilateral trade flows with simultaneous development of its theoretical discourse. Although there is debate about its theoretical support, the gravity

augmented gravity model considered here uses balanced panel data for the period from 1991 to 2004 on trade, distances, gross domestic product (GDP), GDP per capita, infrastructure, openness, exchange rate, tariffs, and transaction costs for the three Northeast Asian economies.[20]

We look at the trade flows by estimating a gravity model, including income, infrastructure, and a host of institutional and economic variables as reported above. There are two important reasons for doing this. First, the variables are identified in keeping with their importance in influencing bilateral trade. Second, we can estimate the elasticity of trade flows with respect to exogenous variables. Since the gravity equation is the standard analytical framework for the prediction of bilateral trade flows, we apply panel data policy simulation techniques rather than extending it for forecasting purposes. Estimated in log-linear form, the gravity equation takes the following shape:

$$\ln IM^t_{ij} = \beta_1 \ln GDP^t_i + \beta_2 \ln GDP^t_j + \beta_3 \ln GDPPC^t_i + \beta_4 \ln GDPPC^t_j + \beta_5 \ln TMI^t_i + \beta_6 \ln TMI^t_j + \beta_7 \ln ONS^t_i + \beta_8 \ln ONS^t_j + {}_9 \ln TC^t_{ij} + \beta_{10} \ln T^t_{ij} + \beta_{11} \ln ER^t_i + \beta_{12} \ln ER^t_j + \beta_{13} \ln D_{ij} + e^t_{ij,} \quad (4)$$

where $i$ and $j$ are the importing and the exporting country, respectively, $IM^t_{ij}$ represents imports by country $i$ from country $j$, $GDP$ is the

equation is one of the most empirically successful in economics. It relates bilateral trade flows to GDP, distance, and other factors that affect trade barriers. It has been widely used to infer the trade flow effects of institutions such as customs unions, exchange-rate mechanisms, ethnic ties, linguistic identity, international borders, and so on and so forth. See, for example, Anderson (1979), Deardoff (1998), Hummels (1999), Baier and Bergstrand (2001), Limao and Venables (2001), Glick and Rose (2002), Fink et al. (2002, 2005), Wilson et al. (2003), and so on.

20) By taking both tariff and transaction costs, we cover a major portion of trade costs. No study thus far has attempted to capture all the components of trade costs associated with a country's exports and imports. Due to an absence of data, we have avoided taking NTBs in this study, though they exist among the three countries.

country's gross domestic products, taken at constant US dollars, *GDPPC* stands for the country's per capita gross domestic products, considered in constant US dollars, *TMI* represents the country's trade mobility infrastructure, *ONS* is the country's openness, measured in terms of trade as a percentage of the country's GDP, $TC^{t}_{ij}$ stands for the transaction costs for bilateral trade between countries *i* and *j* for the period *t*, $T^{t}_{ij}$ stands for bilateral tariffs (weighted average) between country *i* and *j* for the period *t*, *ER* represents the exchange rate, $D_{ij}$ is the distance between countries *i* and *j*, and *t* denotes trading years (*t* = 1991,…. 2004).[21] The parameters to be estimated are denoted by $\beta$, and $e_{ij}$ is the error term.

The error term $e^{t}_{ij}$ is defined as

$$e^{t}_{ij} = \alpha_i + \omega^{t}_{ij}, \qquad (5)$$

a composite of the importing country fixed effects, $\alpha_i$, such as variations in trade flows due to the unobserved differences, and the random error term, $\omega^{t}_{ij}$, which is assumed to be normally distributed with the mean 0.

## 4. The Data

The dataset includes bilateral trade between the three Northeast Asian economies for the years 1991 to 2004. Given the dataset, there are 84 unidirectional trading pairs and 13 variables that make the dataset constitute

21) We do not include common language or currency or an FTA dummy, because the countries considered in this paper do not share such characteristics.

1092 pooled observations. Table 1 presents correlation coefficients among the dependent and independent variables. Tariffs, transaction costs, and the exporting country's trade mobility index are all negatively correlated with imports and are highly robust.

**Table 1. Correlations between Variables**

| | $IM^t_{ij}$ | $TMI^t_i$ | $TMI^t_j$ | $TC^t_{ij}$ | $T^t_{ij}$ |
|---|---|---|---|---|---|
| $IM^t_{ij}$ | 1 | | | | |
| $TMI^t_i$ | 0.169*<br>p = .1328 | 1 | | | |
| $TMI^t_j$ | -0.373<br>p = .0012 | -0.433*<br>p = .0002 | 1 | | |
| $TC^t_{ij}$ | -0.220*<br>p = .0480 | 0.389*<br>p = .0009 | 0.239*<br>p = .0319 | 1 | |
| $T^t_{ij}$ | -0.213<br>p = .0562 | 0.608*<br>p = .0008 | 0.105<br>p = .3524 | 0.396*<br>p = .0006 | 1 |

Note: * Significant at the 1 percent level.

The major sources of secondary data are the United Nations Conference on Trade and Development (UNCTAD); the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP); the International Monetary Fund (IMF); the World Bank (WB); the Asian Development Bank (ADB); and the United Nations (UN). Data-specific sources are listed in appendix 1.

# Ⅳ. Overview of Regional Trade and Trade Costs in Northeast Asia

In Northeast Asia, China is seen as an industry-driven economy, whereas Japan and Korea are service-driven. The service sectors in Japan and Korea presently contribute over 60 percent to GDP, whereas the industrial sector contributes over 50 percent to GDP in China. The contribution of the service sector to GDP in China was virtually static during 1991 to 2003. However, the agricultural sector's contribution to GDP in all three countries declined over the period from 1991 to 2003. The bigger but less developed economy (China) is industry-driven, whereas the relatively advanced economies (Japan and Korea) are service-driven. Even though the momentum of growth in GDP and GDP per capita in all three countries has been slowing down since 2001, trade has surged. An aggressive industry-driven development strategy, particularly in China and Korea, is reflected in rising production, the expansion of exports, and a positive current account balance, generating employment and rising wages, and thereby enabling them to catch up to higher income countries in recent years.

Despite dependency on overseas markets, regional trade portfolios differ across countries in Northeast Asia. Trade in the region (among China, Japan, and Korea) has rapidly increased over the last decade. Countries are now more open than they were a decade earlier. Rising regional trade shows higher trade openness in Northeast Asia. Table 2 indicates that trade among these three countries has gone up substantially over the last 15 years. In 1991, the total intraregional trade in Northeast Asia was $56 billion, which has grown at 37 percent per annum since 1991 and became $324 billion in 2004. The share of the intraregional trade in Northeast Asia also increased from 13.90 percent in 1991 to 23.90 percent in 2004 (figure 3). It has been increasing steadily since 1991, except for the years of the Asian financial crisis. In fact, intraregional trade in Northeast Asia is fast catching up with those of the European Union and NAFTA. At the country level, Korea's intraregional trade with China and

Japan has increased twice as much as her trade with other countries during 2000 and 2004, whereas Japan's intraregional trade increased five times faster than its trade with other countries in the same period. In light of the fact that intraregional trade intensified in Northeast Asia during 1991 to 2004, free trade among the three Northeast Asian countries are necessary to gain more from the trade settings (global and regional). In fact, the trade concentration ratio in Northeast Asia now exceeds that of the European Union, without any formal regional agreement (Lee 2005).

**Table 2. Trends in Regional Trade in Northeast Asia**

| Particulars | 1991 | 2001 | 2004 |
|---|---|---|---|
| | billion dollars | | |
| China's Exports to Japan | 10.25 | 45.08 | 73.51 |
| China's Imports from Japan | 10.03 | 42.81 | 94.37 |
| **China's Total Trade with Japan** | **20.28** | **87.89** | **167.89** |
| Japan's Exports to China | 8.60 | 30.95 | 73.92 |
| Japan's Imports from China | 14.25 | 57.78 | 94.34 |
| **Japan's Total Trade with China** | **22.85** | **88.73** | **168.25** |
| China's Exports to Korea | 2.18 | 12.54 | 27.82 |
| China's Imports from Korea | 1.07 | 23.40 | 62.25 |
| **China's Total Trade with Korea** | **3.24** | **35.94** | **90.07** |
| Korea's Exports to China | 1.00 | 18.19 | 49.76 |
| Korea's Imports from China | 12.80 | 13.30 | 29.58 |
| **Korea's Total Trade with China** | 13.80 | 31.49 | 79.35 |
| Japan's Exports to Korea | 20.09 | 25.29 | 44.25 |
| Japan's Imports from Korea | 12.38 | 17.22 | 22.06 |
| **Japan's Total Trade with Korea** | **32.47** | **42.51** | **66.31** |
| Korea's Exports to Japan | 12.36 | 16.51 | 21.70 |
| Korea's Imports from Japan | 21.12 | 26.63 | 46.14 |
| **Korea's Total Trade with Japan** | **33.48** | **43.14** | **67.85** |

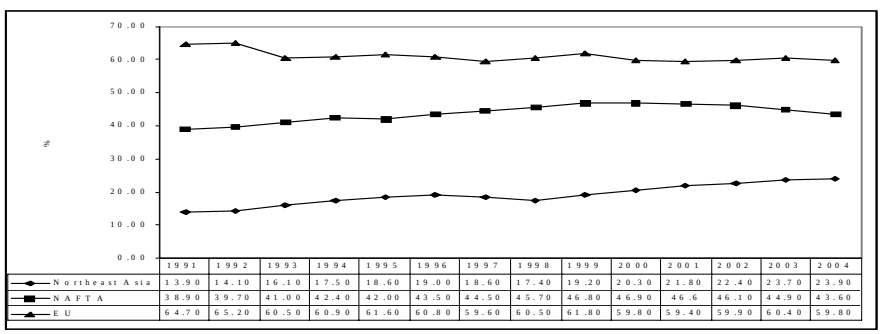
Note: Consider exports at fob and imports at cif prices.
Source: IMF (2005)

China's robust trade performance and rapid economic growth have made a

strong impact on the regional trade structure in Northeast Asia. These countries do more trade among each other compared to their trade with rest of the world (Hai and Zhang 2004). Gradually, Japan and Korea became China's second and fourth largest trading partners in 2004, respectively, whereas China and Korea were Japan's second and third largest trading partners following the United States, in the same year. In the case of Korea, China and Japan were the first and third largest trade partners, respectively. Therefore, considering the increase in trade interdependency of the three countries in Northeast Asia, the need for an FTA has increased substantially.

