

INTERNATIONAL TRADE IN CULTURAL GOODS

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วิทยานิพนธ์ฉบับนี้มีจุดประสงค์เพื่อกรณีศึกษาด้านสินค้าเกี่ยวกับเชิงวัฒนธรรมในแง่มุม  
หลากหลายในด้านการค้าระหว่างประเทศ เนื่องด้วยสถิติในด้านการค้าที่มีการประเมินสินค้าเกี่ยวกับ  
วัฒนธรรมอย่างมีระบบมีความยากอย่างยิ่ง ดังนั้นกรณีศึกษาในสาขานี้จึงได้ทำการเปรียบเทียบกับ  
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ประเมินระดับการวัดการค้าในสินค้าเกี่ยวกับเชิงวัฒนธรรม บทความวิจัยแรกได้พุ่งความคิดไปใน  
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เกาหลีในการกระจายข่าวสารเนื้อหาถึงระดับประเทศในภูมิภาคเอเชีย ผลลัพธ์เสนอว่า นอกจากความ  
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ต่างประเทศของคนเกาหลีซึ่งนำไปใช้ประโยชน์ในแบบโครงสร้างแรงดึงดูด(gravity model) การ  
หลังไหลการท่องเที่ยวตอบสนองความแตกต่างของราคาอย่างยิ่งระหว่างประเทศเกาหลีและประเทศที่  
คนเกาหลีไปเยือน และเที่ยวบินตรงแสดงให้เห็นตัวบ่งชี้ในเชิงบวกกับความหมายนัยสำคัญในเชิงสถิติ

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KEYWORDS: KOREAN WAVE / INTERNATIONAL TRADE / GRAVITY MODEL / TOURISM / CULTURAL PROXIMITY

YOUNG SEAN PARK: INTERNATIONAL TRADE IN CULTURAL GOODS. ADVISOR: RATIDANAI HOONSAWAT, Ph.D., 90 pp.

This dissertation aims to study the various aspects of the international trade in cultural goods. Since systematically measuring trade statistics of cultural goods has been extremely difficult, the study on this field has been, if any, rare compared to that on manufactured goods. However, notwithstanding the limited extent, some innovative ways to measure the scale of trade in cultural goods can be found. The first research article focuses on the rise of the Korean wave and its implications utilizing the data of Korean export of broadcasting contents to Asian countries. The result suggests that, in addition to cultural proximity, the relative economic development of the export country and the market size of the import country are important determinants of cultural trade. The second empirical analysis identifies the relation between the Korean wave and Korean cosmetics export by using Google trends query index with keyword ‘Korean drama’ as a proxy variable for cultural trade. The results reveal that the Korean wave indeed leads to the cosmetics export to culturally and geographically close ASEAN countries but show weak relation with the cosmetics export to the worldwide countries in general. Whereas previous two articles deal with trade in cultural goods in the context of the ‘Korean Wave’, the third article extends the scope to the tourism industry. The main concern of the final article is to find out determinants of Korean outbound tourism utilizing a gravity model. Tourism flows respond strongly to the price difference between Korea and destination countries and the presence of direct flights shows a positive sign with statistical significance. When destination countries are divided into two groups, OECD and others, Korean tourists are less price-sensitive to trips to OECD countries than they are to other countries.

Field of Study: Economics

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# I. INTRODUCTION

## 1. Background and the Importance of the Problems

At the time of this dissertation's conception, most of Asian countries were recognizing the significant impact of Korean cultural influences manifested by popular Korean TV dramas, movies, and mega hit songs. The phenomenon was called the "Korean Wave" by news media and general populations. The sudden rise of the Korean Wave changed the image of Korea among Asian countries and thus Korea enjoyed tremendous benefits out of it in the form of exporting a large volume of cultural goods, attracting more tourists, and eventually selling more products such as beauty products and consumer goods to neighboring countries.

Just six decades ago, after 35 year-long Japanese colonization and ensuing Korean War, Korea was one of the poorest countries in the world. However, through the shrewd governmental policies on economic development and hard efforts of its people Korea at present became one of the economic powerhouses in the world. One of the contributing factors of the Korean economic development was its export promotion policies. After successfully establishing themselves in the domestic market through financial support from the government and borrowed technologies from abroad, a few Korean companies such as Hyundai Motors, Samsung Electronics, LG Electronics, and POSCO started to sell their products abroad.

While Korea was busy in selling manufactured goods abroad, it never occurred to Korean people that their cultural contents such as soap operas and songs could also be sold well to foreign countries. However, at the turn of the 21<sup>st</sup> century such neighboring countries as Japan, China, and Taiwan started to broadcast Korean dramas and the "Korean Wave" has become waxed. These days many of Korean entertainers become household names abroad. For example, after a hugely popular TV drama 'Winter Sonata' was aired in 2002 in Japan, the leading actor, Bae Yong-Joon, gained a tremendous fan base in Japan and those fans called him by an honorific nickname 'Yon-sama' meaning 'Emperor Yon'. More recently, the viral music video 'Gangnam Style' uploaded at YouTube in 2012 awarded the singer PSY an

international fame and recognition. Korean food industry also enjoys benefits of the Korean wave. For example, after a huge success of the TV drama ‘Jewel in the Palace (Tae jang gum)’ which deals with Korean traditional food as well as medical treatments, more foreigners also tried to taste Korean food.

Such impressive successes of Korean TV dramas and music in the East Asia and, to some extent, around the world brought the author’s attention not only to this particular phenomenon but also to trade in cultural products in general.

Most of the traditional trade theories and their applications have focused on trade in manufactured goods and have given slight attention to trade in intangible goods. The hard part of the research on trade in cultural goods is the difficulty in acquiring comprehensive and relevant data appropriate for the study purposes. As the term ‘intangible’ implies, customs offices of each country cannot correctly measure the volume of the cultural goods crossing their borders. Notwithstanding such obstacles, this dissertation attempts to address several important issues of trade in cultural goods using authentic data.

## **2. Research Objectives**

This thesis has three main research objectives as follows,

- 1) To develop a theoretical model of economic development and trade in cultural goods and to provide policy implications.
- 2) To identify the trade diffusion effects of the Korean wave with the Korean cosmetics industry as a case study.
- 3) To estimate the determinants of Korean outbound tourism.

## **3. Scope of the Study**

In dealing with important issues of the topic, the study attempts to utilize latest available data for quantitative analyses. The first article uses panel data of the Korean

export of the broadcasting contents during 2001 – 2011, the second article looks at the Google trends query index throughout 2005 – 2013, and the third article examines the data of Korean outbound tourists provided by Korea Tourism Organization which encompass 53 destination countries during 2004 – 2013.

This dissertation examines issues from the Korean supply side point of view, rather than from the entire range of countries. There are several reasons why this approach was adopted. Firstly, the Korean wave is in many ways a unique phenomenon and it seems appropriate to deal with the issue as a case study and find out possibilities of general applications to other countries. Secondly, since each country has, if any, a different mode of accumulating and publishing data of cultural trade, data constraint forces the author to narrow the scope to Korea. Lastly, after the rise of the Korean wave both Korean governmental institutions as well as private industries started to show kin interest in studies associated with cultural trade.

#### 4. Methodology of the Study

For the quantitative analyses of the trade in cultural goods, the articles adopt the augmented gravity models. The gravity model has been commonly utilized in the empirical analyses of the international trade because it is easy to implement and produced robust findings in economics (Leamer and Levinsohn 1995, Head and Mayer 2013).

The traditional gravity model adopted the concept from Newton's Law of Gravitation. The gravitational force between two objects is proportional to the size of the mass of each object and inversely proportional to the square distance between them. Tinbergen (1962) was the first economist to use gravity to explain international trade flows. The early intuitive way of understanding trade flows are expressed as follows:

$$\log X_{ij} = c + b_1 \log GDP_i + b_2 \log GDP_j + b_3 \log \tau_{ij} + e_{ij}$$

$$\log \tau_{ij} = \log(\text{distance}_{ij})$$

Where  $X_{ij}$  indicates exports from country  $i$  to country  $j$ , GDP is gross domestic production of each country,  $\tau_{ij}$  is trade costs between the two countries represented by the geographical distance,  $e_{ij}$  is an error term. Later researches improved the fit of the traditional theory by including such trade friction proxies as common language, common border, colonial experience, and religion.

The problem of the traditional gravity model is that it does not explain the third country influences on the bilateral trade. In their seminal paper ‘Gravity with Gravitas’, Anderson and van Wincoop (2003) challenged the traditional gravity model by introducing the concept of multilateral resistance.

To build the model, they assumed that, on the consumption side, consumers have “love of variety” preferences and, on the supply side, each firm produces differentiated goods under increasing returns to scale.

The gravity equation derived by Anderson and van Wincoop (2003) is as follows:

$$x_{ij} = \frac{y_i y_j}{y_w} \left( \frac{\tau_{ij}}{\Pi_i P_j} \right)^{1-\sigma}$$

where  $x_{ij}$  denotes exports from country  $i$  to  $j$ ,  $y_i$  and  $y_j$  are GDPs of each country,  $y_w$  is the world GDP,  $\tau_{ij}$  is the gross bilateral trade cost,  $\sigma > 1$  is the elasticity of substitution, and  $\Pi_i$  and  $P_j$  represent country  $i$ 's outward and country  $j$ 's inward multilateral resistance variables, respectively.

As shown by Shepherd (2014), taking the logarithms of all variables, the above equation can be transformed as follows:

$$\log X_{ij} = C + F_i + F_j + (1 - \sigma)[\log \tau_{ij}]$$

$$C = -\log Y$$

$$F_i = \log Y_i - \log \Pi_i$$

$$F_j = \log Y_j - \log P_j$$

$$\log \tau_{ij} = \log Dist_{ij}$$

The first term,  $C$ , is equal to world GDP but for estimation purposes it can be a

coefficient because it is constant across all exporters and importers. The next term,  $F_i$ , is shorthand for a full set of exporter's GDP and outward resistance. Taking the same approach,  $F_j$  is a full set of importer's GDP and inward resistance.  $\log\tau_{ij}$  is the sum of cost variables such as distance between country  $i$  and country  $j$ .

The issue is how to measure the multilateral resistance variables. Anderson and van Wincoop (2003) suggested a complicated system that must be custom programmed to incorporate transportation costs which, in turn, are obtained from estimated value of distance and other border effects. Since the estimation strategy of Anderson and van Wincoop requires custom programming to perform the constrained minimization, the alternative approach, fixed effects, has become a popular estimation method (Feenstra 2004).

Although Anderson and van Wincoop (2003) stand out prominently, there are other theoretically grounded models. For example, Helpman et al. (2008) develop a gravity-like equation based on a model of trade which assumes the heterogeneous productivity of firms.

As for the estimation of the gravity equation, OLS with fixed effects is consistent with the theory. However, if there is a correlation between a variable and the error term, the first OLS assumption is violated. Econometrics provides a simple technique to deal with such endogeneity problems. An instrumental variable which is correlated with the potentially endogenous variable but not with trade can be used to fix the problem and one of the simplest techniques is two stage least squares (TSLS), which consists in running OLS twice.

Recently a few alternative gravity model estimators are found and utilized frequently. The Poisson pseudo maximum likelihood estimator (PPML) by Santos Silva and Tenreyro (2006) presents a simple way of dealing with heteroscedasticity problem. PPML has also a few additionally desirable properties. Firstly, in the presence of fixed effects, PPML is consistent. Secondly, it includes the observations of zero trade value. Thirdly, it follows the same pattern as OLS and the interpretation of the coefficients is straightforward.

The Heckman sample selection estimator is another estimator especially dealing with zero trade data. Latest studies on international trade take zero trade data seriously because without treating this matter appropriately there might be a sample selection bias. With the consideration of firm heterogeneity, Helpman et al. (2008) developed a model of international trade that yields a gravity equation with a Heckman correction (Heckman 1979).

## **5. Potential Benefits of the Study**

- 1) Whereas most of the studies on the Korean wave have focused on the benefits from the phenomenon, the first paper adopts and extends a dynamic preference selection model to identify to causes of the Korean wave for the first time. The conclusions drawn from the model and the empirical analysis can broaden the understanding of the Korean wave from the perspective of economic development as well as cultural proximity.
- 2) One of the obstacles to studying trade in cultural goods is the difficulty in acquiring reliable and comprehensive data. As an alternative way, the second paper uses the Google Trends query index with a key word 'Korean drama' as a proxy variable for cultural trade. As the Internet usage around the world increases, utilizing the accumulated foot prints of the users in the cyberspace gains significant attention lately and academic studies can also take advantage of such 'Big Data'.
- 3) The third paper expands the study scope to Korean outbound tourism using a gravity model. The data analysis takes several new approaches to shed light on multi-dimensional aspects of the Korea tourists. Firstly, the variable of destination countries is divided into two groups, OECD and other countries. Secondly, recent and old period are compared to see if the distance factor disappears as time goes by in the tourism industry. Thirdly, data selection issues are dealt with the usage of the Heckman model.

## 6. Structure and Publications

The first article addresses the determinants of the ‘Korea Wave’ - that is, the main contributing factors to the popularity of Korean cultural goods in Asia. In the empirical part, it applies the gravity framework to Korean export of broadcasting contents to Asian countries.

The second article deals with the trade creation effect of the ‘Korean Wave’, with special consideration of the Korean cosmetics export. Instead of using UN COMTRADE data as with other researches on the similar studies, this article used the Google Trends query index with a keyword ‘Korean drama’ as a proxy variable for cultural trade.

Whereas previous two articles dealt with trade in cultural goods in the context of the ‘Korean Wave’, the third article extended the scope to the tourism industry. The main concern of the third article is to find out how the Korean outbound tourism is connected with cultural proximity utilizing a gravity model.

Following the requirements of a PhD dissertation, the three chapters that appear in this dissertation are either published in the journals or presented in the international conferences.

The first article, “Trade in Cultural Goods: A Case of the Korean Wave in Asia” was published in ‘Journal of East Asian Economic Integration’ with the award of KRW 2,500,000 prize. The second article, “Does the Rise of the Korean Wave Lead to Cosmetics Export?” was presented at ICBE2015 – 2015 International Conference on Business and Economics, and received ‘Distinguished Research Award’ by the chair of the academic steering committee. The third article, “Culture, Distance, and Tourism: A Case of Korean Outbound Tourism” was presented at ICETD2015 – 2015 5<sup>th</sup> International Conference on Economics, Trade and Development, under the title “Determinants of Korean Outbound Tourism” and subsequently published in ‘Journal of Economics, Business and Management’.



## II. TRADE IN CULTURAL GOODS: A CASE OF THE KOREAN WAVE IN ASIA

### Abstract

This paper studies the effects of economic development and cultural proximity as common determinants of trade in cultural goods in a dynamic preference selection model. For the empirical analysis, this paper utilizes the gravity framework with importer fixed effects and Poisson pseudo-maximum likelihood estimators. This paper applies the model to Korean export of broadcasting contents to Asian countries. The relative economic development of the export country and the market size of the import country are important determinants of cultural trade, the results of which are generally consistent with traditional goods trade. However, the distance variable doesn't show much significance, reflecting the unique characteristics of trade in cultural goods.

Key words: Korean Wave, Cultural Goods, Cultural Proximity, Broadcasting Contents, Gravity Equation

### 1. Introduction

Culture and cultural industries can be defined in many ways. According to the information in Wikipedia on "Economics of the arts and literature", most of cultural art works such as books, recordings, and movies are reproducible and they are characterized by uncertainty on value, infinite variety, high concentration in trade products, short life cycle, and high fixed cost.

Traditional theories on international trade have been mostly concerned with trade in general products while ignoring the unique features of cultural products such as intangible aspects, minimal transportation cost, and preference selection. Only recently did some economists start to pay attention to the trade in non-traditional goods, particularly to trade in services.

Since trade in services and trade in cultural goods share in part common features, it is

worth mentioning a few studies on service trade. Grunfeld and Moxnes (2003) study the determinants of service trade and foreign affiliate sales using a gravity model and data from OECD. Their results found that the general pattern of the gravity model effects also applies to services. Economic size of the two countries is positively related and the distance between them are negatively related.

Kimura and Lee (2004) also apply the standard gravity framework to services trade. They found that compared with goods trade, distance between countries is more important in services trade. Lejour and de Paiva Verheijden (2004)'s comparison between goods and service trade between Canada and EU show that distance is less important for services compared to goods.

The number of studies on cultural trade is very small and they have been limited to theoretical aspects of cultural identity. Janeba (2004) studies the effects of trade liberalization on cultural identity and shows that cultural diversity in the home market is not always beneficial in the case of free trade.

Rauth and Trindate (2005) study the consumption aspect of trade utilizing consumption network externalities. The concept of network externalities originated from the IT industry and it has been widely incorporated in economic modeling after the pioneering work of Kats and Shapiro (1985). Rauth and Trindate (2005) combine both the home market effect model of Helpman and Krugman (1985) in the supply side and consumption network externalities in the demand side to explain why some cultural goods dominate in other cultures. An interesting example is the clothing style of the tropical region. Because of Western cultural influence we witness millions of necktie-wearing tropical businessmen and office workers despite the inappropriate weather condition.

Whereas the above mentioned research papers are purely concerned with theoretical modeling, Felbermayr and Toubal (2010) focus more on the empirical relationship between cultural proximity and international trade. In their research paper, Felbermayr and Toubal use the Eurovision Song Contest (ESC) as a proxy for cultural

ties. The Eurovision Song Contest (ESC) is a big pan-European televised show, in which each artist from a participating country performs a song. The other countries grade those songs and the winner is selected accordingly. The paper suggests that the results of the ESC significantly reflect how closely each country feels toward other European countries. After setting the ESC as a proxy cultural tie, they found that there is indeed a significant relationship between ESC scores and international trade. Whereas their research highlights the importance of cultural proximity in international trade, it does not deal with either trade in cultural products or the dynamic change of preferences.