In general, China and Korea rely heavily on Japan for intermediate products (and also raw materials and technology) and as a market for their finished products. Although trade in the region is well diversified, the trilateral trade structures among China, Korea, and Japan are quite similar to each other. For example, four products (HS-84, 85, 87, 90) in the top 10 bilateral trade items between China and Japan overlapped in 2004. Similarly, six items (HS-27, 29, 72, 84, 85, 90) in the top 10 bilateral trade items between China and Korea overlapped in the same year. The same also holds true in the case of trade between Japan and Korea. Eight of the top 10 trade items between Korea and Japan overlapped (HS-27, 29, 39, 72, 84, 85, 87, 90) in 2004. The tables reported in appendix 2 illustrate this trend.

**Figure 3. Trends in Intraregional Trade in Northeast Asia**




| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Northeast Asia | 13.90 | 14.10 | 16.10 | 17.50 | 18.60 | 19.00 | 18.60 | 17.40 | 19.20 | 20.30 | 21.80 | 22.40 | 23.70 | 23.90 |
| NAFTA | 38.90 | 39.70 | 41.00 | 42.40 | 42.00 | 43.50 | 44.50 | 45.70 | 46.80 | 46.90 | 46.6 | 46.10 | 44.90 | 43.60 |
| EU | 64.70 | 65.20 | 60.50 | 60.90 | 61.60 | 60.80 | 59.60 | 60.50 | 61.80 | 59.80 | 59.40 | 59.90 | 60.40 | 59.80 |

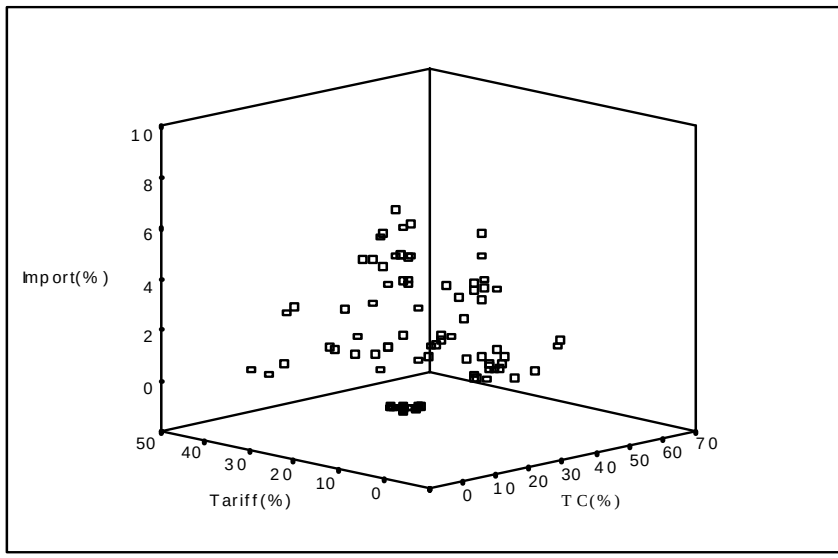
Source: Lee (2005)

The manufacturing sector has an overwhelming stake in trade in Northeast

Asia. In 2004, manufacturing products constituted 93.4 and 92 percent of Korea's exports and imports to and from China, and 73 percent and 97.1 percent to and from Japan, respectively (Lee 2005). Among the manufacturing sectors, six industries, namely, electronics, automobile, general machinery, textiles, steel, and petrochemicals, share the larger pie. These six industries constitute three-fourths of Korea's and Japan's exports and two-thirds of China's exports in intraregional trade among China, Japan and Korea, (Lee 2005). Also, in total exports, electronics (28.8 percent), textiles (26.1 percent), and general and machinery (23.2 percent) have the highest shares, in that order. Excluding petrochemicals (15.5 percent), the five remaining industries have a higher market share in the world market than the overall market share (15.8 percent) of the three countries. One of the reasons for rising trade in the manufacturing industry is the rapid development of China's heavy and chemical industries and the rapid increase of Korea's and Japan's trade with China after 2000. Therefore, it may be concluded that regional trade interdependency has become very high in Northeast Asia, a condition that has evolved over time mainly due to decreasing policy barriers (tariffs, for example) in the region. But is this also associated with lowering trade costs?

To answer this, we plot trade, tariffs, and transaction costs in a scatter plot for the panel of 1991 to 2004 in figure 4, which shows that despite lower tariffs, trade in Northeast Asia is still associated with high transaction costs, which, in other words, indicates that even though regional trade has gone up over time in Northeast Asia with a substantial reduction in tariffs, the cost of trade in the region has seen no substantial fall. Perhaps the rise in the costs of trade is an outcome of rising international freight costs, which have an impact on trade and trade equivalent to tariffs, or even the exchange rate. A reduction in the cost of transport directly stimulates exports and imports, just as an increase in the exchange rate makes exports more competitive, and a reduction in national tariffs lowers the cost of imports. This is amplified in table 3, which shows the cross-section of bilateral imports, transaction costs, and tariffs for 1991 and 2004.

**Figure 4. Scatter plot of Trade, Tariffs, and Transaction Costs in Northeast Asia**




Notes: 1. Pooled data for the period from 1991 to 2004.
2. TC represents transaction costs, calculated based on the methodology as described in section 2.
3. Imports, tariffs, and TC are based on bilateral trading pairs.

Spurred by trade liberalization, all the three countries now have lower tariffs (table 3). In fact, many tariffs have dropped to levels such that any additional reduction would now no longer have a significant impact. However, movement toward lowering transaction costs varies across the three countries. While, on one hand, China's imports from Korea and Japan went up substantially during 1991 to 2004 along with a substantial fall in tariffs, on the other, China's bilateral import costs from Korea increased from 6.40 percent in 1991 to 25.09 percent in 2004, and from 16.58 percent in 1991 to 27.67 percent in the case of imports from Japan. Merchandise trade between Japan and Korea and Korea and China indicates a fall in tariffs and transaction costs, and a rise in trade during 1991 and 2004. In the case of exports from China and Korea to Japan, for example, tariffs have reached an average of 1.53 percent (Korea), and 3.65

percent (China), compared with a 28.32 percent share for transaction costs in the case of China and 1.66 percent in the case of Korea. However, the movement of transaction costs do not change much, even if we consider distance-weighted transaction costs ($TC_w$). It follows the same direction indicated in un-weighted transaction costs ($TC_n$) among the three countries.

What is noteworthy is that Korea's transaction costs in 2004 were found to be even lower than her import tariffs, with both her imports from China and Japan. There was no substantial fall in tariffs in Korea for her imports from China, but her import transaction costs from China went down substantially during 1991 to 2004, due to which the bilateral trade between the two countries increased much faster than their trade with the rest of the region. If Korea's geographical location (distance) in the region is a vital factor in controlling transaction costs, the country's performance in trade enhancement by way of improved associated infrastructure facilities is also praiseworthy. In contrast, trade between China and Japan is associated with high transaction costs.

This calls for further investigation of sector-wise transaction costs, as bilateral costs are very much aggregative in nature. In order to capture sector-wise transaction costs, we consider HS 4-digit products. Tables 4, 5, and 6 capture the top 10 import items, ranked in terms of import volume in bilateral pairs in Northeast Asia for 2001 and 2004. The reason for the selection of only the top 10 import items is to see the movement of transaction costs in higher end and high value imports. Incidentally, in all the pairs, the top 10 items cover above 30 percent of total imports of that country from its partner, which even exceeded 50 percent in 2004.

**Table 3. Aggregate Transaction Costs and Tariffs**

| Year | Importer | Exporter | Imports[1] | $TC_n$[2] | $TC_w$[3] | Tariffs[4] |
|---|---|---|---|---|---|---|
| | | | *(percent)* | | | |
| 1991 | China | Korea | 0.24 | 6.40 | 0.007 | 41.80 |
| 2004 | China | Korea | 4.19 | 25.09 | 0.026 | 6.21 |
| 1991 | China | Japan | 2.23 | 16.58 | 0.008 | 41.80 |
| 2004 | China | Japan | 6.35 | 27.67 | 0.013 | 6.41 |
| 1991 | Korea | China | 1.11 | 57.91 | 0.061 | 11.40 |
| 2004 | Korea | China | 4.81 | 6.35 | 0.007 | 11.28 |
| 1991 | Korea | Japan | 6.80 | 5.14 | 0.004 | 11.40 |
| 2004 | Korea | Japan | 7.50 | 4.29 | 0.004 | 4.45 |
| 1991 | Japan | China | 0.34 | 38.98 | 0.019 | 7.51 |
| 2004 | Japan | China | 1.90 | 28.32 | 0.014 | 3.65 |
| 1991 | Japan | Korea | 0.29 | 0.20 | 0.001 | 6.58 |
| 2004 | Japan | Korea | 0.44 | 1.66 | 0.001 | 1.53 |

Notes: 1. Bilateral imports, as a percentage of GDP.
2. Normal bilateral transaction costs, expressed in terms of the percentage of total imports, without controlling for distance.
3. Weighted bilateral transaction costs expressed in terms of percentage of total imports, controlling for distance.
4. Weighted average tariffs.

Sources: Calculated based on WB WITS, UN COMTRADE, and IMF DOTS.

Tables 4a and 4b report China's top 10 import items (at HS-4 digit codes) from Korea and Japan and corresponding tariffs and transaction costs for 2001 and 2004. Even though China's weighted average tariffs declined in 2004, the transaction costs of her imports from Korea went up in most of the items in the top 10 category compared to 2001, whereas the same for her imports from Japan saw some improvements in most of the top 10 products in 2004. For example, China imports electronic integrated circuits and micro-assemblies

(HS-8542) in large quantities from both Korea and Japan. In fact, electronic integrated circuits and micro-assemblies alone shared 13.45 percent of China's total imports from Korea and 9.69 percent of her total imports from Japan in 2004. Electronic integrated circuits and micro-assemblies have high-value high-end use as intermediate products in the electronics and electrical industry in China, which thereby influences the global market, as China has a high share of the global exports of electronics and electrical products. In view of its high-scale use in and value-addition to the country, the Chinese government has completely withdrawn import tariffs on HS-8542. However, associated transaction costs of imports of this item from Korea and Japan are too high; more than 200 percent are found to serve as transaction costs for her import of this product from Korea, and the same was around 90 percent for her imports from Japan in 2004. Similarly, China imports liquid crystal devices (HS-9013) from both Korea and Japan, which constitutes almost 13.33 percent of China's total imports from Korea and 3 percent of her total imports from Japan in 2004. These have been used as intermediate items in the telecommunications, electronics, and electrical industries. However, the cost of the import of liquid crystal devices (HS-9013) from Korea is found to be three times higher than the import of the same from Japan.

**Table 4a. Transaction Costs of China's Imports from Korea: Top 10 Products**

| HS | Product Name | Share[1] *(percent)* | Tariffs[2] *(percent)* | TC[2] *(percent)* |
|---|---|---|---|---|
| | **Year: 2001** | | | |
| 2710 | Oils: petroleum, bituminous, distillates, except crude | 7.32 | 8.80 | 9.98 |
| 8542 | Electronic integrated circuits and microassemblies | 6.08 | 5.97 | 416.60 |
| 8540 | Thermionic and cold cathode valves and tubes | 4.98 | 12.39 | 18.91 |
| 2917 | Polycarboxylic acid, derivatives | 3.08 | 11.08 | 11.33 |
| 3901 | Polymers of ethylene, in primary forms | 3.02 | 16.00 | 17.08 |
| 3903 | Polymers of styrene, in primary forms | 2.84 | 16.00 | 91.14 |
| 2902 | Cyclic hydrocarbons | 2.51 | 7.94 | 6.16 |
| 5407 | Woven synthetic filament yarn, monofilament > 67dtex | 2.50 | 29.95 | 83.53 |
| 4104 | Bovine or equine leather, no hair, not chamois, patents | 2.16 | 8.55 | 36.66 |
| 7219 | Rolled stainless steel sheet, width > 600mm | 2.13 | 12.17 | 13.06 |
| | **Year: 2004** | | | |
| 8542 | Electronic integrated circuits and microassemblies | 13.45 | 0.00 | 214.50 |
| 9013 | Liquid crystal devices | 13.33 | 8.44 | 304.14 |
| 8529 | Parts suitable for use with the apparatus of headings 85.25 to 85.28 | 4.80 | 5.37 | * |
| 2710 | Petroleum oils, other than crude | 4.40 | 6.55 | 10.89 |
| 2917 | Polycarboxylic acids, their anhydrides | 3.03 | 8.24 | 6.56 |
| 2902 | Cyclic hydrocarbons | 2.66 | 2.99 | * |
| 7219 | Flat-rolled products of stainless steel, of a width of 600 mm or more | 2.50 | 4.93 | 11.31 |
| 8473 | Parts and accessories for use with machines of heading 84.69 to 84.72 | 2.20 | 0.02 | * |
| 8540 | Thermionic, cold cathode, or photo-cathode valves and tubes | 1.95 | 8.24 | 19.96 |
| 3903 | Polymers of styrene, in primary forms | 1.87 | 10.10 | 31.61 |

**Table 4b. Transaction Costs of China's Imports from Japan: Top 10 Products**

| HS | Product Name | Share[1] *(percent)* | Tariffs[2] *(percent)* | TC[2] *(percent)* |
|---|---|---|---|---|
| | **Year: 2001** | | | |
| 8542 | Electronic integrated circuits and microassemblies | 9.35 | 5.98 | 168.63 |
| 8479 | Machines having individual functions | 3.10 | 14.55 | 46.31 |
| 8541 | Diodes, transistors, semi-conductors, etc. | 2.73 | 10 | 106.75 |
| 8473 | Parts, accessories, except covers, for office machines | 2.46 | 9.01 | 47.22 |
| 8708 | Parts and accessories for motor vehicles | 1.83 | 26.6 | 4.85 |
| 8529 | Parts for radio, tv transmission, reception equipment | 1.63 | 13.46 | 49.18 |
| 5407 | Woven synthetic filament yarn, monofilament > 67dtex | 1.46 | 29.98 | 7.04 |
| 8522 | Parts, accessories of audio, video recording equipment | 1.44 | 32.3 | 123.32 |
| 7210 | Flat-rolled iron/steel, > 600 mm, clad, plated, or coated | 1.40 | 9.9 | 92.10 |
| 8536 | Electrical switches, connectors, etc. for < 1kV | 1.28 | 11.98 | 39.70 |
| | **Year: 2004** | | | |
| 8542 | Electronic integrated circuits and microassemblies | 9.69 | 0.00 | 88.01 |
| 8479 | Machines and mechanical appliances having individual functions | 3.88 | 1.05 | 25.60 |
| 8541 | Diodes, transistors, and similar semiconductor devices | 3.33 | 0.00 | 88.85 |
| 8529 | Parts suitable for use with the apparatus of headings 85.25 to 85.28 | 3.23 | 5.36 | 48.69 |
| 9013 | Liquid crystal devices | 3.00 | 8.17 | 100.53 |
| 8473 | Parts and accessories for use with machines of heading 84.69 to 84.72 | 2.78 | 0.11 | 20.85 |
| 8708 | Parts and accessories of the motor vehicles of headings 87.01 to 87.05 | 2.63 | 14.91 | 4.50 |
| 2902 | Cyclic hydrocarbons | 1.81 | 3.00 | 1.62 |
| 8703 | Motor cars and other motor vehicles principally designed for the transport, etc. | 1.79 | 35.19 | 28.20 |
| 8532 | Electrical capacitors, fixed, variable, or adjustable (pre-set) | 1.49 | 0.00 | 123.30 |

Notes: 1. Share of the country's total imports from its partner.
2. Weighted average MFN tariffs applied to the partner.
3. Transaction costs of imports from the partner country.
* Not possible to compute due to discrepancies in trade data.

Source: Calculated based on WB WITS and UN COMTRADE, sourced using KIEP's online access.

**Table 5a. Transaction Costs of Japan's Imports from China: Top 10 Products**

| HS | Product Name | Share[1] *(percent)* | Tariffs[2] *(percent)* | TC[2] *(percent)* |
|---|---|---|---|---|
| | **Year: 2001** | | | |
| 6110 | Jerseys, pullovers, cardigans, waistcoats and similar items | 3.70 | 12.11 | 82.50 |
| 6204 | Women's or girls' suits, ensembles, jackets, blazers, dresses, skirts | 3.27 | 11.98 | 11.94 |
| 8471 | Automatic data processing machines and units thereof | 2.70 | 0.00 | 27.13 |
| 6203 | Men's or boys' suits, ensembles, jackets, blazers | 2.29 | 12.16 | * |
| 4202 | Trunks, suitcases, vanity cases, executive cases | 2.15 | 9.26 | 90.17 |
| 8473 | Parts and accessories for use with machines of heading 84.69 to 84.72 | 1.80 | 0.00 | 228.31 |
| 8504 | Electrical transformers, static converters (for example, rectifiers) | 1.70 | 0.00 | 47.71 |
| 8529 | Parts suitable for use with the apparatus of 85.25 to 85.28 | 1.65 | 0.00 | * |
| 2701 | Coal; briquettes, ovoids, and similar solid fuels | 1.63 | 0.00 | 10.33 |
| 6109 | T-shirts, singlets and other vests, knitted or crocheted | 0.00 | 11.03 | * |
| | **Year: 2004** | | | |
| 8471 | Automatic data processing machines and units thereof | 8.90 | 0.00 | 30.75 |
| 6110 | Jerseys, pullovers, cardigans, waist-coats and similar articles, knitted or crocheted | 3.71 | 10.67 | 90.24 |
| 8473 | Parts and accessories for use with machines of heading 84.69 to 84.72 | 3.21 | 0.00 | 76.57 |
| 6204 | Women's or girls' suits, ensembles, jackets, blazers, dresses, skirts | 2.79 | 9.81 | 15.43 |
| 8529 | Parts suitable for use with the apparatus of headings 85.25 to 85.28 | 1.89 | 0.00 | 17.97 |
| 2701 | Coal; briquettes, ovoids and similar solid fuels manufactured from coal | 1.86 | 0.00 | 20.39 |
| 6203 | Men's or boys' suits, ensembles, jackets, blazers, trousers | 1.80 | 10.08 | * |
| 4202 | Trunks, suitcases, vanity cases, executive cases, briefcases | 1.79 | 9.21 | 130.64 |
| 8544 | Insulated (including enamelled or anodised) wire, cable | 1.51 | 2.49 | 72.00 |
| 8504 | Electrical transformers, static converters (for example, rectifiers) etc. | 1.50 | 0.00 | 33.62 |

**Table 5b. Transaction Costs of Japan's Imports from Korea: Top 10 Products**

| HS | Product Name | Share[1] *(percent)* | Tariffs[2] *(percent)* | TC[2] *(percent)* |
|---|---|---|---|---|
| | **Year: 2001** | | | |
| 2710 | Oils: petroleum, bituminous, distillates, except crude | 16.56 | 2.89 | * |
| 8542 | Electronic integrated circuits and micro assemblies | 12.81 | 0.00 | 34.53 |
| 8471 | Automatic data processing machines (computers) | 7.09 | 0.00 | 8.24 |
| 8473 | Parts, accessories, except covers, for office machines | 3.07 | 0.00 | * |
| 0303 | Fish, frozen, whole | 1.71 | 3.87 | 5.02 |
| 8525 | Radio and TV transmitters, television cameras | 1.58 | 0.00 | 34.21 |
| 8522 | Parts, accessories of audio, video recording equipment | 1.53 | 0.00 | 81.23 |
| 7208 | Hot-rolled products, iron/steel, width > 600mm, not clad | 1.51 | 1.27 | 3.00 |
| 0307 | Molluscs | 1.23 | 6.92 | * |
| 8480 | Moulds for metals (except ingot), plastic, rubber, etc. | 1.01 | 0.00 | * |
| | **Year: 2004** | | | |
| 8542 | Electronic integrated circuits and micro assemblies | 15.62 | 0.00 | 16.01 |
| 2710 | Petroleum oils, other than crude | 12.49 | 2.93 | * |
| 8473 | Parts and accessories for use with machines of heading 84.69 to 84.72 | 6.09 | 0.00 | 145.91 |
| 8471 | Automatic data processing machines and units thereof | 2.60 | 0.00 | * |
| 8529 | Parts suitable for use with the apparatus of headings 85.25 to 85.28 | 2.36 | 0.00 | * |
| 8525 | Transmission apparatus for radio-telephony, radio-broadcasting | 1.79 | 0.00 | 22.51 |
| 7219 | Flat-rolled products of stainless steel, of a width of 600mm or more | 1.76 | 0.00 | 0.55 |
| 7208 | Flat-rolled products of iron or non-alloy steel | 1.58 | 0.00 | 0.44 |
| 7209 | Flat-rolled products of iron or non-alloy steel | 1.42 | 0.00 | * |
| 2902 | Cyclic hydrocarbons. | 1.34 | 0.00 | * |

Notes: 1. Share of country's total imports from its partner.
2. Weighted average MFN tariffs applied to the partner.
3. Transaction costs of imports from the partner country.
* Not possible to compute due to discrepancies in trade data.

Source: Calculated based on WB WITS and UN COMTRADE, sourced using KIEP's online access.