Blum and Goldfarb (2005) analyze data on Internet activities by US consumers on non-US websites. They show that trade in purely digital goods is significantly reduced by physical distance so that trade costs cannot fully account for the effects of distance on trade. Following the studies of Rauch(1996, 1999), they also found that even in trade in digital goods distance matters more in differentiated products than in homogeneous products.

Disdier, et al (2010) investigate the determinants of bilateral trade in cultural goods. They used the United Nations COMTRADE data and found that distance, common border, common language, and colonial links all show statistical significance in cultural trade. Disdier, et al(2010) also used trade in cultural goods as a proxy for countries' cultural proximity and found a positive and significant influence of cultural flows on overall trade. The drawback of their research is that the UN COMTRADE data they used misses a large portion of trade in cultural goods because of the intangible nature of the cultural goods and so the usefulness of the result is limited.

Research on cultural trade is rather active among Korean scholars because of the remarkable popularity of Korean cultural goods among Asian countries in recent years. The studies of Korean economists mainly focus on the trade diffusion effect of "The Korean Wave" (see, e.g., Kang 2009, Choe and Park 2008, Kim 2012).

Unlike the works of most Korean scholars, this paper instead delves into a more fundamental issue of the determinants of “the Korean Wave”- that is, what are the main reasons Korean cultural aspects such as life style, food, history, and fashion received so much attention among Asian countries in the last decade. This paper attempts to explain “the Korean Wave” in the broad picture of cultural trade by adopting the data analyses method in goods trade.

This paper adopts and extends the preference selection model of Bala and Van Long (2005). According to the model, if one economy is much larger than the other, then in the long run the distribution of preferences in the small economy under free trade will follow that of the big economy. The original model of Bala and Van Long (2005) describes a two-country and two-goods world, while this paper extends it to a three-country and three-goods world. The advantage of such a model extension is that it fits well in describing the case of Korean cultural exports. The rapid economic development of Korea changed the typical dynamics of trade between small country and big country.

This paper adopts a gravity-type econometric model with the importer fixed effects estimator for the empirical analysis and uses the Korean export of broadcasting programs as trade data. In addition to the fixed effects estimator, the Poisson pseudo-maximum likelihood estimator is also used for robustness check and zero trade observations.

Since the trade information is a one way flow from Korea to several countries, the empirical analysis focuses on the import countries’ demand conditions. Regressors popularly used in gravity equations such as GDP and distance are included. The theory and empirical result with intuition suggest that Korean economic development and cultural proximity with neighboring countries are the two important factors for the sudden popularity of Korean cultural goods in Asian countries.

The contributions of the paper are a reinterpretation of the aspects of Korean cultural goods from the perspective of foreign consumers, modification of the economic model from two to three country conditions, and the usage of authentic data.

The second section of the paper reviews the “Korean Wave” phenomenon in general and TV dramas in particular. The third section presents the model and its extension. The fourth section describes the selected data. The fifth section presents the empirical estimators and results. The sixth section presents governmental policy implications, and the seventh section offers concluding remarks.

## 2. Korean Wave

In the past decade, many Asian countries have experienced the phenomenal rise of Korean cultural influence called “Hallyu” or the “Korean Wave” through numerous movies, TV dramas and songs. The term “Hallyu” originated from Chinese media in the late 1990s as ‘韓流’ to describe the sudden popularity of Korean TV dramas in China. Korean movies and TV dramas have been wildly accepted by neighboring countries such as China, Taiwan, Japan, and then later by many South East Asian countries.

Two of the most distinct TV dramas ‘Winter Sonata’ and ‘Jewel in the Palace (Tae jang gum)’ are particularly worth mentioning. Originally produced and televised in South Korea in the winter of 2002-03, Winter Sonata became a great success especially in Japan. Winter Sonata and its romantic hero Bae Yong Jun resulted in an impressive economic impact in Japan generating US\$1.1 billion in 2004, mostly through the sale of items related to the drama. NHK, the broadcasting company which broadcast the drama, sold 860,000 novels based on the drama’s screenplay, 280,000 program guidebooks, and 150,000 DVDs and videos, and over 1 million copies of the drama soundtrack (Kim and Ryoo, 2007).

‘Jewel in the Palace (Tae jang gum)’ , which was set in a historical period, appealed particularly to the Chinese people including those in Taiwan and Hong Kong. When

‘Tae jang gum’ aired in Taiwan from May to July 2004, for example, it became the most watched program of the season and when it aired on Hong Kong TV from January to May 2005, its final episode was recorded as the most-watched TV show in Hong Kong’s history with a viewer rate of more than 40% (Kim and Ryoo, 2007). ‘Jewel in the Palace’ was later introduced to such culturally remote areas as Europe, Middle Eastern Islamic countries and Africa and generated substantial interest in Korean culture.

The shape of the Korean Wave has noticeably changed in recent years. In the early 2000s, it was characterized by middle-aged housewives in East Asian countries watching television and DVDs. Recently Korean pop music, or K-Pop, has become the outstanding feature of the Korean Wave, and it is largely enjoyed by teenagers around the world. For example, a Korean singer PYS’s recent dancing video “Kangnam Style” on the YouTube website created an international sensation attracting more than 1 billion viewers from all over the world.

As a result of the Korean Wave, several Korean industries such as Tourism and beauty products gained great benefits. For example, 190,972 Thais visited Korea in 2009 and the figure rose to 309,143 in 2011 (Korea Tourism Organization 2013). Also, during the five year period from 2006 to 2011 the export of Korean skincare cosmetics to Thailand increased by more than 1000%, reaching US\$52.2 million in 2011.

An important aspect of the Korean Wave is that many successful Korean cultural products are a combination of Asiatic elements (tradition) and Western sophistication (modernity) creating their own uniqueness. For example, the hugely successful Korean drama ‘Winter Sonata’ depicts long lost values in a modern setting while ‘Jewel in the Palace’ is a story of a woman’s social ascendancy (modernity) against a historical background (tradition). A column in the Bangkok Post published in Thailand clearly captured such an aspect of Korean cultural products.

“Their soft products, from music to movies and TV shows, build upon the structure of Western pop-cultural content, digesting, localizing, intensifying and re-formatting it for export and GDP growth.” (Bangkok Post September 1, 2012)

**Table 1, Korean export of cultural contents: 2009-2011**

(Unit: US\$ million)

|                 | 2009  | 2010  | 2011  | Rate(%) |
|-----------------|-------|-------|-------|---------|
| China           | 581   | 749   | 1,118 | 27.0    |
| Japan           | 664   | 803   | 1,247 | 30.1    |
| South East Asia | 458   | 672   | 796   | 19.2    |
| North America   | 388   | 404   | 468   | 11.3    |
| Europe          | 217   | 267   | 325   | 7.8     |
| Others          | 126   | 157   | 189   | 4.6     |
| Total           | 2,435 | 3,055 | 4,146 | 100     |

Source: Korean Creative Content Agency (KOCCA)

The data from Korean Creative Content Agency (KOCCA) in the above table 1 show that Korean export of cultural contents grows rapidly each year reaching 4.3billion dollars in 2011. Japan is the biggest importer of Korean cultural contents with 1.2 billion dollars in 2011. Asian countries including Japan, China and South East Asia account for 76.3% of Korea’s total export of cultural contents in 2011.

**Table 2, Korean export of cultural contents per industry: 2011**

(Unit: US\$ thousand)

|             | China   | Japan   | South East Asia | North America | Europe  | Others | Total     |
|-------------|---------|---------|-----------------|---------------|---------|--------|-----------|
| Publication | 33,693  | 62,790  | 29,810          | 90,127        | 21,557  | 45,462 | 283,439   |
| Cartoon     | 662     | 6,639   | 2,643           | 1,766         | 5,457   | 46     | 17,213    |
| Music       | 6,836   | 157,938 | 25,691          | 587           | 4,632   | 429    | 196,113   |
| Game        | 907,296 | 652,556 | 428,277         | 181,255       | 152,369 | 56,325 | 2,378,078 |

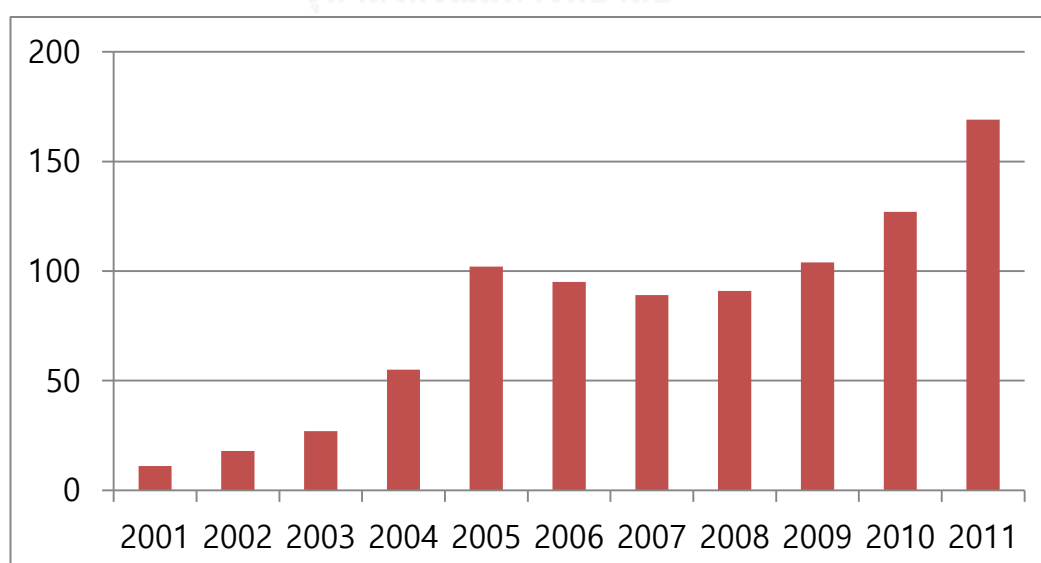
|                       |           |           |         |         |         |         |           |
|-----------------------|-----------|-----------|---------|---------|---------|---------|-----------|
| Movie                 | 1,628     | 3,663     | 1,646   | 1,673   | 3,522   | 3,697   | 15,829    |
| Animation             | 1,659     | 21,688    | 1,183   | 59,397  | 28,556  | 3,458   | 115,941   |
| Broadcasting          | 21,268    | 105,058   | 38,432  | 3,562   | 1,479   | 2,139   | 168,940   |
| Character             | 89,257    | 20,256    | 45,255  | 102,565 | 82,358  | 52,575  | 392,266   |
| Knowledge Information | 36,287    | 176,925   | 198,372 | 8,802   | 3,528   | 8,342   | 432,256   |
| Contents solution     | 20,322    | 43,469    | 25,323  | 18,553  | 21,668  | 16,946  | 146,281   |
| Total                 | 1,118,908 | 1,247,982 | 796,632 | 468,287 | 325,126 | 189,419 | 4,146,356 |
| Rate(%)               | 27.0      | 30.1      | 19.2    | 11.3    | 7.8     | 4.6     | 100       |

Source: Korean Creative Content Agency (KOCCA)

Table 2 shows Korean export of cultural contents per industry in 2011. The lion's share of cultural export comes from the game industry comprising 57.3 percent in the total export amount. Other important export industries are knowledge information (10.4%), character (9.4%), publication (6.8%), music (4.7%), broadcasting (4.1%), contents solution (3.5%), etc.

**Figure 1, Korean export of TV programs: 2001- 2011**

(Unit: USD Million)



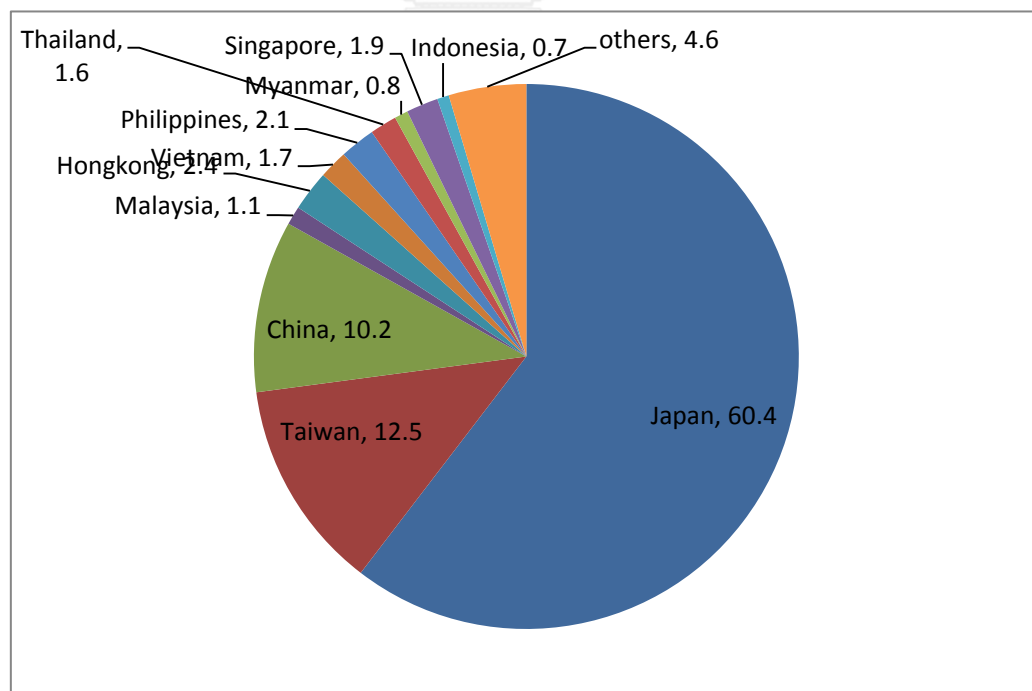
Source: Korea Communications Commission



Figure 1 shows that the Korean total export of TV programs in terms of US dollar amount during the last eleven years (2001-2011) increased more than 16 times from 10.9 million dollars to 168.9 million dollars. The TV programs include not only dramas but also documentaries, animations, and show programs. The interesting part of the figure is that the peak year of 2005 coincides with the great popularity of the TV drama ‘Jewel in the Palace (Tae jang gum)’ throughout the Asian region.

The export trend as shown above is the result of increasing demand from both existing and new markets. For example, the Korean export of TV programs to Japan increased from 1.1million dollars in 2001 to 102 million dollars in 2011, while the number of foreign countries importing Korean broadcasting content over \$100,000 increased from 8 countries in 2001 to more than 20 countries in 2011.

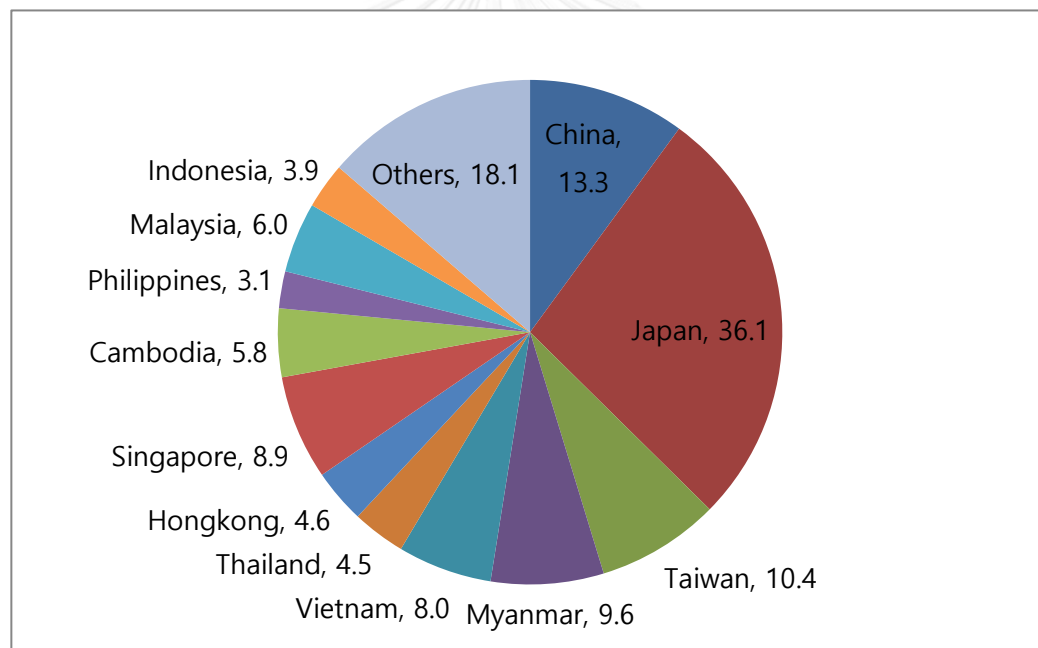
**Figure 2, Korean export share of TV programs per country based on dollar amount as of 2011**



Source: Korea Communications Commission

Figure 2 and 3 show the Korean export share of TV programs for each country based on the dollar amount and program numbers in 2011, respectively. Japan is the biggest importer of Korean TV programs with a 60.4% share in terms of the dollar amount and 36.1% share in terms of the number of TV programs. The reason why there are discrepancies in each country's import share of dollar amount and number of programs is that the import prices of the TV programs in each country are different. The price of the goods exported to the higher GDP per capita countries tends to be higher than that to the lower GDP per capita countries. Other than Japan and China, major importing countries are Taiwan, Hong Kong, and South East Asian countries.