## Table 6a. Transaction Costs of Korea's Imports from China: Top 10 Products

| HS | Product Name | Share[1] *(percent)* | Tariffs[2] *(percent)* | TC[2] *(percent)* |
|---|---|---|---|---|
| | **Year: 2001** | | | |
| 2701 | Coal, briquettes, ovoids, etc. made from coal | 6.65 | 1.00 | 9.18 |
| 8473 | Parts, accessories, except covers, for office machines | 3.75 | 8.00 | 193.96 |
| 8471 | Automatic data processing machines (computers) | 3.22 | 0.00 | 32.37 |
| 8504 | Electric transformers, static converters, and rectifiers | 3.02 | 8.00 | 59.88 |
| 2710 | Oils: petroleum, bituminous, distillates, except crude | 2.44 | 8.00 | 5.53 |
| 6110 | Jerseys, pullovers, cardigans, etc., knit or crochet | 2.43 | 13.00 | * |
| 8529 | Parts for radio, tv transmission, reception equipment | 2.41 | 8.00 | 20.23 |
| 0303 | Fish, frozen, whole | 2.28 | 10.00 | 1.83 |
| 1005 | Maize (corn) | 2.25 | 0.00 | * |
| 6203 | Mens or boys suits, jackets, trousers, etc., not knit | 2.01 | 13.00 | 7.25 |
| | **Year: 2004** | | | |
| 8471 | Automatic data processing machines and units thereof | 4.69 | 8.00 | * |
| 2701 | Coal: briquettes, ovoids, and similar solid fuels manufactured from coal | 4.67 | 1.00 | * |
| 8542 | Electronic integrated circuits and microassemblies | 3.48 | 8.00 | * |
| 8473 | Parts and accessories for use with machines of heading 84.69 to 84.72 | 3.18 | 8.00 | * |
| 7208 | Flat-rolled products of iron or non-alloy steel | 2.97 | 8.00 | * |
| 7601 | Unwrought aluminium | 2.95 | 3.00 | * |
| 8504 | Electrical transformers, static converters (for example, rectifiers) etc. | 2.33 | 8.00 | 24.03 |
| 8531 | Electric sound or visual signalling apparatus | 1.88 | 8.00 | 11.14 |
| 8529 | Parts suitable for use with the apparatus of headings 85.25 to 85.28 | 1.84 | 8.00 | 22.16 |
| 8543 | Electrical machines and apparatus with individual functions | 1.76 | 8.00 | 27.73 |

**Table 6b. Transaction Costs of Korea's Imports from Japan: Top 10 Products**

| HS | Product Name | Share[1] *(percent)* | Tariffs[2] *(percent)* | TC[2] *(percent)* |
|---|---|---|---|---|
| | **Year: 2001** | | | |
| 8542 | Electronic integrated circuits and microassemblies | 9.93 | 8.00 | 16.27 |
| 8479 | Machines having individual functions | 4.04 | 8.00 | 20.15 |
| 7208 | Hot-rolled products, iron/steel, width > 600mm, not clad | 3.78 | 8.00 | 13.15 |
| 8541 | Diodes, transistors, semi-conductors, etc. | 2.75 | 8.00 | 10.23 |
| 8529 | Parts for radio, tv transmission, receive equipment | 2.33 | 8.00 | 50.01 |
| 8708 | Parts and accessories for motor vehicles | 2.24 | 8.00 | 9.32 |
| 2902 | Cyclic hydrocarbons | 1.76 | 5.00 | * |
| 8471 | Automatic data processing machines (computers) | 1.71 | 0.00 | 76.89 |
| 9001 | Optical fibres, lenses, mirrors, prisms, etc. | 1.50 | 8.00 | * |
| 8473 | Parts, accessories, except covers, for office machines | 1.40 | 8.00 | 23.50 |
| | **Year: 2004** | | | |
| 8542 | Electronic integrated circuits and microassemblies | 7.66 | 8.00 | * |
| 8479 | Machines and mechanical appliances having individual functions | 5.84 | 8.00 | * |
| 7208 | Flat-rolled products of iron or non-alloy steel | 4.73 | 8.00 | 8.78 |
| 8529 | Parts suitable for use with the apparatus of headings 85.25 to 85.28 | 2.41 | 8.00 | * |
| 8541 | Diodes, transistors, and similar semiconductor devices | 2.27 | 8.00 | * |
| 9001 | Optical fibres and optical fibre bundles | 1.98 | 8.00 | * |
| 8543 | Electrical machines and apparatus, having individual functions | 1.97 | 8.00 | * |
| 9010 | Apparatus and equipment for photographic (including cinematographic) laboratories | 1.91 | 8.00 | 1.93 |
| 7204 | Ferrous waste and scrap; remelting scrap ingots of iron or steel | 1.84 | 1.00 | 8.19 |
| 2902 | Cyclic hydrocarbons | 1.73 | 5.00 | 1.84 |

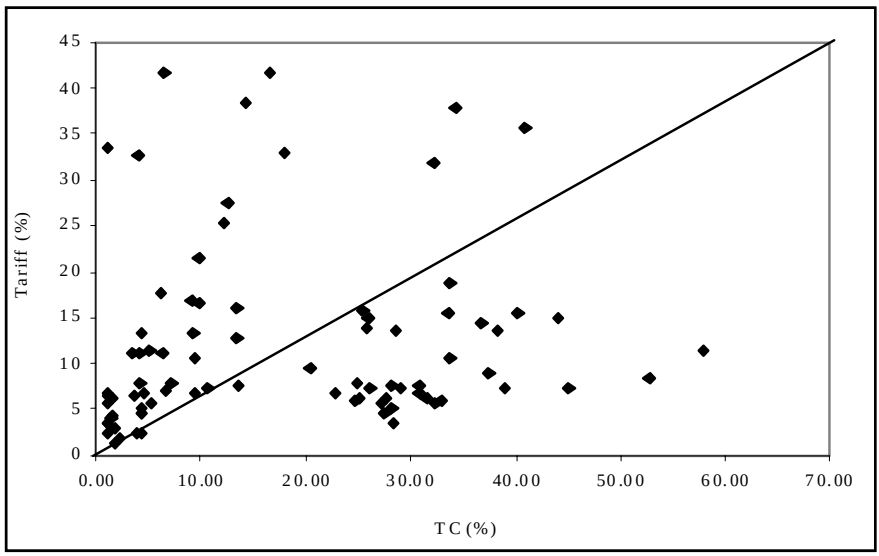
Notes: 1. Share of country's total imports from its partner.
2. Simple average MFN tariffs applied to the partner.
3. Transaction costs of import from the partner country.
* Not possible to compute due to discrepancies in trade data.

Source: Calculated based on WB WITS and UN COMTRADE, sourced using KIEP's online access.

Therefore, while policy barriers (e.g. tariffs) have been reduced, environmental barriers are very much in existence, due to which the prices of finished products are increasing. In general, the top 10 Chinese imports from Korea are associated with 0 to 10 percent tariffs and 7 to 304 percent transaction costs, whereas the same for China's imports from Japan are associated with 0 to 35 percent tariffs and 2 to 123 percent transaction costs.

In the case of Japan's imports from China (table 5a), most of the top 10 items except apparel and ready-made garments and electrical wire and cable (HS-8544) face no tariff barriers but carry high transaction costs. Total costs (tariff + transaction) are high in the case of imports of apparel and ready-made garments (HS-6110, 6204, 6203) and insulated wire and cable (HS-8544) from China. Virtually, no policy barrier (in terms of tariffs) exists in Japan on imports of high value-high end items (electronics and electrical intermediate and finished products) from China, but environmental barriers due to structural differences in the logistics and support services often make the landed price of imports much higher. In the case of Japan's imports from Korea (table 5b), the top 10 Korean products except petroleum oil other than crude (HS-2710) faced no tariffs in 2004. In general, the aggregate average transaction costs of Japan's imports from Korea are much less than her imports from China, mainly due to Korea's location and improved transportation facilities between the two countries, compared to China. Therefore, Japan's imports from Korea face lesser constraints than her imports from China. In other words, due to favourable policies (tariffs) and environmental conditions (improved trade infrastructure), Japan's welfare gain from her imports from Korea seems to be much higher than from her imports from china. To some extent, it may also be said that the trade environment in Japan is far more open and competitive than Korea or China.

**Figure 5. Relative Importance of Transaction Costs and Tariffs in Northeast Asia**




Notes: 1. Pooled data for the period from 1991 to 2004.
2. Tariffs and TC are based on bilateral trading pairs.

Among the three countries, Korea's trade environment is the most restrictive. Most electrical and electronics import items (HS-8542, 8543, 8529) from China and Japan face import tariffs of an average 8 percent and also relatively higher transaction costs. In general, due to Korea's locational advantage and its relatively better-endowed transportation facilities, the cost of imports from Japan is much lower than her imports from China. However, Korea's relatively high tariffs seem to offset its welfare gain arising from her improved trade infrastructure and strategic location in the region.

Therefore, what follows is that regional trade is increasingly taking place in intermediate goods in Northeast Asia, which are used in regional and international production processes. The price of the vast majority of traded goods is thus not necessarily exogenous, particularly in the case of China and Korea in Northeast Asia. Indirectly, as tables 4, 5, and 6 indicate, the shipping of imports has become more expensive.

Since the rise in shipping costs is directly related to higher intlation as a result of the increased cost of imported good, the increased cost of imported goods, this also increases this also increases the costs of local production in the case of intermediate and capital goods. Econometric estimates suggest that the doubling of an individual country's transaction costs leads to a drop in its trade of 80 percent or even more (Hummels 1999; Limao and Venables 2001).

As a result, lowering transaction costs is very important in raising the competitiveness of finished goods, particularly in the case of Northeast Asia. Trade in intermediate goods requires JIT (just in time) deliveries of inputs. JIT in turn requires a particularly sophisticated and efficient transport system, which tends to be widely asymmetric in terms of services across the three countries in Northeast Asia.

Therefore, transaction costs have a profound influence on trade. In our case, we found that the average incidence of transaction costs seems to exceed that of tariffs over the period from 1991 to 2004 (figure 5), indirectly pointing toward the fact that trade and transport services are ever more closely linked with one another. This leads to the belief that in order to attain higher trade, one needs to improve one's trade services. But is that relationship exogenously determined or can it be influenced by policy? This is dealt with in the next section with in the framework of a partial equilibrium model.

# V. Impact of Trade Costs on Regional Trade: Estimated Results

Having discussed the interdependence of Northeast Asian countries in trade, let us turn to see the impact of trade costs on bilateral trade with the help of fixed effect panel data regression results.[22] To assess such an impact, as described in section 3, we use an augmented gravity model (equation 4). The least-squares estimates are provided in table 7. Most of the variables do have expected signs as usual in the gravity equations. As variables are used in natural logarithms, estimated coefficients show elasticity. All the models (1 to 4) explain 87 to 96 percent of the variations in the direction of trade flows. The most interesting result is the strong influence that transaction costs and trade mobility infrastructure had on trade (at the 1 percent level): the higher the transaction cost between each pair of partners, the less they trade. Therefore, a reduction in transactions costs between trading partners will certainly increase trade by a very large proportion. As can be seen from table 7, the coefficients of the transaction costs in most of the cases (except model 1) are statistically significant and always negative; for example, in the second model, the elasticity of transaction costs is as high as 9 percent with high statistical significance (-2.28 t-value).

The next important factor is the GDP (and also GDP per capita) of both exporting and importing countries. But this is a rather common phenomenon as we are dealing with aggregate behaviours. The negative and significant coefficients of tariffs indicate that a further reduction of tariffs will positively influence bilateral imports. However, a country's openness (except in the case of model 2, where an exporting country's openness is significant at the 5

22) To take into account the "individuality" of each country, we use fixed effects regression (or what is known as the least-squares dummy variable (LSDV) regression model) in this study, which, in other words, tells us that intercepts vary for each country but that slope coefficients are constant across countries. This model is applied, taking into account the balanced panel data described in section 3.

percent level) never appeared to be a significant barrier, primarily for two main reasons: (a) the existence of low tariff rates among the countries considered here, and (b) the fact of Korea and China's comparatively higher dependence on foreign trade, making the absence of any counterfactual variation in the dataset unable to turn the statistical test in favour of 'openness.'

**Table 7. Gravity Model Results: Fixed Effect Regression**

| Variables | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Importing country's GDP | 1.659*** | | -13.984** | -10.349* |
| | (7.928) | | (-5.229) | (-2.232) |
| Exporting country's GDP | 1.620*** | | 2.529*** | 1.438** |
| | (10.389) | | (13.484) | (4.836) |
| Importing country's GDP per capita | | 2.416** | 17.260** | 13.706* |
| | | (7.543) | (5.841) | (2.675) |
| Exporting country's GDP per capita | | 0.826** | -0.700** | 0.008 |
| | | (4.275) | (-4.695) | (0.033) |
| Importing country's trade mobility infrastructure | 0.221 | -0.224 | -0.209 | -0.577 |
| | (0.506) | (-0.358) | (-0.637) | (-1.004) |
| Exporting country's trade mobility infrastructure | -0.446*** | -0.229* | -0.525*** | |
| | (-7.895) | (-2.992) | (-12.512) | |
| Importing country's openness | 0.240 | 0.543 | 0.227 | 0.474 |
| | (0.778) | (1.232) | (0.970) | (1.164) |
| Exporting country's openness | 0.009 | 0.583* | 0.034 | -0.084 |
| | (0.050) | (2.181) | (0.208) | (-0.301) |

Table 7. Continued

| Variables | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Transaction costs | 0.036 | -0.086* | | -0.105** |
| | (1.376) | (-2.281) | | (-3.209) |
| Tariffs | 0.126 | -0.336** | -0.132* | -0.291* |
| | (1.583) | (-3.051) | (-2.313) | (-2.832) |
| Importing country's exchange rate | -0.978*** | -0.829** | -0.461* | -0.618* |
| | (-5.331) | (-3.153) | (-2.801) | (-2.150) |
| Exporting country's exchange rate | -0.735*** | -0.751** | -0.342* | -0.274* |
| | (-7.355) | (-3.368) | (-2.754) | (-1.289) |
| Distance | -5.682*** | -1.378 | -6.062*** | -3.766** |
| | (-6.760) | (-1.364) | (-9.197) | (-3.516) |
| Adjusted $R^2$ | 0.941 | 0.876 | 0.964 | 0.895 |
| DW | 0.995 | 1.005 | 1.007 | 1.002 |

Notes: Numbers in parentheses are t-values.
* Significant at the 10 percent level.
** Significant at the 5 percent level.
*** Significant at the 1 percent level.

On the other hand, exchange rates show a significant (at the 1 percent level) negative effect on trade. All the models in table 7 indicate that a lowering of the exchange rate fluctuations will have a stronger impact on trade. On the cynical side, one could say that the actual volume of trade in the world is still a phenomenon that is driven more by exchange rate manipulation than by pure competitiveness (Krugman 1994).

The importance of 'nearness' in Northeast Asia is also seen in table 7. In all cases, distance is found to be a significant variable in influencing trade. This is a great advantage and will help the Northeast Asian countries achieve higher intraregional trade and mobility of labour and capital by the removal of common borders.[23)]

Quite consistent with the behaviour of transaction costs, an exporting country's trade infrastructure produces a significant positive effect on bilateral trade, with the highest elasticity (53 percent) found in model 3 (significant at the 1 percent level). The idea behind this result is that if an exporting country strengthens its trade infrastructure (namely railways, roadways, ports, airways, and telecommunications facilities) then bilateral trade increases even without much compulsion on the importing country's trade infrastructure, as sending the goods is much more important than distributing them inside the importing country. But if the latter were also strengthened, there would be a higher impact on trade volumes. For example, if we consider poor trading infrastructure facilities (i.e, poor in guality, which works against trade), we find that countries that are running fairly well-developed transport infrastructure facilities have gone far ahead of the others in reaping benefits from the export market such as Singapore, Hong Kong, and Taiwan. We found in many cases a positive relationship between a country's exports and its trade infrastructure facilities. Thus strengthening trading infrastructure is equally important while mooting up a plan to promote regional cooperation in Northeast Asia.

23) By removing common borders between Germany and the Czech Republic, and also between the United States and Mexico, substantial positive effects could be observed on predicted income per capita in the smaller countries; income per capita of the Czech Republic and Mexico have gone up by 26 percent and 27 percent, respectively, presumably as a result of integration (Redding and Venables 2004).

**Table 8. Gravity Model Results: Optimising the Impact of Transaction Costs**

| Variables | 1 | 2 | 3 |
|---|---|---|---|
| Importing country's GDP | 2.040** | -10.272* | 2.196*** |
| | (7.267) | (-2.215) | (9.316) |
| Exporting country's GDP | 1.202** | 1.389** | 1.154** |
| | (5.942) | (4.735) | (5.863) |
| Importing country's GDP per capita | | 13.783* | |
| | | (2.690) | |
| Exporting country's GDP per capita | | 0.015 | |
| | | (0.061) | |
| Importing country's trade mobility infrastructure | -0.611 | | |
| | (-1.023) | | |
| Importing country's openness | 0.488 | 0.168 | 0.164 |
| | (1.154) | (0.622) | (0.585) |
| Exporting country's openness | -0.321 | -0.135 | -0.379 |
| | (-1.248) | (-0.492) | (-1.514) |
| Transaction costs | -0.117** | -0.098** | -0.109** |
| | (-3.545) | (-3.064) | (-3.400) |
| Tariffs | -0.281* | -0.286* | -0.275** |
| | (-2.630) | (-2.782) | (-2.577) |
| Importing country's exchange rate | -1.026** | -0.490 | -0.893** |
| | (-4.059) | (-1.902) | (-4.120) |
| Exporting country's exchange rate | -0.229* | -0.281 | -0.230* |
| | (-2.163) | (-1.320) | (-2.173) |
| Distance | -3.335** | -3.717** | -3.274** |
| | (-3.075) | (-3.474) | (-3.023) |
| Adjusted $R^2$ | 0.887 | 0.895 | 0.886 |
| DW | 1.001 | 1.000 | 1.001 |

Notes: Numbers in parentheses are t-values.
* Significant at the 10 percent level.
** Significant at the 5 percent level.
*** Significant at the 1 percent level.

The trade infrastructure between any two trading partners is certainly an important factor in determining the volume of trade for any bilateral transaction. An importing country's trade infrastructure ought to be statistically insignificant. Statistically speaking, this may be due to the fact that an exporting country's trade infrastructure and transaction costs partly work in the same direction. In fact, the robustness of transaction costs has gone up, as seen in table 8, where we excluded trade infrastructure facilities to minimize the frictions. In that case (table 8), we found both transaction costs and tariffs to be highly significant and import factors to influence bilateral trade. In the models in table 8, transaction costs and tariffs came out as very significant factors, explaining over 88en-dash 89 percent of the variations in the direction of trade flows.

In this study, GDP and GDP per capita (of both the exporting and importing country) have come out to exert a statistically significant positive impact on trade through the chain of effective demand. It also may be concluded that countries with relatively low trade mobility infrastructures have encountered high transaction costs, thereby offsetting any gains from increased trade. Besides distance and some other variables, an important determinant for rising intra-regional trade is the exchange rate. Depreciation of a national currency is likely to increase bilateral trade. Hence, in order to enhance regional trade (and also regional integration) in Northeast Asia, the priority should be therefore to (a) control transaction costs, and (b) strengthen the chain of necessary trading infrastructure facilities, starting from the production point to the shipment point, and associated trade facilitation measures.

However, we may not be able to indicate the country-specific direction of transaction costs and trade mobility from the estimated coefficients, as the level of infrastructure endowment and preparedness for free trade differs across countries. The estimated elasticities may produce biased results in the case of a change of scale. From a policy perspective, the differences in trade flows with respect to transaction costs and trade mobility suggest that different approaches toward a reduction in trade costs (or to trade facilitation) will differently affect the imports of the region as a whole.

In sum, the major concern about rising intraregional trade in Northeast Asia is trade costs, which seems to be influenced in the present context mostly by barriers related to environment rather than policies. The challenge for Northeast Asian countries is to identify improvements in logistics services and related infrastructure that can be achieved in the short-to-medium term and that would have a significant impact on the competitiveness of these three countries. Therefore, the need is to continuously upgrade trading infrastructure facilities and strengthen trade facilitation measures, which will not only pave the way for sustained intraregional trade but also speed up the regional integration process toward establishing an FTA in the near future.

# Ⅵ. Conclusions

The analysis carried out in this paper looks at evidence to ascertain that today's trade issues in Northeast Asia go beyond the traditional mechanisms of tariffs to include "behind-the-border" issues. The link between trade flows and trade costs was previously based more on intuition than evidence, particularly in the context of Northeast Asia. We found that variations in transaction costs along with trade mobility infrastructure facilities have a significant influence on regional trade flows in Northeast Asia. When tariffs decrease significantly, the economies of the region could benefit substantially from a higher volume of trade, subject to controlling transaction costs. However, a number of obstacles block the realisation of this potential. Among the most serious of these is rising transaction costs as an outcome of the physical and policy constraints on the regional trade and infrastructure system. Therefore, policy protection should tend to complement natural protection, lowering the variability of total trade costs.