**Figure 3, Korean export share of TV programs per country based on program numbers as of 2011**



Source: Korea Communications Commission

### 3. Model

This section adopts and extends the model of preference selection from Bala and Van Long (2005). The model is based on the alteration of tastes over time due to social influences and habit formation. The model provides a general equilibrium formulation,

with relative price in the competitive equilibrium being allowed to influence the future distribution of tastes in the society as a whole. The desirable aspect of the model is that it explains the process of consumer preference change over time in a conceptually simple way.

The model first considers a closed economy with two goods (apples and bananas) and two types of individuals (apple lovers and banana lovers). In home country  $H$ , each individual is born with an endowment vector  $(1, k)$  (one apple, and  $k$  bananas). In the foreign country  $F$ , each individual is born with an endowment vector  $(\delta, 1)$  (one banana and  $\delta$  apples). The population in  $H$  is  $N_t = N$  and the population in  $F$  is  $M_t = M$ . The parameter  $m = M/N$  reflects the relative size of country  $F$ .

The dynamic evolution for the home country under autarky is given by

$$r_{t+1}^H = \frac{r_t^H}{r_t^H + (1 - r_t^H) p(r_t^H, k)}$$

where  $r_t$  denotes the proportion of apple lovers in the population at time  $t$  and  $p(r_t^H, k)$  is the home country market clearing price under autarky. If  $k \geq k^B$ , then in the long run, under autarky, banana lovers will dominate. On the other hand, if  $k \in (k^A, k^B)$  then the home country will exhibit heterogeneous preferences in the long run.

In the case of the foreign country in isolation, the evolution in this country is given by

$$r_{t+1}^F = \frac{r_t^F}{r_t^F + (1 - r_t^F) p(r_t^F, 1/\delta)}$$

where  $p(r_t^F, 1/\delta)$  is the foreign country market clearing price under autarky. There exist two positive numbers  $\delta^A$  and  $\delta^B$  such that the self-sufficiency price ratios for the two types of consumers are

$$p^A(1/\delta^A) = 1 \text{ and } p^B(1/\delta^B) = 1$$

where  $\delta^A > 1 > \delta^B$ . If  $\delta \geq \delta^A$  then under autarky, in the long run the preferences of apple lovers will dominate in country  $F$ . If we have  $k \geq k^B$  and  $\delta \geq \delta^A$ , the proportion of banana lovers in the home country will be close to unity, while the proportion of apple lovers in the foreign country will be close to unity.

Let  $p^w(r^H, r^F, k, \delta, m)$  denote the world market-clearing price where  $m$  is the relative population size of country  $F$ . In this world economy, the dynamics are given by a system of two difference equations:

$$r_{t+1}^H = \frac{r_t^H}{r_t^H + (1 - r_t^H) p^w(r_t^H, r_t^F, k, \delta, m)}$$

$$r_{t+1}^F = \frac{r_t^F}{r_t^F + (1 - r_t^F) p^w(r_t^H, r_t^F, k, \delta, m)}$$

For any given initial vector  $(r_t^H, r_t^F)$ , there exists an  $m^* > 0$  such that if  $m > m^*$ , then in the long run there will only be apple lovers in each country.

The intuition behind the above assertion is that if the foreign country endowed with a large portion of apples is much larger than the home country, the equilibrium price of apples under free trade will be very low and consequently the banana lovers in both economies will disappear. The model can be adopted to explain why Korean cultural products recently became popular in the Asian region. Nevertheless, there are a few extensions to be made on this model.

Firstly, Bala and Van Long (2005) assume the evolutionary changes of preferences over several generations whereas the phenomenon of Korean Wave happened in a relatively short period of time. To explain the cause of such consumer change in a short time, we assume that each exposure to cultural influence alters and reinforces the propensity of each consumer's behavior in his lifetime. The best example is

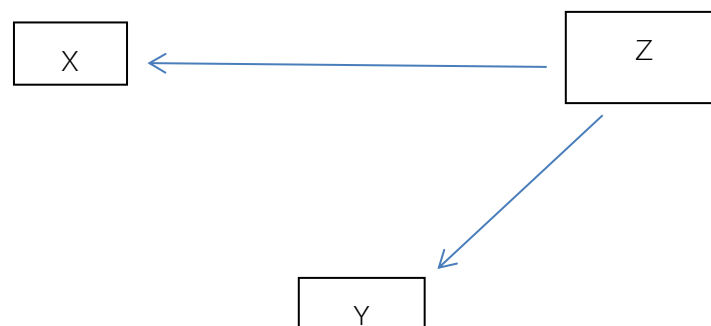
consumer exposure to TV commercials. The more consumers watch TV commercials by a particular brand, the more they become aware of the brand and more likely to buy the advertised products.

Secondly, in addition to the population and endowed goods, the size of the economy in each country can also be considered since GDP is one of the main determinants in international trade.

Thirdly, instead of a two-country and two-product model, we can consider the case of three countries and three products. The model of three countries can explain the transformation of an economically small country to a big country and the ensuing changes in dynamic interactions among big, small, and small to big countries. An additional product of mixed characteristics embodies the product feature acceptable to consumers with different preferences.

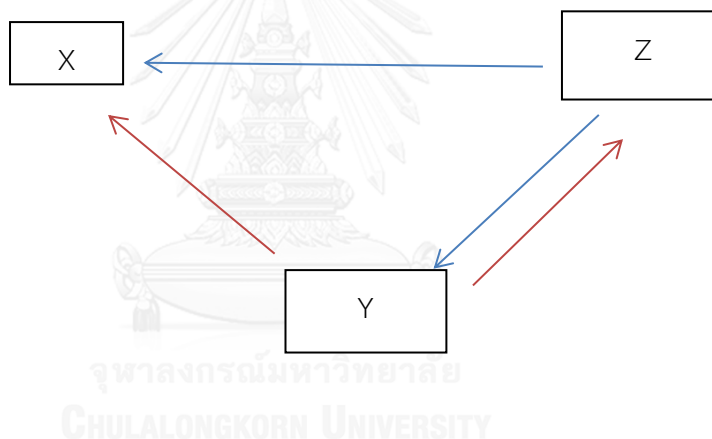
For the model extension, we can consider the case of three countries, X, Y, and Z, where the economic size of Z is much bigger than that of X and Y. We consider only two time periods,  $t$  and  $t+1$  so that the idea can be presented in a simple form while maintaining the dynamic aspect of the model. In period  $t$ , the proportion of banana lovers in X and Y is close to unity while the proportion of apple lovers in Z is close to unity. In period  $t$ , Z exports apple to X and Y because its economic size is much bigger than that of X and Y, which is in line with the model of Bala and Long(2004).

**Figure 4, the flow of international trade in period  $t$**



In period  $t+1$ , the preferences of the old generation in X and Y remain unchanged while those of the young generation in X and Y change, that is, they now prefer apples to bananas. We assume that during period  $t$  and  $t+1$  the economy of Y grows faster than that of X and Z. We also assume that as the economy of Y grows faster than that of other countries, its production competitiveness also improved and thus Y can now also export its own product, mixed cans of apples and bananas, which is acceptable for both apple lovers and banana lovers. The change of trade flows in period  $t$  and period  $t+1$  are depicted in Figure 4 and Figure 5.

**Figure 5, the flow of international trade in period  $t+1$**



The dynamic preference evolution for country X under autarky is given by

$$r_{t+1}^X = \frac{r_t^X}{r_t^X + (1 - r_t^X) p(r_t^X, k)}$$

where  $p(r_t^X, k)$  is the country X's market clearing price under autarky.

Let  $p^w(r_t^X, r_t^Y, r_t^Z, k, \delta, \varepsilon, m, g)$  denote the market clearing world price in which  $\varepsilon$  is the relative supply of apple-banana mixed can from country Y and  $g$  is the relative economic size of country Y and Z.  $k$  and  $\delta$  are the relative proportion of apples and

bananas just as they were in the original model. In this world of free trade economy, the dynamic preference evolution for country X is given by

$$r_{t+1}^X = \frac{r_t^X}{r_t^X + (1 - r_t^X) p^w(r_t^X, r_t^Y, r_t^Z, k, \delta, \varepsilon, m, g)}$$

For any given initial vector  $(r_t^X, r_t^Y, r_t^Z)$ , there exists a  $g^* > 0$  such that if  $g^Y > g^*$ , then in the long run there will be a greater proportion of apple-banana mixed can lovers in country X.

In this model, country X, Y, Z can be represented as Thailand, Korea, and the U.S. respectively and apple lovers are those who prefer western style cultural products while banana lovers are those who prefer Asian traditional elements. Korean cultural products are symbolized by apple-banana mixed can showing its mixed characteristics of Asiatic tradition and western sophistication. The advantage of such a model extension is that its feature is suitable to the Korean export of cultural goods.

#### 4. Data

The study analyzes Korean export of broadcasting contents to 11 Asian countries during the period from 2001 to 2011 collected by the Korea Communications Commission. Starting from 2001, the Korea Communications Commission has annually collected various data on the Korean broadcasting industry by conducting a survey on every company engaged in this business and has published the results in the form of industry yearbooks. The export data in this material is thus much more focused on a specific industry and reliable than any other trade data available. For example, most classifications of cultural products are based on the HS CODE and the problem of the HS CODE is that they count only tangible goods cleared through the customhouses while a considerable portion of cultural products cross the border without leaving any statistical evidence. According to the Contents Industry Statistics compiled by the Korean Creative Content Agency, among the total export of Korean

cultural contents in 2010 only 39.9% are final tangible products such as CDs and tapes while the remaining forms of export are licenses, OEM exports and technology services.

**Table 3, Korean export of broadcasting content in the selected years**

| Country     | 2001        |               | 2005        |               | 2011         |               |
|-------------|-------------|---------------|-------------|---------------|--------------|---------------|
|             | \$ thousand | No of program | \$ thousand | No of program | \$ thous and | No of program |
| Japan       | 1,157       | 2,482         | 63,543      | 7,271         | 102,058      | 15,147        |
| China       | 2,700       | 1,142         | 9,238       | 4,099         | 17,241       | 5,578         |
| Hong Kong   | 1,117       | 903           | 3,232       | 1,075         | 4,027        | 1,921         |
| Singapore   | 858         | 674           | 1,030       | 934           | 3,259        | 3,713         |
| Taiwan      | 2,232       | 2,814         | 11,872      | 2,003         | 21,051       | 4,377         |
| Vietnam     | 318         | 586           | 962         | 1,152         | 2,796        | 3,351         |
| Malaysia    | 0           | 0             | 1,336       | 736           | 1,814        | 2,501         |
| Indonesia   | 0           | 0             | 1,144       | 607           | 1,246        | 1,625         |
| Thailand    | 0           | 0             | 2,327       | 1,392         | 2,785        | 1,895         |
| Philippines | 0           | 0             | 3,994       | 1,244         | 3,549        | 1,310         |
| Cambodia    | 0           | 0             | 0           | 0             | 516          | 2,431         |
| Others      | 2,524       | 3,478         | 3,948       | 1,112         | 8,598        | 11,587        |
| Total       | 10,906      | 12,079        | 102,626     | 21,625        | 168,940      | 55,436        |

Source: Korea Communications Commission

\*In number of program column, each episode of drama is counted as one program. So if one TV drama consists of 30 episodes, it is counted as 30 programs.

The limitation of the studied data is that they contain only bilateral trade information between Korea and foreign countries lacking the information of transactions among other foreign trading partners. Thus the data cannot be used for analyzing multilateral



trade relations among the countries but they are sufficient to analyze trade relations between Korea and foreign countries.

Among cultural goods, broadcasting contents are the most appropriate data for evaluating the level of cultural influence because they were a number of Korean TV dramas that triggered the Korean Wave in many Asian countries in the first place and TV dramas embody rich cultural traits such as family relationships, social interaction, history, the latest trend, food, and fashion.

The observed 11 countries that import Korean broadcasting content are Japan, China, Hong Kong, Singapore, Taiwan, Vietnam, Malaysia, Indonesia, Thailand, the Philippines, and Cambodia. The reason why these specific 11 Asian countries were selected is that they are the major import countries of Korean broadcasting contents throughout the period of 2001-2011. Myanmar is excluded in the analysis simply because much important statistical information of Myanmar in the 11 year period is not available. Table 3 shows the Korean export of broadcasting content to the 11 countries in the selected three years. In 2011, Japan commands the biggest share of importing TV contents from Korea with 102 million dollars or 15,147 programs.

Table 4 shows the data description in which the total observed number of variables is 121. Distance information measured in kilometers between the Korean capital city, Seoul, and the capital cities of import countries is from [www.mapcrow.info](http://www.mapcrow.info). The distance variable has been an integral part of the gravity equation and analysis of trade patterns. In the analysis of cultural trade, distance represents more intangible barriers such as cultural remoteness than simple transportation costs.

**Table 4, Data description**

| Variables                             | Obs. | Mean   | Std.Dev. | Min. | Max.   |
|---------------------------------------|------|--------|----------|------|--------|
| Export1 <sub>kjt</sub><br>(\$ amount) | 121  | 6953.7 | 15566.2  | 0    | 102058 |
| Export2 <sub>kjt</sub>                | 121  | 2072.5 | 2517.5   | 0    | 15147  |

|                                      |     |        |        |       |        |
|--------------------------------------|-----|--------|--------|-------|--------|
| (No of program)                      |     |        |        |       |        |
| Distance <sub>kj</sub>               | 121 | 2997.0 | 1434.2 | 955   | 5290   |
| Population <sub>jt</sub>             | 121 | 181.26 | 363.77 | 4.1   | 1344   |
| GDP per capita <sub>jt</sub>         | 121 | 11.59  | 13.90  | 0.325 | 46.862 |
| Internet <sub>jt</sub>               | 121 | 30.89  | 25.08  | 0.08  | 78.71  |
| GDP <sub>jt</sub> /GDP <sub>kt</sub> | 121 | 1.0675 | 1.9368 | 0.01  | 8.25   |
| Korean <sub>jt</sub>                 | 121 | 307.6  | 694.8  | 1     | 2750   |

The data of GDP, population, inflation and Internet are from the World Bank Database. Overseas Korean population statistics compiled by Korean Ministry of Foreign Affairs is also added because it can be a proxy of cultural ties between Korean and import countries.

GDP and population can represent the development level and the size of each country respectively. Since GDP contains the element of population, this paper instead used both GDP per capita and population while the GDP of import countries was also used to measure the relative economic size of the import country against that of Korea.

Internet usage per 100 people in import countries represents the development level of social infrastructure in the import country. The reason why internet is included is that recently cultural goods, especially broadcasting contents have spread very rapidly among consumers through internet websites such as YouTube and Facebook. Overseas consumers' watching Korean TV contents through the Internet websites in the import countries might cause a negative influence on overall exports. However, this paper reasons that the Internet can become a catalyst for consumer awareness of Korean broadcasting contents.

## 5. Empirical Analysis

This paper adopts a gravity-type equation to measure the determinants of Korean cultural exports to Asian countries. The gravity model has become a norm in applied international trade studies. The reasons why the gravity model is popularly used are because the concept is simple yet theoretically well based and it fits the data well.

Tinbergen (1962) originally applied the gravity model to international trade and as in the mechanical law of Newton the model predicts that the trade between two countries is a function of their economic size and the distance between them. Anderson and van Wincoop (2003) show that incorporating multilateral resistance measures can greatly improve the estimation. The reason why this paper adopts gravity type equation is that important variables such as GDP and distance in the traditional gravity equation overlap the variables of the model in this paper.

The dynamic preference selection model described in the previous section focuses on demand conditions of import countries and, according to the model, the major determinants of cultural trade are relative economic size and population between trading partners. An import country's GDP per capita implies market power. The internet variable represents consumer awareness and searching cost. The Korean population in each import country is added for the cultural proxy between Korea and import countries. Although transportation cost is minimal in the trade of cultural goods, the distance variable is added as a proxy of cultural distance between Korea and each import country. The hypothesis is that as the geographical distance between two countries widens the cultural barriers and ensuing difficulties of cultural trade between them also increase.

Some variables such as adjacency, language, colony and FTA that appear in the typical gravity equations are excluded taking into consideration the limited variety of countries the data covered. This paper assumes that the Korean export of cultural goods has a positive relationship with the relative economic size of Korea, import

country's population, GDP per capita, overseas Korean population, and Internet usage, while it has a negative relationship with distance.

The following empirical model incorporates the ideas and variables shown in section 3. For example, the relative economic size of import and export countries ( $g$ ), population variable ( $m$ ), and Korean population and distance as the cultural proximity and transaction cost are listed in the empirical model.

$$\ln(\text{exportl}_{kjt}) = \alpha + \beta_1 \ln(GDP_{jt} / GDP_{kt}) + \beta_2 \ln(\text{population}_{jt}) + \beta_3 \ln(\text{gdppc}_{jt}) + \beta_4 \ln(\text{internet}_{jt}) + \beta_5 \ln(\text{distance}_{kj}) + \beta_6 (\text{Korean}_{jt}) + \varepsilon_{kjt}$$

In the above equation, 'ln' represents a natural logarithm.  $\text{Exportl}_{kjt}$  is the Korean export of TV programs to country  $j$  in terms of the dollar amount in the observed period  $t$ .  $\text{distance}_{kj}$  is the geographical distance between the capital city of Korea and that of the import country  $j$ .  $\text{population}_{jt}$  is the population of country  $j$ .  $\text{gdppc}_{jt}$  is the GDP per capita in country  $j$ .  $\text{Internet}_{jt}$  is the number of internet users per 100 in country  $j$ .  $GDP_{jt}/GDP_{kt}$  is the GDP ratio of country  $j$  to Korea.  $\text{Korean}_{jt}$  is the Korean population with 1000 unit in country  $j$ . Finally,  $\varepsilon_{kjt}$  is the residual. This paper expects that the sign of  $\ln(\text{distance}_{kj})$  and  $GDP_{jt}/GDP_{kt}$  will be negative while the sign of other variables will be positive.