Tariffs tend to be decreasing not only in Northeast Asia but also across most of the economies in the world. Attention is being paid toward trade facilitation, in varying degrees across the world. The issue of trade facilitation has been highlighted by the WTO in many ways, giving reasons for the fact that the level of tariffs has been gradually lowered to 4 percent on average according to the WTO.[24] Generally speaking, tariffs are not regarded as major barriers to

24) The first WTO ministerial conference, held in Singapore in 1996, added the issue of trade facilitation to the WTO's future agenda. It requested that the Council for Trade in Goods undertake a work program to assess the scope of WTO rules concerning the simplification of trade procedures. Together with the issues of trade and investment, trade and competition policy, and transparency in government procurement, the issue of trade facilitation formed the so-called Singapore Issues. The inclusion of trade facilitation in the Doha Development Agenda was decided at the fifth WTO ministerial conference, held on September 2003 in Cancún, Mexico. Ensuring adequate technical assistance and capacity building in this area was also agreed upon. Unfortunately, no such agreement was reached at the Cancún conference. However, in July 2004, WTO's General Council decided to include trade

trade, although high-tariff items and tariff escalation still exist for certain sensitive products. With the globalization of economic activities, businesses and trading communities—in particular, small and medium enterprises—pay greater attention to various requirements for government documentation in order to reduce the cost of doing business. Studies by the World Bank, OECD, UNCTAD, APEC, and UNESCAP clearly show that these documentary requirements are burdensome to the trading community, and that trade facilitation efforts will be more beneficial than trade liberalization.[25]

Needless to say, countries in Northeast Asia have to adopt a common policy toward lowering trade costs—not only for their trade in the region but also for the rest of the world. Therefore, their regional obligations need to match their WTO commitments toward the facilitation of trade. Adopting two different approaches toward trade facilitation (regional and multilateral) will not produce desirable results and is thus not recommended, as trade is not restricted to a particular region and there exists high interdependence among the economies across the world.

The three countries in Northeast Asia have been undertaking trade facilitation measures aiming to reduce current physical and non-physical barriers to transportation and transit—by means of both visible infrastructure (such as multi-modal corridors and terminals) and invisible infrastructure (such as reformed policies and procedures, regulations). There is significant potential for improving Northeast Asian economies, especially for Korea, due to its

facilitation in the DDA as part of the "July Package," and set the date for the completion of DDA to 1 January 2007 (WTO 2004). The WTO's sixth ministerial conference, held in Hong Kong, China in December 2005, aimed to agree on a basic framework for a trade facilitation agreement. Annex D of the July Package states that trade facilitation aims to clarify and improve upon the relevant aspects of Articles V, VIII, and X of the GATT 1994, with a view to further expediting the movement, release, and clearance of goods. In doing this, due account is taken of the relevant work of the World Customs Organisation (WCO). The WCO is an independent specialized international organization for customs matters that provides a set of international standards on customs procedures to facilitate trade.

25) To mention a few, Brooks et al. (2005), Ujiie (2006), and Duval (2006).

strategic location.

With an increased emphasis on administrative reform, governance, and security, the need for an efficient and effective customs administration is also urgently required. Customs is an intrinsic element of any cross-border movement of goods and services, and wields significant influence on the national economy. It is a unique point, with a good understanding of the supply chain as well as routine access to trade intelligence and data. Beyond facilitating trade, customs performs other important functions such as revenue collection and protection against dangerous goods. The time taken for the clearance of goods has an impact on the competitiveness of Northeast Asian countries in a global context.

Even though customs authorities in Northeast Asia have undergone significant reforms in recent years,[26] particularly in Korea and Japan, one of the major reasons for high transaction costs in Northeast Asia is the amount of time that cross-border customs procedures require. The complex requirements of cross-border trade increase the possibility of corruption. Expediting customs clearance procedures reduces the discretionary power of customs officials, thus reducing the potential for corruption. An efficient, friendly, and corruption-free customs bureau can help boost trade and investment. Customs procedures between China and Korea have improved moderately in recent years, ever since China began to actively develop its export trade, but document processing is still largely manual and interrupts the seamless flow of traffic.

At the ground level, a lack of adequate maritime transportation links among the Northeast Asian members poses serious problems for the expansion of trade. A trade consignment takes a minimum of three to four days for clearance from a Japanese port, a process that used to take more than seven days a

26) With the objective of reducing border transaction time, China, Japan, and Korea have successfully simplified administrative documentation through the computerization of documents by connecting all customs points through an electronic data interchange, paperless trading, alignment with international standards, pre-shipment inspection for all non-government imports, simplified tariffs based on the Harmonized Code (8-digit), and red and green channels in major airports and seaports since 1999 (APEC 2005).

decade ago.[27] Again, the present legal arrangement between Japan and China prohibits Japanese flag-bearing vessels (or Chinese flag-bearing vessels) to engage in coastal shipping for delivering consignments to the final user(s). Generally, a consignment needs several documents, signatures, and copies for final approval, taking into account both sides, and encounters multiple transhipments, the result of which are costs that increase daily, which often tend to change the composition and direction of trade. Therefore, procedural complexities coupled with static trade facilitation measures work as a deterrent to trade in Northeast Asia.[28]

This study has some limitations. The possibility of endogeneity cannot be excluded, and the possibility that greater bilateral trade will lead to higher values of trade mobility infrastructure facilities cannot be excluded. The usage of trade mobility infrastructure facilities (port, aviation, telecommunication, rail, road, etc.) may improve with a country's import flows and lower trade costs, and if this endogeneity is present, the estimated coefficients for the variable would be biased upward. So, to remove the endogeneity problem, we need to employ instrumental variables. As an extension of this study, perhaps, taking raw inputs of the trade mobility infrastructure index may be adopted to mitigate the endogeneity problem.

In order to better inform the policy-making process, future research should be undertaken to complement the findings of this paper in the following ways.

27) The average lead time from port arrival to granting an import permit for all imported cargo in Japan has largely been reduced over the past 10 years. This reduction in the port distribution lead time has resulted in higher efficiency of operations for cargo owners, shipping companies, and shipping forwarders. The Customs and Tariff Bureau, Ministry of Finance of Japan, has so far implemented six time-release surveys. According to the latest survey conducted in 2001, the average requisite time from port arrival to permit issuance for all imported cargo was 73.8 hours or 3.1 days, representing a major reduction compared with the lead time in the first survey in 1991 of 168.2 hours or 7.0 days (Government of Japan 2004).

28) Complex customs and tariff administration were also found as strong barriers to trade in Korea (Kim and Park 2001). Refer table 2 of Sohn and Yang (2003) for further details.

First, the focus of this study is on the importance of trade costs and trade facilitation in the context of Northeast Asia. Both the measures are very much aggregative in nature. Future studies should attempt to decompose the trade mobility infrastructure index and find the causal linkages of the variables with the trade flow separately. Second, the study considered aggregate total trade and transaction costs in bilateral pairs.[29] Future research should consider disaggregated trade and trade costs in a dynamic framework, at least at the 4-digit level. Third, this paper considered direct trade costs but omitted infrastructure costs. Variability in infrastructure endowments and costs thus need to be captured more accurately in the model, provided the data is made available. Finally, in order to look at the relative robustness of the transaction costs, one may need to replace the transaction costs assessment methodology adopted here by other method(s).

29) Due to the limited duration of the author's visiting fellowship provided by KIEP, the author was unable to extend the analysis on disaggregated (at least for 4-digit HS) trade data.

# References


Anderson, J. E. 1979. "A Theoretical Foundation for the Gravity Equation." *American Economic Review* 69, No. 1, pp. 106-116.

_____. 1994. "The Theory of Protection." In David Greenway and L. Alan Winters ed. *Surveys in International Trade*, pp. 107-138. Oxford: Blackwell.

Anderson, J. E. and E. van Wincoop. 2002. "Borders, Trade and Welfare." In Susan Collins and Dani Rodrik ed. *Brookings Trade Forum 2001*, pp. 207-244. Washington: Brookings Institution.

_____. 2004. "Trade Costs." *Journal of Economic Literature* 42, No. 3, pp. 691-751.

Andriamananjara, S. 2004. "Trade and International Transport Services: An Analytical Framework." *Journal of International Integration* 19, No. 3, pp. 604-625.

Asia Pacific Economic Cooperation (APEC). 2002. *Measuring the Impact of APEC Trade Facilitation on APEC Economies: A CGE Analysis*. Singapore.

_____. 2005. *APEC Trade Facilitation.* Singapore.

Baier, S. L, and J.F. Bergstrand. 2001. "The Growth of World Trade: Tariffs, Transport Costs, and Income Similarity." *Journal of International Economics* 53, pp. 1-27.

Bergstrand, J. H. 1985. "The Gravity Equation in International Trade: Some Microeconomic Foundations and Empirical Evidence." *Review of Economics and Statistics.* 67, pp. 474-481.

_____. 1989. "The Generalized Gravity Equation, Monopolistic Competition, and the Factor-Proportions Theory in International Trade." *Review of Economics and Statistics* 71, pp. 143-153.

Bougheas, S. et al. 1999. "Infrastructure, Transport Costs, and Trade." *Journal of International Economics* 47, pp. 169-189.

Brakman, S., H. Garretsen, and C. V. Marrewijk. 2001. *An Introduction to Geographical Economics*. Cambridge: Cambridge University Press.

Brooks, D. H., D. Roland-Host, and F. Zhai. 2005. *Asia's Long-term Growth and Integration: Reaching beyond Trade Policy Barriers.* ERD Policy Brief Series No. 38. Manila: Asian Development Bank.

Cernat, L, 2001. *Assessing Regional Trading Arrangements: Are South-South RTAs More Trade Diverting?* UNCTAD Policy Issues in International Trade and Commodities Study Series No. 16. Geneva: UNCTAD.

Cheong, I. 2005. "Estimation of Economic Effects of FTAs in East Asia－CGE Approach." In C. Y. Ahn, R. E. Baldwin, and I. Cheong eds. *East Asian Economic Regionalism: Feasibilities and Challenges,* pp. 139-155. The Netherlands: Springer.

Clark, X., D. David, and A. Micco. 2004. "Port Efficiency, Maritime Transport Costs and Bilateral Trade." NBER Working Paper No. 10353. Cambridge.

Crawford, Jo-Ann and R. Fiorentino. 2005. "The Challenging Landscape of Regional Trade Agreements." WTO Discussion Paper No. 8. Geneva.

David, D. 1998. "The Home Market Effect, Trade and Industrial Structure." *American Economic Review* 88, No. 5, pp. 1264-1276.

De, P. 2004. *Transaction Costs as Barriers to Economic Integration in Asia: An Empirical Exploration.* RIS Discussion Paper No. 77. New Delhi: Research and Information System for Developing Countries.

Deardorff, A. 1998. "Determinants of Bilateral Trade: Does Gravity Work in a Neo-Classical World?" In J. Frankel ed. *Regionalization of the World Economy*. Chicago: University of Chicago Press.

Duval, Yann. 2006. *Cost and Benefits of Implementing Trade Facilitation Measures under Negotiations at the WTO: an Exploratory Survey*. Asia-Pacific Research and Training Network on Trade Working Paper Series No. 3. Bangkok: UNESCAP.

Feenstra, R. C. 1998. "Integration of Trade and Disintegration in Production in the Global Economy." *Journal of Economic Perspectives* 12, No. 4, pp. 31-50.

Fink, C., A. Mattoo, and I. C. Neagu. 2002. "Trade in International Maritime Services: How Much Does Policy Matter?" *The World Bank Economic Review* 16, pp. 451-479.

_____. 2005. "Assessing the Impact of Communication Costs on International Trade?" *Journal of International Economics* 67, pp. 428-445.

Francois, J, and M. Manchin. 2006. *Institutional Quality, Infrastructure, and the Propensity to Export.* London: CEPR.

Friedman, B. M. 2005. *The Moral Consequences of Economic Growth.* New York: Knopf.

Glick, R. and Rose, A. K. 2002. "Does a Currency Union Affect Trade? The Time-Series Evidence." *European Economic Review,* 46.

Government of Japan. 2004. *Study on the Economic Effects: Resulting from Reduction of Lead Time for Import Procedures.* Tokyo: Ministry of Finance, Customs and Tariff Bureau.

Hai, W. and X. Zhang. 2004. “A Bilateral or Trilateral FTA?” In Y. H. Kim and C. J. Lee eds. *Strengthening Economic Cooperation in Northeast Asia*, pp. 137-162. Seoul: Korea Institute for International Economic Policy.

Harrigan, J. 1993. “OECD Imports and Trade Barriers in 1983.” *Journal of International Economics* 34, pp. 91-111.

Hummels, D. 1999. *Have International Trade Costs Declined?* University of Chicago Business School Working Paper. Chicago.

_____. 2001a. *Towards a Geography of Trade Costs.* Purdue University Working Paper. West Lafayette.

_____. 2001b. *Time as Trade Barrier*. Purdue University Working Paper. West Lafayette.

International Monetary Fund (IMF). 2005. *Direction of Trade Statistics, Database and Browser*. Washington. (October)

Kim, Sang-kyon and Inwon Park. 2001. *The Benefits of Trade Facilitation in APEC.* Policy Analysis 01-05. Seoul: Korea Institute for International Economic Policy.

Krugman, P. 1994. “Competitiveness: A Dangerous Obsession.” *Foreign Affairs* 73.

Lee, C. J. et al. 2005. *Rationale for a China-Japan-Korea FTA and Its Impact on the Korean Economy*. Seoul: Korean Institute for International Economic Policy (KIEP).

Limao, N. and A. J. Venables. 2001. “Infrastructure, Geographical Disadvantage, Transport Costs, and Trade.” *The World Bank Economic Review* 15, pp. 451-479.

Obstfeld, M, and K. Rogoff. 2000. “The Six Major Puzzles in International Macroeconomics: Is There a Common Cause?” In B. S. Bernanke and K. Rogoff eds. *NBER Macroeconomics Annual 2000*, pp. 339-390. Cambridge: MIT Press

Organisation for Economic Cooperation and Development (OECD). 2005. *The Costs and Benefits of Trade Facilitation.* Paris. (October)

Redding S. and A. J. Venables. 2004. “Economic Geography and International Inequality.” *Journal of International Economics* 62, No. 1, pp. 53-82

Schiff, M and L.A. Winters. 2003. *Regional Integration and Development.* New York: Oxford University Press.

Sohn, Chan-Hyun, and Junsok Yang. 2003. *Trade Facilitation in the WTO: Implications for Developing Countries and a Roadmap to Cancun.* Discussion Paper 03-04. Seoul: Korea Institute for International Economic Policy.

Stiglitz, J. E. 2003. "Globalization, Technology, and Asian Development." Asian *Development Review* 20, pp. 1-18.

Ujiie, T. 2006. "Trade Facilitation." ERD Working Paper 78. Manila: Asian Development Bank.

United Nations Economic and Social Commission for Asia and Pacific (UNESCAP). 2002. *ESCAP Trade Facilitation Framework: A Guiding Tool*. Bangkok.

Wilson, J. S., C. L. Mann, and T. Otsuki. 2003. "Trade Facilitation and Economic Development: A New Approach to Quantifying the Impact." *The World Bank Economic Review* 17, No. 3, pp. 367-389.

World Bank. 2002. *The Economic Impact of Trade Facilitation Measures: A Development Perspective in the Asia Pacific*. Washington.

_____. 2005. *World Development Indicators 2005*. Washington.

Yip, W. 2001. "Prospects for Closer Economic Integration in East Asia." *Stanford Journal of East Asian Affairs* 1, pp. 106-111.

Yungling, Z. 2005. *The Future Perspective of East Asian FTA*. BBL Seminar Proceedings. Japan: The Research Institute of Economy, Trade and Industry (RIETI). Available at http://www.rieti.go.jp/en/events/bbl/05102401.pdf.

# Appendix. 1

## Sources of Data

| Particular | Source |
|---|---|
| Bilateral trade | UN COMTRADE<br>IMF DOTS |
| Bilateral tariffs | WB WITS<br>Korea Customs |
| GDP, GDP per capita, surface area, population, openness, exchange rate | WB WDI 2005 |
| Distance | Great circle distance, http://www.wcrl.ars.usda.gov/cec/java/lat-long.htm |
| Infrastructure variables: (i) railway length, (ii) road length, (iii) air transport freight, (iv) air transport passengers carried, (v) aircraft departures, (vi) container traffic, (vii) fixed line and mobile phone subscribers, (viii) internet users, and (ix) electric power consumption | WB WDI 2005<br>UNESCAP |

# Appendix. 2

## (a) Trade Structure between China and Japan: Top 10 Commodities in 2004

| Commodity Code | Commodity Description | Value | Share |
|---|---|---|---|
| | | *(billion dollars)* | *(percent)* |
| | **(a) Exports** | | |
| HS-85 | Electrical machinery and equipment and parts thereof; sound recorders, etc. | 13.10 | 17.82 |
| HS-84 | Machinery and mechanical appliances; parts thereof | 11.69 | 15.90 |
| HS-62 | Articles of apparel and clothing accessories, not knitted or crocheted | 7.55 | 10.27 |
| HS-61 | Articles of apparel and clothing accessories, knitted or crocheted | 6.06 | 8.24 |
| HS-27 | Mineral fuels, mineral oils, and products of their distillation | 2.99 | 4.07 |
| HS-90 | Optical, photographic, cinematographic, measuring, checking, precision, medical, or surgical instruments and accessories | 2.55 | 3.47 |
| HS-16 | Preparations of meat, of fish or of crustaceans | 2.18 | 2.97 |
| HS-94 | Furniture; bedding, mattresses, cushions and similar stuffed furnishing | 1.61 | 2.19 |
| HS-63 | Other made up textile articles; sets; worn clothing and worn textile article, etc. | 1.47 | 1.99 |
| HS-87 | Vehicles other than railway or tramway rolling stock | 1.46 | 1.98 |
| | **(b) Imports** | | |
| HS-85 | Electrical machinery and equipment and parts thereof; sound recorders, etc. | 28.33 | 30.04 |
| HS-84 | Machinery and mechanical appliances; parts thereof | 21.69 | 23.00 |
| HS-90 | Optical, photographic, cinematographic, measuring, checking, precision, medical, or surgical instruments and accessories | 7.82 | 8.29 |
| HS-72 | Iron and steel | 5.58 | 5.92 |
| HS-39 | Plastics and articles thereof | 4.65 | 4.93 |
| HS-87 | Vehicles other than railway or tramway rolling stock | 4.63 | 4.90 |
| HS-29 | Organic chemicals | 4.54 | 4.82 |
| HS-73 | Articles of iron or steel | 1.43 | 1.51 |
| HS-74 | Copper and articles thereof | 1.41 | 1.50 |
| HS-38 | Miscellaneous chemical products | 1.06 | 1.12 |

Note: Consider China's two-way trade with Japan.
Source: UN COMTRADE.

## (b) Trade Structure between China and Korea: Top 10 Commodities in 2004

| Commodity Code | Commodity Description | Value | Share |
|---|---|---|---|
| | | *(billion dollars)* | *(percent)* |
| | **(a) Exports** | | |
| HS-85 | Electrical machinery and equipment and parts thereof; sound recorders etc. | 6.64 | 23.86 |
| HS-84 | Machinery and mechanical appliances; parts thereof | 2.89 | 10.38 |
| HS-72 | Iron and steel | 2.53 | 9.10 |
| HS-27 | Mineral fuels, mineral oils, and products of their distillation | 1.74 | 6.24 |
| HS-62 | Articles of apparel and clothing accessories, not knitted or crocheted | 1.38 | 4.95 |
| HS-61 | Articles of apparel and clothing accessories, knitted or crocheted | 1.33 | 4.78 |
| HS-76 | Aluminium and articles thereof | 0.97 | 3.48 |
| HS-03 | Fish and crustaceans, molluscs and other aquatic invertebrates | 0.85 | 3.06 |
| HS-29 | Organic chemicals | 0.59 | 2.13 |
| HS-90 | Optical, photographic, cinematographic, measuring, checking, precision, medical, or surgical instruments and accessories | 0.58 | 2.10 |
| | | | |
| | **(b) Imports** | | |
| HS-85 | Electrical machinery and equipment and parts thereof; sound recorders, etc. | 18.58 | 29.86 |
| HS-90 | Optical, photographic, cinematographic, measuring, checking, precision, medical, or surgical instruments and accessories | 9.18 | 14.76 |
| HS-84 | Machinery and mechanical appliances; parts thereof | 6.89 | 11.07 |
| HS-29 | Organic chemicals | 4.98 | 8.01 |
| HS-39 | Plastics and articles thereof | 4.88 | 7.83 |
| HS-72 | Iron and steel | 4.17 | 6.69 |
| HS-27 | Mineral fuels, mineral oils, and products of their distillation | 3.21 | 5.16 |
| HS-87 | Vehicles other than railway or tramway rolling stock | 1.50 | 2.42 |
| HS-74 | Copper and articles thereof | 0.86 | 1.38 |
| HS-54 | Man-made filaments | 0.78 | 1.26 |

Note: Consider China's two-way trade with Korea.
Source: UN COMTRADE.