**Table 5, Correlation matrix**

|            | exportl | distance | gdppc   | population | lgdpgdpk | internet | Korean |
|------------|---------|----------|---------|------------|----------|----------|--------|
| exportl    | 1.0000  |          |         |            |          |          |        |
| distance   | -0.6854 | 1.0000   |         |            |          |          |        |
| gdppc      | 0.5931  | -0.2723  | 1.0000  |            |          |          |        |
| population | 0.1866  | -0.4065  | -0.4570 | 1.0000     |          |          |        |
| gdpgdpk    | 0.6832  | -0.6681  | 0.4539  | 0.5740     | 1.0000   |          |        |
| internet   | 0.6111  | -0.1964  | 0.7735  | -0.2471    | 0.4355   | 1.0000   |        |
| Korean     | 0.4475  | -0.6052  | -0.0172 | 0.7549     | 0.7247   | 0.1071   | 1.0000 |

Table 5 shows pairwise correlations for the dependent variable and regressor variables, where export is most highly correlated with distance, relative GDP size of the import country, and the internet. Among the regressors, internet usage and GDP per capita are highly correlated. The Sign of relative GDP size is positive contrary to expectations. It is due to the single variable correlation results and with proper regression treatments as shown in Tables 6 and 7 the sign changes to be negative.

For the gravity model estimation Anderson and van Wincoop (2003) show that incorporating multilateral resistance measures is necessary. Among several approaches to deal with multilateral resistance, this paper follows Baldwin and Taglioni (2006) and includes importer fixed effects interacted with year dummies. To check robustness and deal with zero trade observations this paper also uses the Poisson pseudo-maximum likelihood estimator (PPML) presented from Santos Silva and Tenreyro (2006, 2011). There are a number of desirable aspects of the Poisson estimator. Firstly, in the presence of fixed effects, PPML is consistent. Secondly, it includes the observations of zero trade value. Thirdly, it follows the same pattern as OLS and the interpretation of the coefficients is straightforward.

We first estimate the determinants of Korean exports of cultural goods in value terms. Table 6 presents the results with the dollar amount of exports as a dependent variable. Importer fixed effects interacted with year dummies are included in all the regressions. OLS results show statistical significance in all the variables. However, the results of fixed effects and PPML estimations show that some variables are not relevant in Korea's export of broadcasting contents at all.

The GDP per capita of import country variables show positive signs and statistical significance in most of the estimators. However, population of import country shows only slight statistical significance in the PPML (2) column and no importance at all in other estimators. The implication is rather clear. While the import country's market size is an important factor in Korean cultural export, when it comes to export amount, GDP per capita is more important than the population of the import country.

$GDP_{jt}/GDP_{kt}$  clearly shows a negative sign and statistical significance in all the columns, suggesting that in cultural trade an economically bigger country becomes a net exporter while smaller countries become net importers.

Distance shows negative signs in all the estimators as expected. While FE(1) indicates a slight significance of distance, other estimators, however, show no statistical significance of distance. This result is markedly different from the results of most of the conventional gravity estimations of general goods. The result is both understandable and still perplexing. The possible first implication is that since the transportation cost of broadcasting contents is almost nil, distance simply doesn't matter. The second implication is that even though distance embodies cultural barriers, the investigated 11 import countries are not heterogeneous enough from a cultural perspective.

The Internet usage of the import country shows weak statistical significance in the PPML(1) column and no significance in other estimators, indicating that the development of multimedia and social networks in the import countries have a weak positive influence on cultural trade. Overseas Korean population in import countries doesn't show any meaningful results, implying that the Korean connection is a weak representative of cultural ties.

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**Table 6, Dependent Variable: Log Export1 (OLS, FE), Export1 (PPML)**

| Variable          | OLS                    | FE                     |                        | PPML                   |                        |
|-------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|                   |                        | (1)                    | (2)                    | (1)                    | (2)                    |
| Ln distance       | -1.4197***<br>(0.1409) | -2.3488*<br>(1.2753)   | -2.3530<br>(1.4338)    | -3.9804<br>(6.9114)    | -4.1311<br>(5.2441)    |
| Ln GDP per capita | 2.3454***<br>(0.3002)  | 2.3667***<br>(0.5798)  | 1.8823**<br>(0.8265)   | 2.5229***<br>(0.2653)  | 5.0056***<br>(1.4580)  |
| Ln population     | 2.2610***<br>(0.3065)  | 2.0222<br>(1.4182)     | -0.3322<br>(2.4278)    | 2.9702<br>(5.0224)     | 7.8169*<br>(4.0923)    |
| Ln $GDP_j/GDP_k$  | -1.9446***<br>(0.3055) | -2.6968***<br>(0.8214) | -2.4423***<br>(0.7467) | -2.5685***<br>(0.1230) | -5.4377***<br>(1.3524) |

|                         |                       |                     |                      |                      |                      |
|-------------------------|-----------------------|---------------------|----------------------|----------------------|----------------------|
| Ln Internet             | 0.2931***<br>(0.6370) | 0.1116<br>(0.0647)  | 0.0351<br>(0.0827)   | 0.3149*<br>(0.1617)  | 0.1632<br>(0.1283)   |
| Ln Korean               | -0.1156**<br>(0.4754) | 0.2297<br>(0.3169)  | 0.1366<br>(0.3017)   | -0.1649<br>(0.4223)  | -0.5527<br>(0.4604)  |
| Constants               | 3.3550<br>(2.0947)    | 11.0335<br>(6.6379) | 24.3233<br>(10.9911) | 19.3858<br>(69.2739) | -3.3211<br>(53.5025) |
| Importer fe             | No                    | Yes                 | Yes                  | Yes                  | Yes                  |
| Year fe                 | No                    | No                  | Yes                  | No                   | Yes                  |
| Observations            | 112                   | 112                 | 112                  | 121                  | 121                  |
| Adjusted R <sup>2</sup> | 0.8231                | 0.8729              | 0.8962               | 0.8898               | 0.9611               |

\*, \*\*, \*\*\* denote statistical significance at the 90, 95, and 99 percent levels, respectively.

Table 7 presents the results with export of Korean broadcasting contents in terms of the number of episodes as a dependent variable. Importer fixed effects interacted with year dummies are also included in all the regressions.

The striking difference of the results in Table 7 compared with those in Table 6 is that the population variable in the import countries show statistical significance in most of the estimators except for the FE(1) column. Once again the implication is rather clear. The import concentration of the broadcasting contents in the countries with higher GDP per capita is much decreased if we measure the products in terms of the quantity rather than dollar value. The implication is also made clear by comparing the Figures 2 and 3.

As in the results of Table 6, import country's GDP per capita and  $GDP_j/GDP_k$  show strong statistical significance. While some estimation results in Table 6 show slight significance of distance and import country's internet usage, the results in Table 7 don't show any importance in either variable. Korean population in import country also doesn't reveal any meaningful conclusions.

**Table 7, Dependent Variable: Log Export2 (OLS, FE), Export2 (PPML)**

| Variable                              | OLS                    | FE                     |                        | PPML                   |                        |
|---------------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|                                       |                        | (1)                    | (2)                    | (1)                    | (2)                    |
| Ln distance                           | -0.8975***<br>(0.1824) | -1.5268<br>(1.3667)    | -1.7130<br>(1.4194)    | 4.5767<br>(3.6645)     | 1.0900<br>(3.8580)     |
| Ln GDP per capita                     | 1.7761***<br>(0.3058)  | 1.7919***<br>(0.3899)  | 2.7062***<br>(0.4768)  | 1.7030***<br>(0.4526)  | 4.0440***<br>(0.7771)  |
| Ln population                         | 1.6080***<br>(0.2936)  | 3.2261<br>(1.8174)     | 3.3074**<br>(1.5112)   | 4.3029*<br>(2.4624)    | 6.3402***<br>(2.4544)  |
| Ln GDP <sub>j</sub> /GDP <sub>k</sub> | -1.5749***<br>(0.2861) | -1.2735***<br>(0.2851) | -2.3262***<br>(0.4087) | -1.2389***<br>(0.2427) | -3.8615***<br>(0.6566) |
| Ln Internet                           | 0.0423<br>(0.0940)     | 0.0551<br>(0.1315)     | 0.0136<br>(0.1012)     | 0.1014<br>(0.1551)     | 0.0458<br>(0.1457)     |
| Ln Korean                             | 0.0510<br>(0.0774)     | -0.1134<br>(0.3892)    | -0.2074<br>(0.4198)    | -0.2827<br>(0.3198)    | -0.4864<br>(0.3483)    |
| Constants                             | 2.9161<br>(2.1690)     | 0.1766<br>(5.3293)     | 0.9784<br>(7.2609)     | -46.7680<br>(36.0119)  | -33.4201<br>(35.9901)  |
| Importer fe                           | No                     | Yes                    | Yes                    | Yes                    | Yes                    |
| Year fe                               | No                     | No                     | Yes                    | No                     | Yes                    |
| Observations                          | 112                    | 112                    | 112                    | 121                    | 121                    |
| Adjusted R <sup>2</sup>               | 0.7132                 | 0.8143                 | 0.8398                 | 0.8227                 | 0.8763                 |

\*,\*\*,\*\*\* denote statistical significance at the 90, 95, and 99 percent levels, respectively.

## 6. Policy Implications

The research results in the paper show that while cultural trade in Asia follows a similar pattern as goods trade, the distance and overseas Korean population as cultural ties display little significance. This result, at first glance, contradicts the theory of economic growth and cultural closeness as the two crucial factors for Korean export of cultural goods. However, recognizing the small transportation cost of the broadcasting wave, the culturally homogenous characteristics of the investigated 11 countries, and the fact that those 11 countries occupy 95% of all the Korean exports to the world clearly manifest the importance of cultural ties in the export of the broadcasting contents. In fact, according to the trade statistics by Korea International



Trade Association (KITA) of the total Korean exports in 2011, the export to Asian countries occupies 56.5%, a considerably lower rate than the export rate of broadcasting contents. For government policy makers the case of the Korean Wave provides the following policy implications.

Firstly, because the rise of the Korean Wave coincides with the fast economic development of Korea, it should also be recognized that the phenomenon of the Korean Wave can be short lived if other neighboring economies such as China grow faster than Korea's. When Japan's economy dominated the world a few years ago, Japanese cultural influences such as Japanese animation, drama, J-pop also gained great popularity throughout the world. At the moment the Korean economy and Korean cultural influence on neighboring countries is strong but Chinese domination in economic and cultural influence in the near future seems inevitable.

Secondly, as we understand that cultural influence happens through the dynamic combination of economic power and cultural proximity between import-export countries, it will take more time and effort for the Korean Wave to flow out of Asia. The huge success of PSY's "Kangnam Style" suggests that the production of cultural goods that suit universal tastes (i.e. comic factor) rather than traditional tastes is a way to overcome cultural barriers.

Thirdly, the fact that the major importer of Korean cultural goods is Japan, whose economic size is bigger than that of Korea, suggests that the relative economic size itself is not an absolute condition for cultural trade. On top of Korea's economic development, the combination of unique contents, government support, social networks, and domestic competition contributed to the rise of the Korean Wave that captivated hundreds of millions of people.

Lastly, as evidenced by the data and empirical analysis the import country's demand of cultural contents can be measured either by a value term or by a quantity term. The results show that import country's market power measured in GDP per capita is important in the value term while import country's market power measured in

population is also a relevant factor in the quantity term. Considering the high average economic growth rate of low income countries, future value creation by Korean export of cultural goods will increasingly come from those emerging markets.

## **7. Conclusions**

This paper analyses the determinants of the sudden popularity of Korean cultural products in overseas markets and their implications. In a dynamic preference selection model, this paper indicates that both relative economic size and cultural proximity affect the international trade of cultural goods. Based on the original model of Bala and Van Long (2005), this paper extends the model to a three-country and three-good model to explain the unique position of the Korean economy; Korea has been transformed from a net importer to a net exporter of cultural goods in a considerably short period.

Empirically, this paper adopts a gravity-type econometric model and applies the importer dummy fixed effects and the Poisson pseudo-maximum likelihood estimator to analyze the determinants of the Korean export of broadcasting contents to 11 Asian countries. This paper finds that while an import country's economic size is important, the relative size of the export country compared to that of the import country is also an important factor for cultural trade. Internet usage in the import country shows weak relevance and overseas Korean population as a proxy of cultural ties doesn't show any statistical significance.

The results also show a weak significance of geographical distance in cultural trade. On the surface the result can be reasonably accepted because cultural goods such as TV contents don't generate much transportation cost. However, the result is also counterintuitive since distance can be a proxy for cultural barriers between export and import countries. One possible explanation is that the analyzed data cover only trade between Korea and Asian countries and thereby culturally and geographically remote countries are already excluded.

### **III. DOES THE RISE OF THE KOREAN WAVE LEAD TO COSMETICS EXPORT?**

#### **Abstract**

The purpose of this research is to identify the relation between the Korean wave and Korean cosmetics export. Instead of using UN COMTRADE data as with other researches on the similar studies, this paper adopts Google Trends query index with keyword ‘Korean drama’ as a proxy variable for cultural trade. With controlling export determining factors such as GDPs of import and export countries, distance, R&D, and FTA, this paper examines whether the Korean wave represented by Google Trends contributes to the explosive increase of Korean cosmetics export in the recent years. Moreover, this study also investigates the possible effects of the Korean wave on export that could vary according to the different trade groups by classifying import countries into two groups: 74 countries worldwide and 9 ASEAN member countries. The results reveal that the Korean wave indeed leads to cosmetics export to ASEAN countries but show weak relation with cosmetics export to worldwide.

Keywords: Korean wave, Cosmetics, Cultural proximity, Google Trends, Gravity model

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#### **1. Introduction**

Many of research questions raised in the last two decades on international trade flows have centered on the trade costs derived from the territorial borders. The famous research by McCallum (1995) on Canada-US regional trade patterns triggered a flood of studies in search of the true magnitude of the border effect. Obstfeld and Rogoff (2000) include the home bias in trade as one of the six puzzles in international macroeconomics. Disdier and Head (2008) examined 1467 distance effects estimated in 103 papers and found that, on average, 10% increase in distance lowers bilateral trade by about 9%. Transportation costs for long distance, tariffs, and other non-tariff

barriers can explain part of the reasons why the national border still matters.

As Grossman (1998) speculates, however, the reason why distance matters so much might also be due to the lack of familiarity or cultural difference. Many researchers adopting the gravity model include common languages (Boisso and Ferrantino 1997; Melitz 2008), colonial experience (Rose 2000; Eichengreen and Irwin 1998), and ethnic ties (Rauch and Trindade 2002; Combes et al. 2005; Wagner et al. 2002) as proxies for cultural ties between the trading partners.

The border effect is not restricted to trade in manufactured goods. Miroudot et al (2013) find that trade costs in services are much higher than those in a goods sector. Their research data also suggest that trade costs in manufactured goods have fallen considerably over the last decade, but they have remained essentially stable in services markets. Blum and Goldfarb (2006) show that physical distance reduces trade even in online products and services that should be free of trade costs.

In line with the above reasons, a few of recent studies focus on the trade diffusion effects of the popularity of Korean cultural contents such as TV dramas and music (Park and Choe 2009; Kim and Ahn 2012). The remarkable success of Korean cultural industry is especially evident in Asian countries. According to the data from Korea Creative Content Agency (KOCCA), during the 8-year period between 2005 and 2013, the value of Korean music export increased more than 10 times from 22 million dollars to 227 million dollars. Among the total music export value in 2013, 97.4% went to Asian countries such as Japan, China and South East Asian countries. The situation of the Korean export of broadcasting contents is not much different. During the same 8-year period the value of Korean export of TV contents increased from 121 million dollars to 309 million dollars and 73% of the total export of TV contents in 2013 went to Asian countries.

The advantage of adopting trade in cultural goods as a proxy for cultural links between trading partners is that, while other cultural factors such as common language, colonial experience, and ethnic ties are time invariant, cultural trade changes within a short period of time. Thus, the dynamic nature of trade patterns can be captured with the use of the cultural trade as a proxy variable for cultural ties

between trading partners. Stigler and Becker (1977) challenge the traditional assumption of the stability of tastes and preferences through case studies of addiction, habitual behavior, advertising and fashions. In accordance with the above reasoning it is also possible to assume that frequent exposure to foreign cultural contents can shift domestic consumers' buying behavior (Rauch and Trindate 2009; Bala and Van Long 2005; Park 2014).

There are ample cases of media reports and publications in Korea claiming that the Korean wave greatly contributed to the Korean export in particular and to the Korean economy in general. However, most of such reports are based either on pure speculations or on the anecdotal researches which lacks rigorous analysis.

This paper attempts to study the trade creation effects of the Korean wave, with special consideration of the Korean cosmetics export. The Korean cosmetics industry is chosen because of the remarkable performance of the industry in the midst of the economic recession in recent years. Also, cosmetics can be categorized as partially substituted products and so their consumption is closely connected not only to the product price and quality but also to the images the products impart. One of the possible reasons why Korean cultural contents have become so popular in Asian countries may be due to the attractive faces of Korean entertainers. Since the concept of beauty can be shared in the specific regions, the rise of the Korean wave might explain the explosive export increase of Korean cosmetics to Asian countries in the recent years.

Whereas most of the researches on trade creation effects of the Korea wave (i.e. Park and Choe 2009; Kim and Ahn 2012) use United Nations COMTRADE data for both manufactured and cultural goods, this paper adopts data extracted from Google Trends search queries as a proxy measure for trade in cultural goods. As the Internet is widely used for the consumption of audio-visual products, trade of manufactured cultural goods such as CDs, magnetic tapes, and cinematographic film may fail to represent the true scale of cultural trade.

Choi and Varian (2009) demonstrate that Google Trends can help in predicting the present. Google Trends search queries have recently been used to estimate the current

level of disease activities such as ‘influenza’, ‘bird flu’ and ‘swine flu’ in the countries (Ginsberg et al. 2009; Eysenbach 2006). Askitas and Zimmerman (2009) demonstrate strong correlations between keyword searches and unemployment rates using monthly German data. As the Internet searching activities become part of daily lives around the world, analyzing search key word queries may also reveal each person’s cultural affinity to a certain country.

The paper proceeds as follows. The next section describes the dynamic growth of the Korean cosmetics industry. The third section proposes a gravity model approach for empirical analysis with data description. The fourth section provides the estimation results. The fifth section considers the implications of the results and concludes.

## 2. Korean cosmetics industry

Korean cosmetics industry enjoys fast growth thanks to heightened health interests among the population and increasing investment in the cosmetics production. According to the data from Korea Health Industry Development Institute (KHIDI) shown in Table 1, Korean domestic production of cosmetics reached 7280 million dollars in 2013 from 4049 million dollars in 2009 with an average annual growth of 16.0%, far outpacing the average Korean GDP growth rate of 3.2% in the same period. The remarkable aspect of the industry is that whereas most of other industries were severely affected by the financial crisis and recorded no growth at all in 2009, Korean cosmetics market grew by as high as 11.8% in the same year.

Table 1. The Market Size of the Korean Cosmetics Industry

(Unit: US\$ million, %)

|             | 2009  | 2010  | 2011  | 2012  | 2013  | YoY  | CAGR<br>(2009~2013) |
|-------------|-------|-------|-------|-------|-------|------|---------------------|
| Market Size | 4,336 | 5,456 | 5,947 | 6,231 | 6,962 | 11.7 | 12.8                |

|               |       |       |       |       |       |      |      |
|---------------|-------|-------|-------|-------|-------|------|------|
| Production    | 4,049 | 5,202 | 5,763 | 6,321 | 7,280 | 15.1 | 16.0 |
| Export        | 416   | 597   | 805   | 1,067 | 1,290 | 20.8 | 32.9 |
| Import        | 702   | 851   | 989   | 978   | 972   | -0.1 | 8.9  |
| Trade Balance | -286  | -254  | -184  | 89    | 318   |      |      |

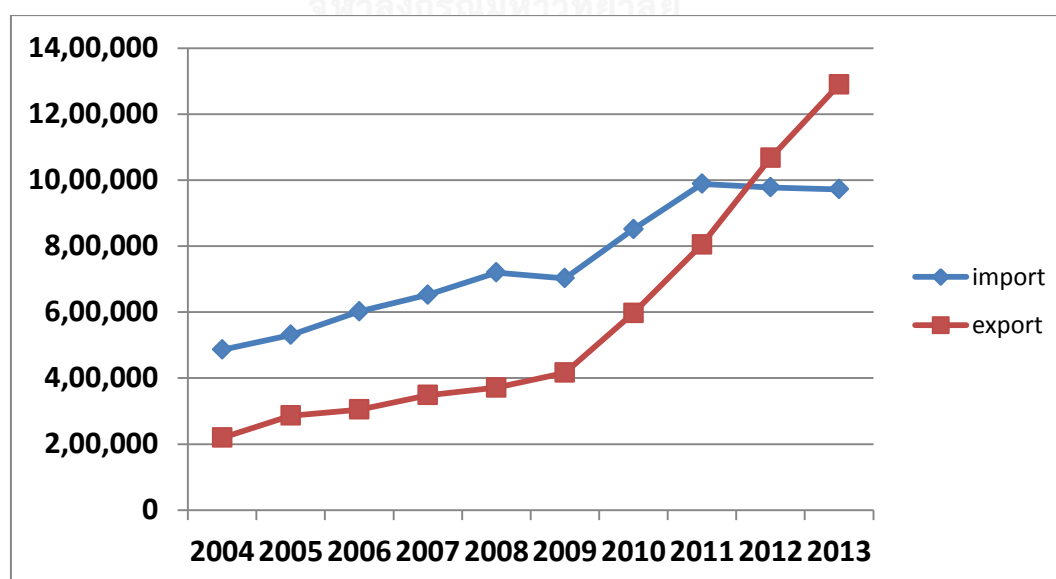
Source: Korea Health Industry Development Institute

\*YoY stands for year over year and CAGR stands for compound annual growth rate.

The export performance of the Korean cosmetics industry in the recent years is also noteworthy. According to the data from Korea Health Industry Development Institute (KHIDI), the value of Korean cosmetics export during 11 year periods (2002 – 2013) increased more than 10 times from 123 million dollars to 1,289 million dollars and, as shown in Figure 1, the export value of Korean cosmetics in 2012 outpaced the import value for the first time.

Figure 1. Korean export of cosmetics

(Unit: US\$ thousand)



Source: Korea Health Industry Development Institute

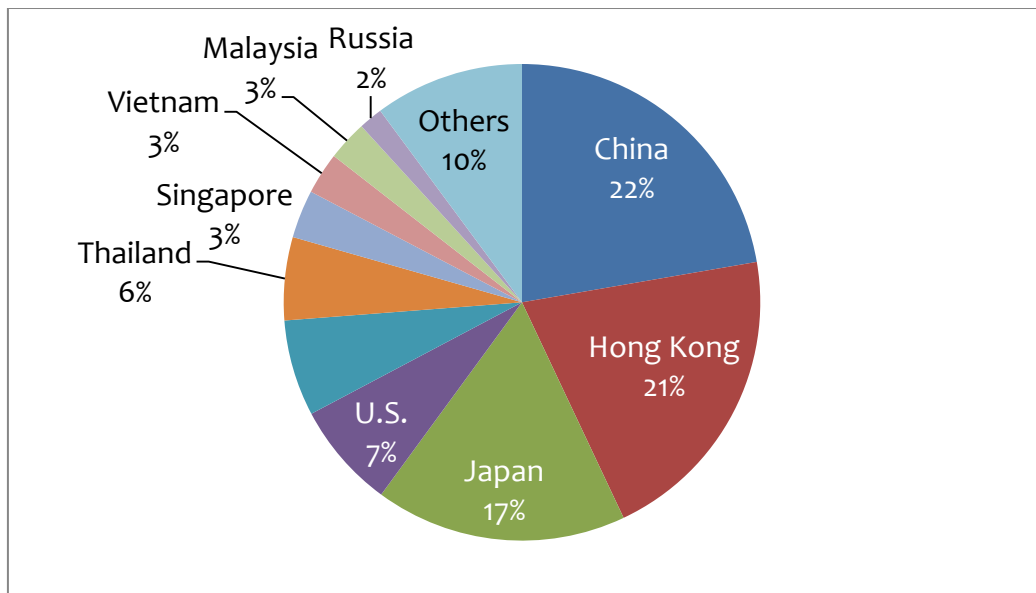
The major export destinations of Korean cosmetics are Asian countries such as China, Hong Kong, Japan, Taiwan and South East Asian countries. Figure 2 shows that the top 10 export destination countries occupy 90% of the total Korean cosmetics export and among them only The United States and The Russian Federation are not Asian countries. Among the South East Asian countries Thailand, Singapore, and Malaysia are included in the top 10 export destinations.

There might be several explanations why Korean cosmetics are highly preferred among Asian people rather than people in the other part of the world. Firstly, Korean companies' efforts on satisfying domestic consumers paid off not only in the domestic market but also in the overseas market. Korean women are very conscious of the skin care and so the majority of the product development of cosmetics companies thereby focuses on skin care products. Biotechnology takes an increasingly important role in protecting skin from aging. Korea's number one cosmetics manufacturer, Amore Pacific Corp, established a bioscience R&D center in 2011 and LG Household and Health Care, the number two cosmetics company, formed a technology partnership with a renowned women's hospital, Cha Medical Center, on stem cell research (Kang 2012).

Taking into account the Korean women's special interest in ingredients of the cosmetics, Korean companies have also developed skin care products made of such natural, organic and herbal medical ingredients as green tea, ginseng, sacred lotus root, and bamboo extract. Sulhwasoo, an exceedingly successful brand by Amore Pacific Corp, is noted for its fragrance of ginseng and the use of many traditional medicinal herbs and roots. The kin interests in clean and fair skin are not an exclusive property of Korean women but are shared among Asian women. For example, the Japanese brand Shiseido also created a herb-infused face cream developed especially for Chinese skin (Alexander 2011).



Figure 2. Korean export of cosmetics per country as of 2013



Source: Korea Health Industry Development Institute

Secondly, Asian women also share a similar concept of beauty and skin color. In Korea ‘whitening’ skin product is popular because white skin is synonymous with beauty. The description of a woman’s skin as ‘Jade white’ has been a common expression for praising her beauty in both Korea and China. There are poems from Tang Dynasty in China that described women as ‘Jade white’ and ‘creamy tinted’ (Alexander 2011). According to the study by Li et al (2008), contemporary meanings of whiteness in Asia are influenced by Western ideologies as well as traditional Asian values and beliefs. They concluded that skin whitening and lightening products not only promise to fulfill the desire for white and fair skin as a route to higher status, but also empower women to control their own bodies and alter nature.

Thirdly, since the advertisement and product brand image are critical aspects of the cosmetics industry, star marketing method of the Korean companies is thought to have greatly contributed to the success of Korean cosmetics in the Asian countries. For example, Laneige, one of the renowned cosmetics brands of Amore Pacific Corp, made a contract for product advertisement with an actress Song Hye-Kyo in 2008. The actress achieved stardom in Asia for her appearances in successful TV dramas such as ‘Autumn in My Heart’ and ‘Full House’ and also frequently appeared in

Chinese movies. Also, the number four player in the Korean cosmetics market, The Face Shop, became highly successful partly due to the signing of the actor Bae Yong-joon of the popular TV drama ‘Winter Sonata’ as an endorser.

## 2. Empirical Strategy and Data

### 3.1 Empirical Strategy

This paper adopts the gravity model for the empirical analysis of the impact of the Korean wave on the export of the Korean cosmetics utilizing the export panel data from 2005 to 2013. The gravity model has been widely used for analyzing the pattern of international trade because it has produced some of the clearest and most robust findings in economics (Leamer and Levinsohn 1995). Even though the gravity model has been used for bilateral trade data since Tinbergen (1962), it became truly popularized in empirical work after the concept of multilateral resistance (Anderson and van Wincoop 2003) was introduced and fixed effects revolution (Feenstra 2004; Redding and Venables 2004) started to capture the multilateral resistance terms. The combination of being consistent with theory and easy to implement leads to rapid adoption of the model in empirical work (Head and Mayer 2013).

With the inclusion of multilateral resistance, Anderson and van Wincoop (2003) derive the following theoretically founded gravity equation of international trade:

$$x_{ij} = \frac{y_i y_j}{y_w} \left( \frac{\tau_{ij}}{\Pi_i P_j} \right)^{1-\sigma}$$

where  $x_{ij}$  denotes exports from country  $i$  to  $j$ ,  $y_i$  and  $y_j$  are GDPs of each country,  $\tau_{ij}$  is the gross bilateral trade cost,  $\sigma > 1$  is the elasticity of substitution, and  $\Pi_i$  and  $P_j$  represent country  $i$ 's outward and country  $j$ 's inward multilateral resistance variables, respectively.

As shown by Shepherd (2014), taking the natural logarithms of all variables, the

above equation can be transformed as follows:

$$\log X_{ij} = C + F_i + F_j + (1 - \sigma)[\log \tau_{ij}]$$

$$C = -\log Y$$

$$F_i = \log Y_i - \log \Pi_i$$

$$F_j = \log Y_j - \log P_j$$

$$\log \tau_{ij} = \log Dist_{ij} + \log Culture_{ij} + FTA_{ij}$$

The first term,  $C$ , is equal to world GDP but for estimation purposes it can be a coefficient because it is constant across all exporters and importers. The next term,  $F_i$ , is shorthand for a full set of exporter fixed effects. Taking the same approach,  $F_j$  is a full set of importer fixed effects.  $\log \tau_{ij}$  is the sum of cost variables such as distance, cultural proximity, and FTAs between country  $i$  and country  $j$ .

To analyze the impact of the Korean wave on the export of the Korean cosmetics, adopting and modifying the above equations, this paper estimates the following econometric model:

$$\ln X_{kjt} = \beta_0 + \beta_1 \ln GDP_{kt} + \beta_2 \ln GDP_{jt} + \beta_3 \ln Dist_{kj} + \beta_4 \ln Trends_{jt} + \beta_5 FTA_{kjt} + \beta_6 \ln R \& D_{kt} + \gamma_j + \delta_t + \varepsilon_{kjt}$$

where  $k$  indicates the export country (Korea),  $j$  the import country and  $t$  is time;  $\ln$  denotes natural logarithms;  $X_{kjt}$  is the flow of Korean cosmetics export to  $j$  country in  $t$  period;  $GDP_{kt}$  and  $GDP_{jt}$  are GDPs of Korea and import countries respectively;  $Dist_{kj}$  is the geographical distance between Korea and import countries;  $Trends_{jt}$  is Google Trends search queries with the keyword “Korean drama” in the import countries as a proxy variable for cultural ties between the two parties.  $FTA_{kjt}$  is a dummy variable denoting the presence of Free Trade Agreements between Korea and import countries.  $R\&D_{kt}$  is Korean cosmetics industry’s investment in research and development.  $\gamma_j$  and  $\delta_t$  are import country and year fixed effects respectively and  $\varepsilon_{kjt}$  is a disturbance term.

### 3.2 Data

The study analyzes Korean export data of cosmetics to 74 countries during the period from 2005 to 2013 collected by Korea Customs Service (<http://www.customs.go.kr>). According to Harmonized System Codes (HS Code) cosmetics are in the category of 33 described as ‘Essential oils and resinoids; perfumery, cosmetic or toilet preparations’. Even though the two digit category can be further divided into more specific product lists, this paper chooses the data of Korean cosmetics export based on HS Code 33.

As is shown in Table 2, during the eight year period Korean export of cosmetics grew more than 4 times and the biggest importers are China, Hong Kong and Japan. The explosive export growth to Thailand is especially noteworthy. In 2005 Thailand’s import value of Korean cosmetics was mere 2.7 million dollars and this figure grew to 61.9 million dollars in 2013, which is a 23 times increase, making Thailand the 6<sup>th</sup> largest importer of Korean cosmetics. To a lesser degree yet still remarkable are other South East Asian countries’ import increases. During the same period the export of Korean cosmetics to Philippines increased 11.3 times, to Indonesia 10.7 times and to Malaysia 5 times.

Table 2. Korean export of cosmetics in the selected years (HS Code 33)

(Unit: US\$ thousand)

| Country   | 2005   | 2007    | 2009    | 2011    | 2013    |
|-----------|--------|---------|---------|---------|---------|
| China     | 71,837 | 101,354 | 127,057 | 217,027 | 315,788 |
| Hong Kong | 29,804 | 31,373  | 45,484  | 97,328  | 214,668 |
| Japan     | 39,288 | 42,092  | 86,560  | 139,560 | 159,032 |
| U.S.      | 34,954 | 35,795  | 43,078  | 66,847  | 107,117 |
| Taiwan    | 33,686 | 30,381  | 34,840  | 68,566  | 94,809  |
| Thailand  | 2,739  | 4,148   | 13,974  | 61,945  | 77,889  |
| Vietnam   | 9,812  | 11,448  | 15,944  | 32,273  | 42,452  |
| Malaysia  | 4,783  | 8,631   | 13,186  | 23,895  | 41,459  |

|             |         |         |         |         |           |
|-------------|---------|---------|---------|---------|-----------|
| Singapore   | 15,311  | 15,788  | 16,583  | 33,107  | 41,144    |
| Russia      | 4,632   | 5,230   | 4,765   | 9,966   | 25,918    |
| Australia   | 5,084   | 4,375   | 5,967   | 8,908   | 15,509    |
| Mongolia    | 5,485   | 7,162   | 6,391   | 10,484  | 13,021    |
| Indonesia   | 842     | 837     | 1,527   | 9,044   | 11,664    |
| Philippines | 612     | 2,200   | 2,156   | 6,945   | 11,145    |
| UK          | 3,284   | 3,953   | 4,359   | 5,819   | 10,658    |
| Iran        | 6,661   | 8,000   | 8,925   | 15,093  | 9,177     |
| UAE         | 3,007   | 4,165   | 5,036   | 4,968   | 8,931     |
| Canada      | 4,081   | 2,839   | 2,438   | 3667    | 7,560     |
| Myanmar     | 274     | 204     | 2,167   | 2447    | 5,100     |
| France      | 2,297   | 2,131   | 1,983   | 5997    | 5,034     |
| sub total   | 278,473 | 322,106 | 442,420 | 823,886 | 1,218,075 |
| others      | 16,431  | 19,001  | 22,063  | 36,989  | 58,902    |
| total       | 294,904 | 341,107 | 464,483 | 860,875 | 1,276,977 |

Source: Korea Customs Service

This paper adopts Google Trends query data as a proxy variable for cultural affinity between Korea and its trading partners. The trend information of Google searches over time in a particular country is available by Google Trends (<http://www.google.com/trends>). Google Trends does not report the raw level of queries for a given search term, but instead it reports a query index, meaning the relative search volume in that region at a point in time. The query index starts at 0 in January 1, 2004 and the numbers at later dates indicate the percentage deviation from the query share on January 1, 2004 (Choi and Varian 2009).