## (c) Trade Structure between Korea and Japan: Top 10 Commodities in 2004

| Commodity Code | Commodity Description | Value | Share |
|---|---|---|---|
| | **(a) Exports** | *(billion dollars)* | *(percent)* |
| HS-85 | Electrical machinery and equipment and parts thereof; sound recorders etc. | 6.05 | 27.86 |
| HS-27 | Mineral fuels, mineral oils, and products of their distillation | 3.39 | 15.60 |
| HS-84 | Machinery and mechanical appliances; parts thereof | 2.77 | 12.76 |
| HS-72 | Iron and steel | 1.62 | 7.45 |
| HS-39 | Plastics and articles thereof | 0.87 | 4.01 |
| HS-29 | Organic chemicals | 0.78 | 3.60 |
| HS-73 | Articles of iron or steel | 0.62 | 2.86 |
| HS-03 | Fish and crustaceans, molluscs, and other aquatic invertebrates | 0.60 | 2.78 |
| HS-90 | Optical, photographic, cinematographic, measuring, checking, precision, medical, or surgical instruments and accessories | 0.52 | 2.37 |
| HS-87 | Vehicles other than railway or tramway rolling stock | 0.34 | 1.57 |
| | **(b) Imports** | 0.00 | |
| HS-85 | Electrical machinery and equipment and parts thereof; sound recorders etc. | 12.30 | 26.65 |
| HS-84 | Machinery and mechanical appliances; parts thereof | 8.57 | 18.57 |
| HS-72 | Iron and steel | 5.85 | 12.68 |
| HS-90 | Optical, photographic, cinematographic, measuring, checking, precision, medical, or surgical instruments and accessories | 4.81 | 10.42 |
| HS-29 | Organic chemicals | 2.18 | 4.73 |
| HS-39 | Plastics and articles thereof | 2.18 | 4.72 |
| HS-38 | Miscellaneous chemical products | 1.28 | 2.76 |
| HS-87 | Vehicles other than railway or tramway rolling stock | 1.02 | 2.21 |
| HS-70 | Glass and glassware | 0.74 | 1.61 |
| HS-27 | Mineral fuels, mineral oils, and products of their distillation | 0.71 | 1.54 |

Note: Consider Korea's two-way trade with Japan.
Source: UN COMTRADE.

# List of KIEP Publications

■ CNAEC Research Series

04-01 Country-Specific Factors and the Pattern of Intra-Industry Trade in China's Manufacturing / Zhaoyong ZHANG

04-02 The Spoke Trap: Hub-and-Spoke Bilateralism in East Asia / Richard E. Baldwin

04-03 Real Interest Rate Linkages in the Asian-Pacific Region: A Time-Varying Parameter Approach / Kiyotaka Sato

04-04 Regional Integration in Northeast Asia: Approaches to Integration Among China, Korea and Japan

04-05 Economic and Political Interaction across the Taiwan Strait Facing the Trend of Economic Integration in East Asia / Lee-in Chen Chiu

04-06 An Output Perspective on a Northeast Asia Currency Union / Yin-Wong Cheung

04-07 A New Approach to the Asian Finance Cooperation: Asian Bond Market Initiative / CHEN Hong

05-01 Korea and the Dual Chinese Challenge / Fran□oise NICOLAS

05-02 Did Efficiency Improve? Megamergers in the Japanese Banking Sector / Kimie Harada

05-03 Measuring the Efficiency of Banks: Successful Mergers in the Korean Banking Sector / Kimie Harada

05-04 Industrial Structural Interdependency in Northeast Asia: An International Input-Output? Analytical Approach / Sumio Kuribayashi

05-05 The illusive quest for an Asian Common Currency: economic mirage or realpolitik? / James H. Chan-Lee

05-06 中國 東北3省 진흥 및 中·韓 經濟協力의 새로운 구상 / 임 명

05-07 An East Asian Single Market? Lessons from the European Union / Simon Hix and Hae-Won Jun

05-08 The Impact of FO햐 from South Korea to China on Bilateral Trade / Liu Xiangfeng

06-01 Korea-China-Japan FTA and the Korean Fisheries/ Namdoo Kim

06-02 Regional Trade in Northeast Asia: Why do Trade Costs matter? / Plabir De

A list of all KIEP publications is available at: http://www.kiep.go.kr

## ■ Discussion Papers

04-01 Monetary Union and Real Convergence Compared: Europe and East Asia / Heungchong Kim, Woosik Moon, and Deok Ryong Yoon

04-02 A Critical Assessment of India's Banking Sector Reform / Tae Hwan Yoo

04-03 The Structure of North Korea's Political Economy: Changes and Effects / Young-Sun Lee and Deok Ryong Yoon

05-01 A Brief Appraisal of India's Economic and Political Relations with China, Japan, ASEAN, the EU and the U.S. / Tae Hwan Yoo and V. Balaji Venkatachalam

## ■ Working Papers

04-01 The Macroeconomic Consequences of Terrorism / S. Brock Blomberg, Gregory D. Hess, and Athanasios Orphanides

04-02 Regional vs. Global Risk Sharing in East Asia / Soyoung Kim, Sunghyun H. Kim, and Yunjong Wang

04-03 Complementarity of Horizontal and Vertical Multinational Activities / Sungil Bae and Tae Hwan Yoo

04-04 E-Finance Development in Korea / Choong Yong Ahn and Doo Yong Yang

04-05 Expansion Strategies of South Korean Multinationals / Hongshik Lee

04-06 Finance and Economic Development in Korea / Yung Chul Park, Wonho Song, and Yunjong Wang

04-07 Impacts of Exchange Rates on Employment in Three Asian Countries: Korea, Malaysia, and the Philippines / Wanjoong Kim and Terrence Kinal

04-08 International Capital Market Imperfections: Evidence from Geographical Features of International Consumption Risk Sharing / Yonghyup Oh

04-09 North Korea's Economic Reform Under An International Framework / Jong-Woon Lee

04-10 Exchange Rate Volatilities and Time-varying Risk Premium in East Asia / Chae-Shick Chung and Doo Yong Yang

04-11 Marginal Intra-industry Trade, Trade-induced Adjustment Costs and the Choice of FTA Partners / Chan-Hyun Sohn and Hyun-Hoon Lee

04-12 Geographic Concentration and Industry Characteristics: An Empirical Investigation of East Asia / Soon-Chan Park, Hongshik Lee, and Mikyung Yun

04-13 Location Choice of Multinational Companies in China: Korean and Japanese Companies / Sung Jin Kang and Hongshik Lee

04-14 Income Distribution, Intra-industry Trade and Foreign Direct Investment in East Asia /

Chan-Hyun Sohn and Zhaoyong Zhang

05-01 Natural Resources, Governance, and Economic Growth in Africa / Bokyeong Park and Kang-Kook Lee

05-02 Financial Market Integration in East Asia: Regional or Global? / Jongkyou Jeon, Yonghyup Oh, and Doo Yong Yang

05-03 Have Efficiency and Integration Progressed in Real Capital Markets of Europe and North America During 1988-1999? / Yonghyup Oh

05-04 A Roadmap for the Asian Exchange Rate Mechanism / Gongpil Choi and Deok Ryong Yoon

05-05 Exchange Rates, Shocks and Inter-dependency in East Asia: Lessons from a Multinational Model / Sophie Saglio, Yonghyup Oh, and Jacques Mazier

05-06 Exchange Rate System in India: Recent Reforms, Central Bank Policies and Fundamental Determinants of the Rupee-Dollar Rates / Vivek Jayakumar, Tae Hwan Yoo, and Yoon Jung Choi

06-01 Investment Stagnation in East Asia and Policy Implications for Sustainable Growth / Hak K. Pyo

| Quantity | Title/Author/Series No. | ISBN | Price |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

• Total Cost of book(s) is US$_____.

• Cost of postage is US$ _____.

* Postage charge per copy is US$ 5 within Asia. For all other countries, the postage charge per copy is US$ 9.

All orders will be shipped by airmail.

## *Payment*

☐ Check (payable to KIEP) ☐ International Money Order

☐ Visa Card ☐ Master Card

• Card Number _____

• Expiry date _____

• Signature _____

## *Standing Order for Residents Outside Korea*

| Type of Membership (One-Year) | Annual Fee* | |
|---|---|---|
| | Institutions | Individuals |
| All publications (60-70 titles, including periodicals, annually ) | US$ 500 | US$ 250 |
| Only English publications (10-15 titles annually) | US$ 300 | US$ 150 |

* Airmail charges are included.

* Subject to change without prior notice.

KIEP

300-4 Yomgok-Dong, Seocho-Gu, Seoul 137-747 Tel: (822) 3460-1080 Fax: (822) 3460-1144

KIEP

KIEP is on-line. Access http://www.kiep.go.kr for details of our latest publications.

# KOREA INSTITUTE FOR INTERNATIONAL ECONOMIC POLICY

# ORDER FORM

- Fax number: 822-3460-1144
- Address:

  Publication Section, Department of Information & Library Services

  Korea Institute For International Economic Policy

  300-4 Yomgok-Dong, Seocho-Gu, Seoul 137-747

  Seoul, Korea
- E-mail: shbae@kiep.go.kr
- Please call: 822-3460-1080 if you have any questions.

***ALL ORDERS MUST BE PREPAID***

Date of Order: _____

Name: Mr / Ms _____

Department/Institution: _____

Street Address: _____ City: _____

State / Post Code: _____ Country: _____

Telephone: _____ Fax: _____

E-mail: _____

# Regional Trade in Northeast Asia: Why Do Trade Costs Matter?

Prabir DE

Trade costs often have significant effects on the volume of trade, and variations in transaction costs along with trade mobility infrastructure are major determinants of regional trade flows in Northeast Asia. This paper aims to provide trade issues in Northeast Asia region and prove that Northeast Asia could potentially benefit from higher trade when tariffs become lower, thus trade facilitation measures could be strengthened to a greater extent.

KIEP Korea Institute for International Economic Policy

300-4 Yomgok-dong, Seocho-gu, Seoul 137-747, Korea
P.O.Box 235, Seocho, Seoul 137-602, Korea
Tel 02-3460-1001, 1114 / Fax 02-3460-1122, 1199
Http://www.kiep.go.kr

9 788932 250687 94320
ISBN 89-322-5068-5
89-322-5047-2(세트)