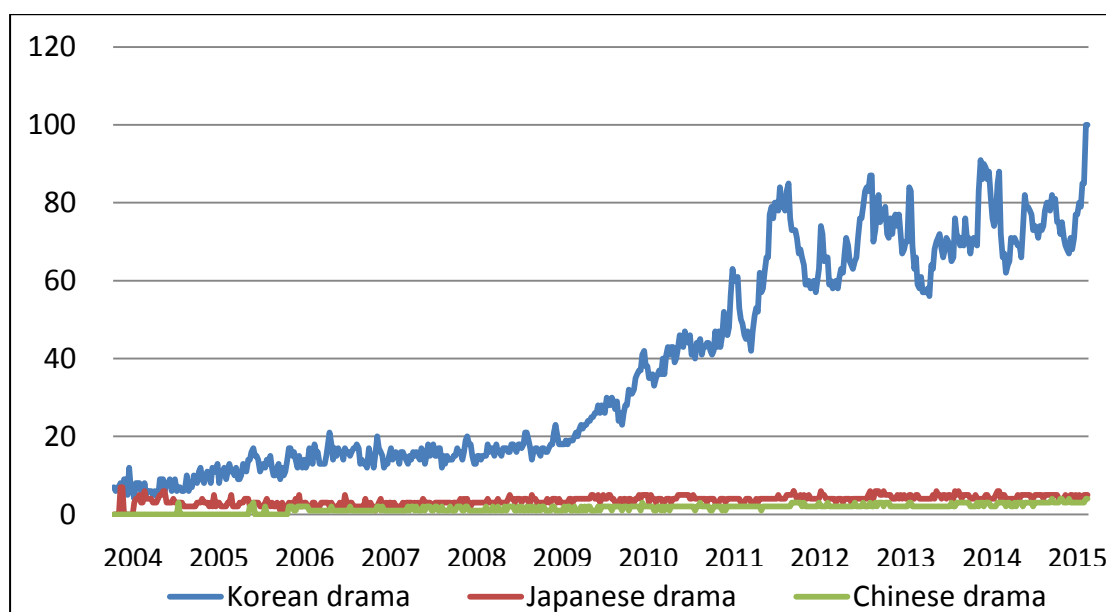
The search keyword for this paper is ‘Korean drama’ during 2005 – 2013 periods in Google Trends because this term may capture the most important aspects of the Korean wave in the world. TV dramas embody rich cultural traits such as family relationships, social interaction, history, latest trends, food and fashion (Park 2014).

Figure 3 shows the Google Trends popularity comparison among Korean, Japanese and Chinese dramas during 2004 – 2014 periods where the vertical unit is the search

index starting from 0 to 100. From the graph it is evident that the popularity of Korean drama relative to those of Japanese and Chinese increased considerably over the time.

Figure 3. Google Trends by keywords comparison: 2004 – 2014

Unit: Google Search Index



Source: Google Trends

The adoption of Google Trends data as a proxy variable for cultural affinity in this paper has several advantages. Firstly, as Google has become a mainstream general search engine since last decade, the accumulated query information may reveal each individual's level of tastes and preferences over a particular period in a specific region. As information and communications technology (ICT) infrastructure has been improved and the number of the Internet users has also increased all over the world during the last decade, the term 'Big data' recently becomes a household name. Secondly, whereas the available trade data of cultural goods are limited to relatively small number of countries, the data in Google Trends can cover extensive regions. Thirdly, to the best knowledge of the author of this paper, there has not been any attempt to use Google Trends query data as a proxy variable for cultural affinity in the field of international trade.

Google Trends query index data is available on the weekly basis with the exception of a few countries. For the purpose of simplicity and convenience in matching with other yearly basis data, this paper combines the entire weekly index data and transforms them to yearly data.

Table 3 shows the descriptive statistic in which the total observed number of variables is 666, except for Trends with 278 observed variables. Since each country's condition of adopting and using the Google search engine is different, the Trends index data of early years in some countries are simply not available. Distance information measured in kilometers between Seoul, the Korean capital city, and the capital cities of import countries is from timeanddate.com (<http://www.timeanddate.com>). The data of GDPs measured in US billion dollars are from World Development Indicators. The information of FTA, a dummy variable indicating the presence of FTA between Korea and trading partners, is from Korea Customs Service. The data of R&D, the total R&D expenditure on cosmetics industry from both public and private companies measured in Korean billion won, is from Korean Health Industry Statistics System (<http://khiss.go.kr>).

Table 3. Data description

| Variable         | Obs. | Mean   | Std.Dev | Min. | Max.   |
|------------------|------|--------|---------|------|--------|
| Export           | 666  | 8685.8 | 30093.9 | 0    | 336795 |
| Trends           | 278  | 1446.0 | 1092.2  | 0    | 4236   |
| Distance         | 666  | 7718.4 | 3824.8  | 956  | 19435  |
| GDP <sub>k</sub> | 666  | 1084.5 | 134.8   | 898  | 1305   |
| GDP <sub>i</sub> | 666  | 798.8  | 1968.4  | 3    | 16768  |
| FTA              | 666  | 0.2432 | 0.4293  | 0    | 1      |
| R&D              | 666  | 168.2  | 66.7    | 66   | 274    |

## 4. Estimation Results

### 4.1. Baseline results

The results of pooled OLS, random effects, fixed effects and Poisson pseudo-maximum likelihood estimator (PPML) for the panel data analysis are reported in Table 4. OLS (1) does not include fixed effects of import country and year dummies

while OLS (2) includes all of them. The results show that OLS (2) with adjusted  $R^2$  0.9818 is a theory consistent and much improved estimator than OLS (1) with adjusted  $R^2$  0.6675. The overall results from several estimators confirm that, in line with the gravity model's assumption, the dependent variable is positively correlated with GDPs of Korea and its trading partners and negatively correlated with the geographical distance. Korean R&D investment in the cosmetics industry does not show any significance in general and, in most cases, it shows even negative relationships. The result can be interpreted that it takes a relatively long period of time to reap the fruit of R&D investment. The FTA variable clearly indicates statistical significance in most of the estimators except for OLS estimator without fixed effects.

Table 4. Dependent variable: Log export (OLS, RE, FE), export (PPML)

| Variable                | OLS(1)                 | OLS(2)                 | RE                     | FE                    | PPML                   |
|-------------------------|------------------------|------------------------|------------------------|-----------------------|------------------------|
| Ln GDP <sub>k</sub>     | -1.2602<br>(0.9193)    | 1.7711**<br>(0.7465)   | 1.5540***<br>(0.3871)  | 1.2976***<br>(0.4200) | 2.8882***<br>(0.8762)  |
| Ln GDP <sub>j</sub>     | 0.7351***<br>(0.0545)  | 1.3908***<br>(0.2481)  | 0.8703***<br>(0.0924)  | 1.3840***<br>(0.2532) | 0.0885<br>(0.3236)     |
| Ln Distance             | -2.2835***<br>(0.1269) | -5.5608***<br>(0.5610) | -2.4351***<br>(0.2456) |                       | -3.3946***<br>(0.5297) |
| Ln Trends               | 0.4953***<br>(0.0629)  | 0.0013<br>(0.0418)     | 0.1089***<br>(0.0372)  | 0.0790**<br>(0.0369)  | 0.0393<br>(0.0527)     |
| FTA                     | -0.0388<br>(0.1726)    | 0.3326***<br>(0.1251)  | 0.2142*<br>(0.1142)    | 0.2551**<br>(0.1174)  | 0.3113***<br>(0.1136)  |
| Ln R&D                  | -0.8395**<br>(0.3497)  | -0.2374<br>(0.2175)    | 0.0450<br>(0.1206)     | -0.0542<br>(0.1318)   | -0.1472<br>(0.2574)    |
| Constants               | 33.0793<br>(5.7707)    | 36.1557<br>(7.1118)    | 11.3130<br>(3.2624)    | -10.2506<br>(2.4797)  | 15.1225<br>(6.6898)    |
| Importer fixed effects  | No                     | Yes                    | No                     | No                    | Yes                    |
| Year fixed effects      | No                     | Yes                    | No                     | No                    | Yes                    |
| Observations            | 274                    | 274                    | 274                    | 274                   | 277                    |
| Adjusted R <sup>2</sup> | 0.6675                 | 0.9818                 | 0.6011                 | 0.2194                | 0.9515                 |

\*, \*\*, \*\*\* denote statistical significance at the 90, 95, and 99 percent levels,

respectively.

Google Trends, as a proxy variable for cultural affinity, shows significant correlation in OLS (1), random effects and fixed effects. However, the theory consistent fixed effects treated OLS (2) and PPML do not show any signs of correlation. The result implies that the Korean wave is not much relevant when it comes to Korean export of



such partially substituted products as cosmetics to countries throughout the world. The Korean wave, even if more people in the world have recently been recognizing the phenomenon, is still primarily in the domain of Asian episodes.

#### 4.2. Regional differentiation

Whereas above data analysis covers Korean export of cosmetics to 74 countries during 2005-2013 periods, this section concentrates the analysis on export to ASEAN 9 countries in the same periods. Among 10 ASEAN member countries Lao DPR is dropped because Google Trends data for the country in the specified period is not available. The primary reason why ASEAN countries are chosen for the analysis is that the South East Asian region is where the Korean wave has been strikingly visible and the usage of the Internet including the social network has grown rapidly over the years.

Table 5 shows the estimation results for Korean export of cosmetics to 9 ASEAN member countries. As in the case of the baseline analysis, Pooled OLS, Pooled OLS with fixed effects, random effects, fixed effects, and PPML estimators are compared. In the case of PPML estimation, the two variables of distance and Korean GDP are dropped to ensure that the estimates exist.

GDPs of ASEAN countries clearly indicate positive and strong relationship with Korean cosmetics export whereas GDP of Korea shows mixed significances depending on each estimator. The results can be interpreted that when it comes to Korean export of cosmetics to ASEAN countries, the demand condition of the importing countries play more important role than export country's factor conditions.

Table 5. Dependent variable: Log ASEAN export (OLS, RE, FE), ASEAN export (PPML)

| Variable            | OLS(1)                | OLS(2)               | RE                    | FE                    | PPML               |
|---------------------|-----------------------|----------------------|-----------------------|-----------------------|--------------------|
| Ln GDP <sub>k</sub> | 1.7112<br>(1.4261)    | 0.6541<br>(1.6366)   | 1.7126***<br>(0.5771) | 1.4464**<br>(0.6831)  |                    |
| Ln GDP <sub>j</sub> | 0.6821***<br>(0.1233) | 1.7977**<br>(0.7022) | 1.0305***<br>(0.3057) | 1.3457***<br>(0.5014) | 1.0801<br>(1.2553) |
| Ln Distance         | -0.1943<br>(0.5858)   | -8.8183<br>(10.9982) | -1.1820<br>(2.3443)   |                       |                    |

|                         |                       |                      |                       |                       |                       |
|-------------------------|-----------------------|----------------------|-----------------------|-----------------------|-----------------------|
| Ln Trends               | 0.5728***<br>(0.1297) | 0.1423*<br>(0.0775)  | 0.3123***<br>(0.0646) | 0.3027***<br>(0.0679) | 0.1759***<br>(0.0622) |
| FTA                     | -0.6208<br>(0.5333)   | 0.5339**<br>(0.2094) | -0.1327<br>(0.1939)   | -0.1458<br>(0.2028)   | 0.7283***<br>(0.1290) |
| Ln R&D                  | 0.5424<br>(0.6129)    | -0.3699<br>(0.4306)  | 0.3242<br>(0.2340)    | 0.2043<br>(0.2844)    | -0.4149<br>(0.8946)   |
| Constants               | -11.3957<br>(9.7555)  | 70.3290<br>(99.6936) | -2.3021<br>(19.8651)  | -11.2496<br>(3.6903)  | 4.3147<br>(3.7664)    |
| Importer fixed effects  | No                    | Yes                  | No                    | No                    | Yes                   |
| Year fixed effects      | No                    | Yes                  | No                    | No                    | Yes                   |
| Observations            | 57                    | 57                   | 57                    | 57                    | 57                    |
| Adjusted R <sup>2</sup> | 0.5557                | 0.9708               | 0.4805                | 0.4261                | 0.9824                |

\*, \*\*, \*\*\* denote statistical significance at the 90, 95, and 99 percent levels, respectively.

The distance variable shows a negative sign as expected but does not indicate any statistical importance. The reason of this result can be easily drawn; all the analyzed ASEAN countries are geographically concentrated in the same region and so distance differentiation is rather a difficult task.

The FTA variable shows an inconsistent pattern of signs and statistical significances depending on each estimator considered. There might be several explanations why the effects of FTAs do not materialize in Korean export of cosmetics to the ASEAN market. Firstly, the usage of dummy variable is a rather crude way of measurement in this case. When trading partners make free trade agreements the tariff rates of some products drop immediately but in other product lines the tariff rates decrease gradually over the years according to the agreed schedule. Thus, the dummy variable cannot reflect the effects of gradual decrease of tariff rates over the years. Secondly, each FTA partner has different trade policies and market conditions. It is possible that some countries, even before making an FTA, may have already maintained zero tariff rates in the cosmetics product lines. In this case initiating a new FTA does not affect the trade volume of cosmetics. Therefore, the FTA dummy variable cannot fully represent the market opening status of the specific industry in the import countries and so the result could be interpreted taking this caution into consideration.

The most striking feature of the analysis is the consistently positive and significant results of the Google Trends variable throughout all the estimators. It is evident from

the results that South East Asian people's interests in Korean cultural contents do affect their buying behavior of Korean cosmetics, as different from people in other parts of the world.

To make sure there is no reverse causality of the above results, Hausman test is also conducted. The general idea of Hausman test is the comparison of two estimators: an estimator that is known to be consistent with another estimator that is efficient under the assumption. This paper tests whether the fixed effects and random effects estimators are significantly different. The test result shows that chi-square ( $\chi^2$ ) is 1.35 with 5 degrees of freedom, and so the initial hypothesis that the variables are adequately modeled by a random effects model cannot be rejected.

## 5. Conclusions

This paper uses a new variable to present some of the first evidence on the trade creation effects of the Korean wave on the cosmetics industry. The adoption of the Google Trends search query as a proxy variable for cultural affinity is a noble approach. As increasing number of people around the world uses the Internet for searching information or entertainment purposes, the analysis of search queries of the most popular website, Google, in connection with cultural affinity seems an appropriate and timely task in the field of international trade. The great advantage of using Google trends as a proxy variable is that the data reflect the changing patterns of users' searching behavior while other proxy variables in general are time invariant.

Using the gravity model, this paper firstly analyzed the data of the Korean cosmetics export to 74 countries around the world. Whereas economic sizes of Korea and import countries, geographical distance, and the presence of free trade agreements show statistical significance, Google Trends search query of 'Korean drama' does not reveal a clear correlation with Korean cosmetics export. When the export destination countries were narrowed to 9 ASEAN member countries, the results show strong evidence that the Korean wave indeed lead to the export of Korean cosmetics.

There can be several implications drawn from the study. Firstly, besides the traditional

proxy variables used in the gravity model for cultural affinity such as common languages, colonial experience, and ethnic ties, Google trends query data can become another important proxy variable.

Secondly, the Korean wave's contribution to the export of Korean cosmetics is evident in Asian countries but not clear in other part of the world in general. Since the Korea wave has risen high mainly in Asian countries and cosmetics export to the region also increased dramatically, the finding is consistent with the general assumption.

Thirdly, Korean free trade agreements with many countries paid off in the cosmetics industry. Whereas the Korean wave greatly contributed to increasing consumption in the Asian market, FTA is a more important factor in exporting cosmetics to the world market.

Lastly, in addition to the star marketing method, Korean cosmetics companies can put more emphasis on advertising through social networks such as Facebook, Instagram and Line as cultural contents have increasingly been shared this way by people around the world.

Further researches could extend the method and findings of the study. In particular, in addition to cosmetics industry covered in this paper, other industries can be examined using Google Trends proxies. Also, besides 'Korean drama', other Google Trends query keywords can be tested to find the most appropriate term according to the research themes and purposes.

**Appendix: List of countries used in the analysis**

|                |             |                 |
|----------------|-------------|-----------------|
| Argentina      | Hong Kong   | Pakistan        |
| Australia      | Hungary     | Philippines     |
| Austria        | India       | Poland          |
| Azerbaijan     | Indonesia   | Portugal        |
| Bahrain        | Iran        | Puerto Rico     |
| Bangladesh     | Ireland     | Qatar           |
| Belgium        | Israel      | Romania         |
| Brazil         | Italy       | Russia          |
| Brunei         | Japan       | Saudi Arabia    |
| Bulgaria       | Jordan      | Singapore       |
| Cambodia       | Kazakhstan  | Slovak Republic |
| Canada         | Kuwait      | South Africa    |
| Chile          | Lebanon     | Spain           |
| China          | Lithuania   | Sri Lanka       |
| Colombia       | Macao       | Sweden          |
| Cyprus         | Malaysia    | Switzerland     |
| Czech Republic | Mexico      | Taiwan          |
| Denmark        | Mongolia    | Thailand        |
| Ecuador        | Morocco     | Turkey          |
| Egypt          | Myanmar     | UAE             |
| Estonia        | Nepal       | UK              |
| Finland        | Netherlands | Ukraine         |
| France         | New Zealand | United States   |
| Germany        | Nigeria     | Vietnam         |
| Greece         | Norway      |                 |

## IV. CULTURE, DISTANCE, AND TOURISM: A CASE OF KOREAN OUTBOUND TOURISM

### Abstract

This paper estimates the determinants of Korean outbound tourism applying a gravity model to 53 destination countries over 9 years. The results show that the gravity model explains Korean tourism flows as effectively as it explains trade flows. Tourism flows respond strongly to the price differences between Korea and destination countries and the presence of direct flights shows a positive sign with statistical significance. When destination countries are divided into two groups, OECD and others, Korean tourists are less price-sensitive to trips to OECD countries than they are to other countries. The significance of the distance factor in Korean overseas tourism continues and has increased over the years.

Keywords: Korea, Tourism, Panel data regression, Gravity model

### 1. Introduction

The tourism industry has come into the spotlight as one of the biggest and fastest growing economic sectors and thus each country has been fiercely competing to attract foreign tourists. According to the United Nations World Tourism Organization (UNWTO) the number of world tourists in 2013 increased 5% from the previous year, reaching 1087 million despite the unstable world economy and all kinds of disasters such as typhoons and earthquakes. Also, UNWTO estimates that the amount of international tourism receipts in 2013 is 1.1 trillion dollars, which is almost equivalent to the GDP of South Korea in the same year.

Given the importance of the tourism industry for the global economy, it is natural to look into the determinants of tourism flows and their economic impacts. A little research on related literature reveals that most of the studies conducted on the causal relationship between tourism and economic growth are of major tourists destination countries such as Spain (Balaguer and Cantavella-Jorda 2002), Greece (Dritsakis

2004), Turkey (Gunduz and Hatemi-J 2005), and Cyprus (Katircioglu 2009) or of less developed countries with the tourism induced growth potential such as African countries (Fayissa *et al* 2007) and Latin American countries (Eugenio-Martin *et al* 2004; Brida *et al* 2010).

The studies on the determinants of tourism flows are even more numerous and diverse. Lim (1999) investigated 100 previously published empirical studies on international tourism demand, and Song and Li (2008) reviewed the published studies on tourism demand modelling and forecasting since 2000. Using comprehensive data on the international tourism with the gravity model approach, Culiuc (2014) found that the pattern and determinants of international tourism flows are almost identical to those of international trade flows.

Whereas most of the case studies on the international tourism focus on inbound tourism, the number of studies on outbound tourism is few. One reason might be the close linkage between the findings of the case studies and their policy implementations. Studies on inbound tourism can, with ease, produce useful insights and policy implications while studies on outbound tourism have more difficulty in any practical use. Another reason why there are scarce case studies on outbound tourism is that data on outbound tourists are harder to get than data on inbound tourists. For example, South Korean government has altogether stopped collecting information on outbound tourists since 2006.

With such a background in mind, this paper attempts to analyze the determinants of South Korean outbound tourism with a particular consideration of the distance factor between South Korea and destination countries. Since South Korea has been in chronic deficit of tourism balance of payments for the last three decades, a serious analysis of South Korean outbound tourism seems necessary and proper in terms of both intellectual curiosity and policy implications. Even in this narrow research topic there are a few previous studies to be mentioned. Lim (2004) investigated the seasonal patterns of tourist arrivals from South Korea to Australia using time series modelling. Lim found that international tourism demand by South Korea is both income elastic

and price elastic. Mo (2004) used the GARCH volatility model to investigate whether the exchange rate volatility weakened the South Korean international tourism demand and showed that the exchange rate volatility had a negative effect on tourism demand. Seo et al. (2010) investigated the relationships of South Korean outbound tourism demand among seven countries using the Granger causality method. Their results show that top-ranked outbound destinations by South Koreans had either unidirectional or multi-directional causal relationships.

The unique features of this paper that differ from the above or other studies on South Korean outbound tourism are as follows: firstly, the comprehensive data usage encompassing 53 destination countries over 9 year-period; secondly, the adoption of the gravity model from the realm of the international trade; thirdly, special focus on the changing significance of the distance factor over time; and lastly, a special consideration of the data selection issues.

The paper finds that Korean outbound tourism also follows a similar pattern of the gravity model analysis of the international trade. The GDP variable shows positive relations with the number of tourists and the distance variable shows strong negative relations as expected. The analyses of other variables such as Korean export to the destination countries, relative price, and the presence of direct flights also provide useful insights.

The structure of this paper is constructed as follows. The next section describes the Korean outbound tourism and relevant data. Section 3 explains the study's empirical methodology. Section 4 discusses the empirical results, and the last section concludes.

## **2. Data**

1989 was a special year for Korean tourism industry because Korean government completely relaxed the travel restrictions for pleasure overseas travel in the same year. The number of Korean outbound tourists jumped up 67.3% in 1989, exceeding one millions for the first time. The number continually increased over the years surpassing

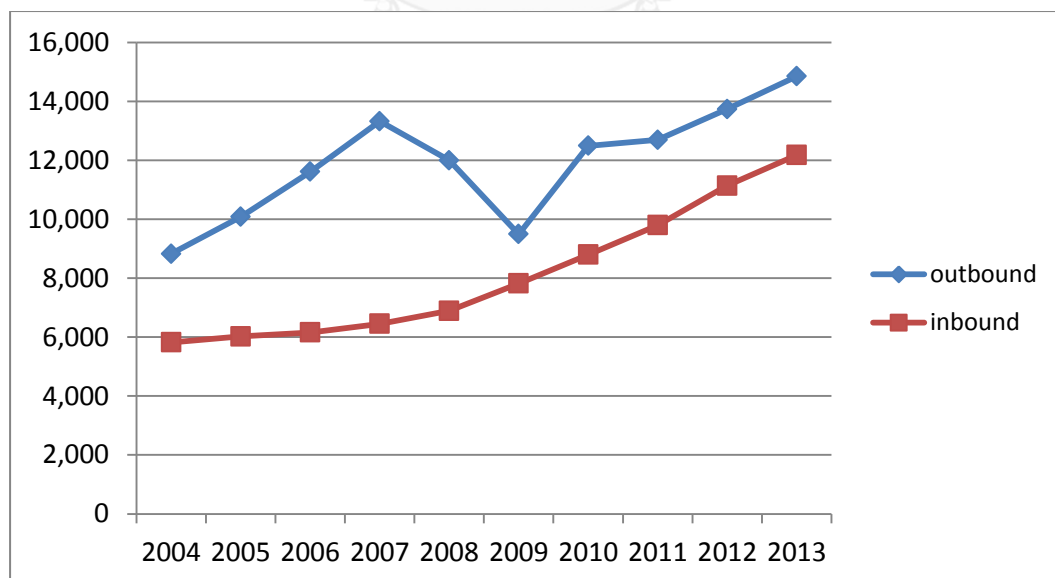


five millions in 2000 and ten millions in 2005. After 1995 the number of Korean outbound travelers has exceeded the number of inbound foreign travelers except for the 1998-1999 periods of Asian financial crisis.

With regard to tourism receipts the data show a similar pattern. Korea has been in chronic deficit from 1982 until present with a brief exception of 1998-2000 periods. According to the data from UNWTO, Korea is ranked 14<sup>th</sup> in terms of tourist expenditure with 21.7 billion dollars and 22<sup>nd</sup> in terms of tourism receipts with 14.3 billion dollars in 2013.

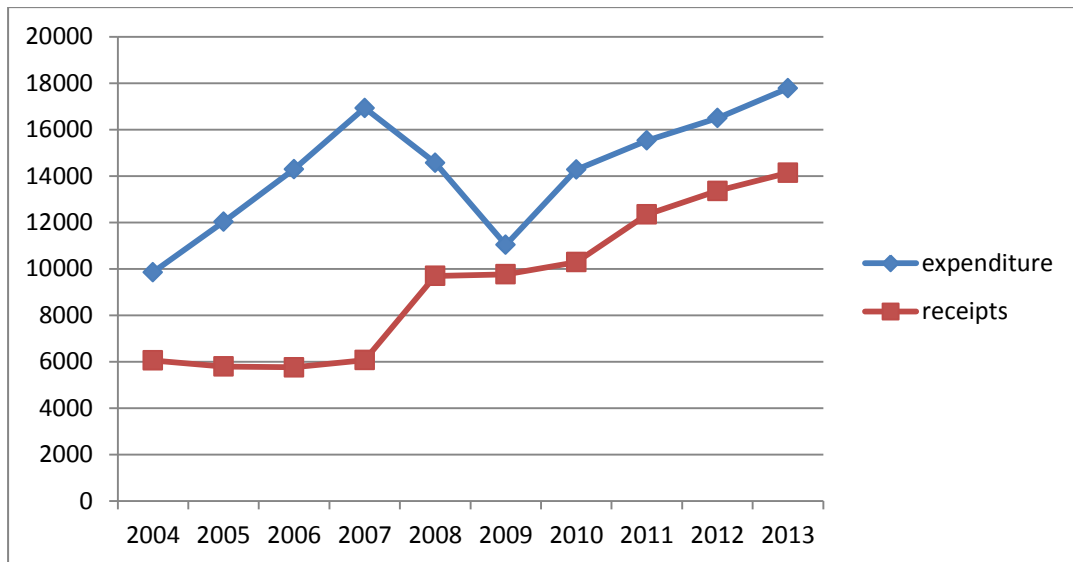
Figure 1 and 2 show the respective trend of Korean tourism in terms of the number of tourists and balance of payments during 2004-2013 periods. The sharp decline of Korean outbound tourism in 2008-2009 periods is mainly due to the world financial crisis and the devaluation of the Korea currency.

Figure 1. Korean inbound and outbound tourists: 2004-2013 (unit: thousand people)



Source: Korea Tourism Organization

Figure 2. Korean balance of payments in tourism (unit: million dollars)



Source: Korea Tourism Organization

Korean government altogether stopped collecting the information of outbound tourists in 2006, so the data on Korean outbound tourists only come from the destination countries. When destination countries collect the information of inbound tourists there is no uniform way of measurements equivalent to the customs clearance of manufactured goods. Some countries measure tourist arrivals at the border, but others measure hotel arrivals. Country practices also differ in terms of determining the origin of the tourists; some countries report frontier arrivals by nationality and others by residence. The difficulty of acquiring accurate tourist information is also aggravated because most countries, when publishing the data on tourist arrivals, pay attention to countries with large number of tourists but ignore those with small number of tourists.

Notwithstanding the difficulty in acquiring comprehensive tourism data, this paper analyzes the panel data of Korean outbound tourists provided by Korea Tourism Organization which encompass 53 destination countries during 2004-2012 periods. A distinction is made between tourist arrivals to OECD countries and the remaining countries. This is done to capture the differences in demand patterns between the two

destination groups. Concerning the relative prices, as is common in tourism demand studies, this paper uses relative Consumer Price Index (CPI) of destination countries against the origin country adjusted by the relative exchange rate as a proxy for price differences (Naude and Saayman 2005). The formula can be expressed as follows,

$$Price_{od} = Exchange \frac{CPI_d}{CPI_o}$$

where  $o$  stands for the origin country and  $d$  for the destination country.

The distance variable represents travel costs. Since distance does not measure changes in travel costs over time, year dummies are included in the specifications. This paper also measures the impact of distance on tourism over time by comparing tourism in early years (2004-2006) with later years (2010-2012). Korean export of goods to destination countries can proxy business travels.

Table 1 shows the description of data on each variable. Macroeconomic data such as GDP, CPI, exchange rates, trade volume, and the rate of intentional homicide come from World Development Indicators. Data on Korean export to destination countries are from Korea International Trade Association ([www.kita.net](http://www.kita.net)). Distance data measured in kilometers between the Korean capital city, Seoul, and the capital cities of destination countries are from the Mapcrow website ([www.mapcrow.info](http://www.mapcrow.info)). The presence of direct flights between Korea and destination countries, a non-standard gravity dummy variable, is also introduced because direct flight connections are found to have a positive impact on the number of tourist arrivals (Fuji et al. 1992; Tveteras and Roll 2011). The data on the presence of direct flights come from Korea Airports Corporation ([www.airport.co.kr](http://www.airport.co.kr)). The usual variables appearing in the most studies on international trade such as FTAs, common language, colony, common borders, and landlocked are excluded because this paper deals with unilateral tourist flows from Korea and so the above mentioned variables are not relevant in this case.

Table1. Data description

| Variables                                      | Obs | Mean      | Std.Dev.  | Min.    | Max.       |
|--|-----|-----------|-----------|---------|------------|
| Tourist <sub>odt</sub><br>(Number of tourists) | 389 | 285,432.4 | 671,518   | 0       | 4,776,752  |
| GDP <sub>ot</sub><br>(\$ amount)               | 477 | 1,022,778 | 142,183.4 | 765,000 | 1,220,000  |
| GDP <sub>dt</sub><br>(\$ amount)               | 477 | 790,157.3 | 2,198,658 | 240     | 16,200,000 |
| Distance <sub>od</sub><br>(km)                 | 477 | 8,079.1   | 4,275.9   | 371.27  | 18,341.4   |
| Export <sub>odt</sub><br>(\$ million)          | 477 | 5,873     | 15,047.8  | 2       | 134,323    |
| Price <sub>odt</sub>                           | 458 | 440.1     | 580.3     | 0.03    | 2,511.26   |
| Airline <sub>odt</sub>                         | 477 | 0.49      | 0.50      | 0       | 1          |
| Open <sub>dt</sub>                             | 477 | 21.51     | 148.91    | 0       | 1219.74    |
| Homicide <sub>dt</sub>                         | 477 | 7.55      | 11.05     | 0.2     | 62.4       |

### 3. Empirical Strategy

This paper adopts the gravity model for the empirical analysis of Korean outbound tourists. The gravity model is originated from the studies of international trade and it has also been adopted in the other field of interests; Gravity equations were adopted to explain cross border portfolio investment patterns (Portes and Rey 2005), international finance (Okawa and van Wincoop 2012), service offshoring (Head et al. 2009), and foreign direct investment (Head and Ries 2008; de Sousa and Lochard 2011).

Recently gravity model has also been used in the study of international tourism. Johan and Santana-Gallego (2011) investigated in the determinants of African tourism using a standard panel gravity equation. They identified the factors that drive African-inbound and within-African tourism and found that the determinants of African-inbound and within-African tourism are not much different from global tourism flows. Archibald et al. (2008) employed a gravity model to assess the competitiveness of

Caribbean. They found that the long-term trend in tourist arrivals can be influenced by the destination's capacity and price level relative to the origin country and competing destinations, as well as exchange rate and airfare fluctuations. The most recent and comprehensive study on international tourism using the gravity model is conducted by Culiuc (2014). He applied the gravity model to a large dataset comprising the full universe of bilateral tourism flows spanning over a decade. The results show that the gravity model explains tourism flows as effectively as manufactured goods trade.

Since Tinbergen (1962) introduced it, the gravity model has been a workhorse for analyzing international trade flows. With the publication of Eaton and Kortum (2002) and Anderson and van Wincoop (2003), it is evaluated that the conventional wisdom of gravity equations lacking micro-foundations was finally dismissed since neither model relied on imperfect competition or increasing returns (Head and Mayer 2013).

When adopting the gravity equation for international tourism, it is necessary to compare the directions of goods (tourists) and revenue (tourism receipts) flows. The goods and revenue move against each other in the traditional trade whereas tourists move to the destination countries and spend expenses there.

Adopted for tourism, the gravity equation has the following multiplicative form:

$$X_{od} = GS_o M_d \phi_{od}$$

where  $X_{od}$  is the tourist flows from  $o$  to  $d$ ,  $S_o$  denotes origin country specific factors such as GDP that represent total origin country's tourism demand and  $M_d$  represents destination country's factor conditions.  $G$  is a constant variable that does not depend on  $o$  or  $j$ . Lastly,  $\phi_{od}$  represents the ease of tourist movements from the origin country to the destination country.

Taking into consideration of multilateral resistance, Anderson and van Wincoop (2003) show that a well specified theoretically founded gravity equation takes the form:

$$X_{od} = \frac{Y_o Y_d}{Y} \left( \frac{t_{od}}{\Pi_o P_d} \right)^{1-\sigma}$$

where  $Y$  denotes world GDP,  $Y_o$  and  $Y_d$  the GDPs of countries  $o$  and  $d$  respectively,  $t_{od}$  is the cost in  $o$  of travelling to  $d$ ,  $\sigma > 1$  is the elasticity of substitution and  $\Pi_o$  and  $P_d$  represent origin and destination ease of market access or multilateral resistance terms.

The standard procedure for a gravity estimation is to take the natural logarithms of all variables and obtain a log-linear equation. This yields the following estimation equation:

$$\ln X_{od} = \ln G + \ln S_o + \ln M_d + \ln \phi_{od}$$

and more specifically in the case of the Anderson and van Wincoop model:

$$\ln X_{od} = \beta_0 + \beta_1 \ln Y_o + \beta_2 \ln Y_d + (1-\sigma) (\beta_3 \ln t_{od} + \beta_4 \ln \Pi_o + \beta_5 \ln P_d) + \varepsilon_{od}$$

where  $\beta_0$  is a constant and  $\varepsilon$  is the error term.

For the analysis of Korean outbound tourism, adopting and modifying the above equation the following model is estimated:

$$\ln X_{odt} = \beta_0 + \beta_1 \ln GDP_{ot} + \beta_2 \ln GDP_{dt} + \beta_3 \ln Dist_{odt} + \beta_4 \ln Export_{odt} + \beta_5 Price_{odt} + \beta_6 Airline_{odt} + \gamma_d + \delta_t + \varepsilon_{odt}$$

where  $o$  indicates the origin country (Korea),  $d$  the destination country and  $t$  is time;  $\ln$  denotes natural logarithms;  $X_{odt}$  is the flow of Korean outbound tourists in  $t$  period;  $GDP_{ot}$  and  $GDP_{dt}$  are GDPs of Korea and destination countries respectively;  $Dist_{odt}$  is the distance between Korea and destination countries;  $Export_{odt}$  is Korean export to destination countries;  $Price_{odt}$  is the relative consumer price of destination country against that of Korea adjusted with the respective exchange rates;  $Airline_{odt}$  is a dummy variable denoting the presence of direct flights from Korea to the destination country;  $\gamma_d$  and  $\delta_t$  are destination and year fixed effects respectively and  $\varepsilon_{odt}$  is a disturbance term.

Pooled Ordinary Least Squares (OLS) is a commonly included estimator for panel

data gravity equations. However, OLS can provide inconsistent and inefficient estimates if there exists unobserved heterogeneity. In this case, the fixed-effects (FE) estimator delivers a better estimations but FE does not allow the estimation of time-invariant variables. A way to overcome this problem is to introduce country fixed-effects for the origin and destination countries (Kandogan 2008; Head and Mayer 2013).

In addition to OLS, this paper also applies the Arellano-Bond GMM estimator to deal with dynamics of the panel data. The dynamic panel data analysis can deal with problems arising from endogenous variables such as time-invariant country characteristics correlated with the explanatory variables, and panel data with a short time dimension and a larger country dimension (Roodman 2006). The Arellano-Bond system GMM estimator allows endogeneity in some explanatory variables. This paper considers the following variables as endogenous: the lagged dependent variable, GDPs of origin and destination countries, Korean export to destination countries. Lagged endogenous regressors are used as instruments and openness (trade volume over GDP) of the destination countries is separately used as an additional instrument variable.

#### **4. Estimation Results**

##### **4.1. Baseline Results**

The OLS, fixed effects, and Arellano-Bond system GMM estimation results are reported in Table 2. OLS (1) does not include fixed effects of destination and year dummies while OLS (2) includes all of them. Adjusted  $R^2$  shows that OLS (2) is a much improved estimator than OLS (1). The coefficients of the OLS (2) and FE are identical while the standard errors are a little different from each other.

The results indicate that lagged tourist arrivals from the previous years, origin country's GDP, distance, origin country's export to destination countries, price differences, and the presence of direct flights are all significant determinants for

Korean outbound tourism. Whereas the origin country's GDP shows importance, the destination country's GDP does not show any statistical significance, suggesting that the traveler's income or travel affordability are more important than the development conditions of destination countries.

Distance as a proxy of travel cost and cultural proximity shows a negative sign and statistical significance as expected. There is a close relationship between distance and air fare (McKercher, et al. 2008). The main cost factors for long distance air travel are fuel and cabin crew and since these operational costs increase with the length of the flight there should be a strong relationship between distance and air fare (Tveteras and Roll 2011). From the perspective of tourists there might exist pull and push factors in long and short distance travel. Some travelers would like to flight farther to experience exotic foreign cultures and nature (push factor) while others do not want to waste their valuable time and energy for such a long trip (pull factor). At the end of balancing each other, the forces of gravity are strong enough in the case of Korean outbound tourism. The distance variable also represents cultural proximity. Countries that are located closer to each other tend to have more common cultural denominators than countries further apart (McKercher, et al. 2008).

Tab2. Dependent variable: log tourist (OLS, FE), tourist(GMM)

| Variable                  | OLS                    |                        | FE                     | SYS-GMM                 |
|---------------------------|------------------------|------------------------|------------------------|-------------------------|
|                           | (1)                    | (2)                    |                        |                         |
| Tourist <sub>odt-1</sub>  |                        |                        |                        | 0.6370***<br>(0.6570)   |
| Tourist <sub>odt-2</sub>  |                        |                        |                        | 0.1517**<br>(0.0657)    |
| Ln GDP <sub>ot</sub>      | 0.5482<br>(0.4813)     | 1.1611***<br>(0.4464)  |                        | 0.2026***<br>(0.0460)   |
| Ln GDP <sub>dt</sub>      | -0.0005<br>(0.0446)    | 0.0377<br>(0.2586)     | 0.0377<br>(0.4903)     | 0.0025<br>(0.0069)      |
| Ln Distance <sub>od</sub> | -0.7097***<br>(0.0961) | -1.2056*<br>(0.7060)   |                        | -24.0727***<br>(6.6006) |
| Ln Export <sub>odt</sub>  | 0.5647***<br>(0.0489)  | 0.3244***<br>(0.1061)  | 0.3244*<br>(0.1827)    | 6.5626***<br>(1.5128)   |
| Price <sub>odt</sub>      | -0.0003**<br>(0.0001)  | -0.0011***<br>(0.0002) | -0.0011***<br>(0.0003) | -24.6431<br>(41.2577)   |
| Airline <sub>odt</sub>    | 1.8914***<br>(0.1655)  | 0.1607**<br>(0.0776)   | 0.1607*<br>(0.9615)    |                         |
| Constants                 | 4.2701                 | 2.9021                 | 7.9341*                |                         |



|                           |          |          |          |       |
|---------------------------|----------|----------|----------|-------|
|                           | (6.8785) | (5.4693) | (4.4022) |       |
| Destination fixed effects | No       | Yes      | No       | No    |
| Year fixed effects        | No       | Yes      | Yes      | Yes   |
| Observations              | 380      | 380      | 380      | 281   |
| Adjusted R <sup>2</sup>   | 0.7998   | 0.9872   | 0.5331   |       |
| AR(1)(p-value)            |          |          |          | 0.000 |
| AR(2)(p-value)            |          |          |          | 0.106 |
| Number of instruments     |          |          |          | 62    |

\*,\*\*,\*\*\* denote statistical significance at the 90, 95, and 99 percent levels, respectively.

Korean export variable is a proxy for bilateral economic activity and therefore a control for business tourism (Culiuc 2014). The results in the regressions show that Korean export to destination countries enters with the expected positive sign and is highly significant.

The presence of direct flights can reduce the negative effects of distance on tourism arrivals. Tveteras and Roll (2011) tested whether an increase in the level of international air connectivity, as represented by increased number of long-haul flights between origin and destination countries, has a positive impact on the number of tourist arrivals. Their empirical analysis on the case of Peru reveals that an increase in the number of international flight departures to Peru has marked positive effect on tourist arrival. In the case of Korean outbound tourism, the presence of direct flight clearly shows a positive sign and statistical significance.

#### **4.2. Destination Differentiation**

Among 53 sample destination countries 16 are OECD member countries and 37 are the remaining countries. Since the development condition measured as either GDP or infrastructure of the two groups are different, this paper attempts to measure whether there is any significant difference in tourism determinants between the two destination groups.

The GDP of the origin country, Korea, shows positive signs and statistically strong significance in both groups. Destination country's GDP shows negative signs in both groups with only OECD group showing statistical significance. Distance and the presence of direct flights variables are relevant factors in both groups as expected.

Table3. Dependent variable: log tourist

| Variable                  | OECD                   |                      | ETC                    |                        |
|---------------------------|------------------------|----------------------|------------------------|------------------------|
|                           | OLS                    | FE                   | OLS                    | FE                     |
| Ln GDP <sub>ot</sub>      | 0.7689***<br>(0.2927)  |                      | 2.3115***<br>(0.7725)  |                        |
| Ln GDP <sub>dt</sub>      | -0.5125**<br>(0.2496)  | -0.5125<br>(0.3700)  | -0.3195<br>(0.3482)    | -0.3195<br>(0.6610)    |
| Ln Distance <sub>od</sub> | -1.2636***<br>(0.2587) |                      | -1.5582**<br>(0.6316)  |                        |
| Ln Export <sub>odt</sub>  | 0.1297<br>(0.1065)     | 0.1297<br>(0.1583)   | 0.3541***<br>(0.1163)  | 0.3541*<br>(0.1940)    |
| Price <sub>odt</sub>      | -0.0003<br>(0.0002)    | -0.0003<br>(0.0003)  | -0.0018***<br>(0.0004) | -0.0018***<br>(0.0006) |
| Airline <sub>odt</sub>    | 0.2720***<br>(0.0880)  | 0.2720**<br>(0.1247) | 0.2686**<br>(0.1149)   | 0.2686**<br>(0.1150)   |
| Constants                 | 19.1573***<br>(3.9056) | 17.2678<br>(4.3543)  | -6.7451<br>(5.6113)    | 10.8102*<br>(5.7889)   |
| Destination fixed effects | Yes                    | No                   | Yes                    | No                     |
| Year fixed effects        | Yes                    | Yes                  | Yes                    | Yes                    |
| Observations              | 120                    | 120                  | 260                    | 260                    |
| Adjusted R <sup>2</sup>   | 0.9879                 | 0.3974               | 0.9880                 | 0.3639                 |

\*, \*\*, \*\*\* denote statistical significance at the 90, 95, and 99 percent levels, respectively.

The differences come from Korean export and price variables. Whereas the analysis of Korean export on OECD group does not show any meaningful results, it is an important factor in the other destination group. Also, the price factor does not show statistical significance in the case of travelling to OECD countries but it indicates a strong importance in the case of the other destination group.

The results can be interpreted in several ways. Firstly, the proportion of business travel is more prominent for the second group than for the OECD group. The second

implication is that Korean tourists are more price elastic when travelling to the less developed countries than when travelling to rich countries.

### 4.3. Distance factor

As the number of long-haul flight connections increased in the world it seems natural to assume that the world is getting flatter and narrower. The distance as a factor of inhibiting the tourists' movement should become less important over the years. However, the distance variable implies not only traveling costs but also many other factors. Distance can be correlated with cultural distance measured by shared language, history, food, music, TV dramas, customs etc. (McKercher, et al. 2008; Park 2014). Travelling to the places where cultural differences are wide can cause stress to some travelers.

Table 4 shows the results of OLS regressions for two different periods. The comparison of year 2004 and 2012 reveals that the significance of the distance factor has become prominent as the years pass. The coefficient of distance for year 2012 is -0.9323 which is much bigger than that for year 2004. Cross-sectional regressions can produce biased and inconsistent estimates because they may not take into consideration the endogeneity of regressors. Since panel data is more reliable than a single year cross-section data, this paper also compared three year periods between 2004-2006 and 2010-2012. The experiment of multi-year produces almost identical results. The result of year 2010-2012 shows stronger statistical significance for the distance variable than the result of year 2004-2006. The coefficient value of the distance variable in 2010-2012 is also much bigger than that in 2004-2006.

Table4. Dependent variable: log tourist

| Variable                  | Single Year (OLS)  |                     | Multi Year (OLS)   |                     |
|---------------------------|--------------------|---------------------|--------------------|---------------------|
|                           | 2004               | 2012                | 2004-2006          | 2010-2012           |
| Ln GDP <sub>ot</sub>      |                    |                     | 0.8615<br>(1.2628) | 0.9884<br>(1.7125)  |
| Ln GDP <sub>dt</sub>      | 0.1835<br>(0.2627) | -0.0320<br>(0.0966) | 0.0992<br>(0.1080) | -0.0355<br>(0.0525) |
| Ln Distance <sub>od</sub> | -0.1664            | -0.9323***          | -0.3406*           | -0.9353***          |

|                          |                       |                       |                       |                       |
|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|                          | (0.3807)              | (0.2602)              | (0.1792)              | (0.1487)              |
| Ln Export <sub>odt</sub> | 0.6237**<br>(0.2712)  | 0.5013***<br>(0.0924) | 0.5871***<br>(0.1109) | 0.5267<br>(0.0595)    |
| Price <sub>odt</sub>     | -0.0012<br>(0.0008)   | 7.3900<br>(0.0002)    | -0.0010**<br>(0.0004) | 0.0000<br>(0.0001)    |
| Airline <sub>odt</sub>   | 2.3939***<br>(0.8107) | 1.7992***<br>(0.3478) | 2.3002***<br>(0.3369) | 1.5826***<br>(0.2020) |
| Constants                | 4.6393<br>(4.2342)    | 14.5688<br>(2.3941)   | -4.3679<br>(17.5188)  | 0.7332<br>(24.0939)   |
| Observations             | 31                    | 49                    | 109                   | 142                   |
| Adjusted R <sup>2</sup>  | 0.7877                | 0.8799                | 0.7994                | 0.8457                |

\*, \*\*, \*\*\* denote statistical significance at the 90, 95, and 99 percent levels, respectively.

The above results imply that, to some degree, even though the extension of long-haul direct flights mitigates the traveling cost for the long distance trip, distance as a travel inhibiting factor still remains strong over the years. As for the presence of direct flights, intensive (number of cities) as well as extensive (number of countries) connections should also be considered. The number of foreign countries connected with Korea for direct flights in 2012 is 50 and among them Asian countries are 15 (30%). In terms of the number of foreign cities directly connected with Korea in the same year, 80 cities (52%) among the total 153 cities are located in Asia. The above mentioned figures suggest that geographical and cultural proximity can render more flight connections among closely located countries than farther located countries, intensifying trips to neighboring countries.

#### 4.4. Data Selection Issues

Latest studies on international trade take zero trade data seriously because without treating this matter appropriately there might be a sample selection bias. With the consideration of firm heterogeneity, Helpman et al. (2008) developed a model of international trade that yields a gravity equation with a Heckman correction (Heckman 1979).

This section experiments the same application of Heckman sample selection model

for Korean outbound tourism. To apply the Heckman model, we need to consider an outcome equation and a selection equation. The outcome equation takes the form of the standard gravity model, but it only applies to those observations within the estimation sample:

$$\ln X_{od} = \beta_0 + \beta_1 \ln Y_o + \beta_2 \ln Y_d + (1 - \sigma) (\beta_3 \ln t_{od} + \beta_4 \ln \Pi_o + \beta_5 \ln P_d) + \varepsilon_{od} \text{ if } p_{od} > 0$$

$$\ln X_{od} = \text{missing if } p_{od} \leq 0$$

The variable  $p_{od}$  is a latent variable that can be interpreted as the probability that a particular data level is included in the estimation sample. The selection equation relates the latent variable to a set of observed explanatory variables. Helpman et al. (2008) included the regulation variable in the selection equation assuming that it affects the probability of trade engagement between two countries.

Using the intentional homicide variable derived from World Development Indicators and openness (trade volume over GDP) of the destination countries as additional variables, the selection equation takes the following form, where  $p_{od}$  is a latent probability of selection and  $d_{od}$  is an observed dummy variable equal to unity for those observations that are in the sample, and zero for those that are not.

$$p_{od} = \beta_0 + \beta_1 \ln Y_o + \beta_2 \ln Y_d + (1 - \sigma) (\beta_3 \ln t_{od} + \beta_4 \ln \Pi_o + \beta_5 \ln P_d) + \beta_6 \text{homicide}_d + \beta_7 \text{open}_d + \varepsilon_{od}$$

$$d_{od} = 1 \text{ if } p_{od} > 0$$

$$d_{od} = 0 \text{ if } p_{od} \leq 0$$

Table 5 compares the results from OLS and Heckman two-step estimation. The results from the Heckman outcome equation are strikingly similar to the results from OLS; except for GDP of destination countries all the variables show the right signs and statistical significance. However, the overall results should be considered with skepticism because all the variables from the selection equation do not show statistical significance.

A possible explanation for this poor result is that the data on tourism is not appropriate for Heckman estimation. When the tourism authorities of destination countries collect and announce the arrival information of the tourists, they normally do so for only countries with a considerable number of tourists. Therefore, the data condition of international trade and tourism is different.

Table4. Dependent variable: log tourist

| Variable                  | OLS                    | Heckman                |                       |
|---------------------------|------------------------|------------------------|-----------------------|
|                           |                        | Outcome                | Selection             |
| Ln GDP <sub>ot</sub>      | 1.1611***<br>(0.4464)  | 1.1529***<br>(0.2450)  | 63.1737<br>(294.2630) |
| Ln GDP <sub>dt</sub>      | 0.0377<br>(0.2586)     | 0.03912<br>(0.1332)    | -2.7364<br>(4.4497)   |
| Ln Distance <sub>od</sub> | -1.2056*<br>(0.7060)   | -1.2002***<br>(0.4683) | -8.7793<br>(483.8857) |
| Ln Export <sub>odt</sub>  | 0.3244***<br>(0.1061)  | 0.3243***<br>(0.0554)  | 0.9432<br>(0.9443)    |
| Price <sub>odt</sub>      | -0.0011***<br>(0.0002) | -0.0011***<br>(0.0002) | 0.0127<br>(0.0078)    |
| Airline <sub>odt</sub>    | 0.1607**<br>(0.0776)   | 0.1609*<br>(0.0881)    | -2.9505<br>(531.5245) |
| Homicide <sub>dt</sub>    |                        |                        | 0.06041<br>(0.1429)   |
| Open <sub>dt</sub>        |                        |                        | -4.5453<br>(3.4372)   |
| Constants                 | 2.9021<br>(5.4693)     | 2.9553<br>(3.4027)     | -752.1639             |
| Destination fixed effects | Yes                    | Yes                    |                       |
| Year fixed effects        | Yes                    | Yes                    |                       |
| Observations              | 380                    | 458                    |                       |
| Adjusted R <sup>2</sup>   | 0.9872                 |                        |                       |
| Mills lamda               |                        | -0.1710<br>(0.3915)    |                       |
| Rho                       |                        | -0.5710                |                       |
| Sigma                     |                        | 0.2995                 |                       |

\*, \*\*, \*\*\* denote statistical significance at the 90, 95, and 99 percent levels, respectively.

## 5. Conclusions

The paper uses the gravity model to analyze the determinants of Korean outbound tourism applying dataset from 53 destination countries during 2004-2012 periods. The gravity model explains tourism flows as effectively as it explains trade flows. The methodology employed included OLS, Fixed effects, Arellano-Bond system GMM, and Heckman two-step estimator.

The results show that whereas the GDP of the origin country (Korea) is important for tourism flows, the GDPs of the destination countries do not have statistical importance. Korean tourists are sensitive to the price differences between Korea and destination countries and the presence of direct flights contributes to overseas tourism. Distance is still a deterring factor for tourism just as in the case of trade.

When destination countries are divided into two groups, OECD and others, Korean tourists are less price-sensitive to trips to OECD countries than to other countries. Also, Korean export to destination countries, the proxy variable for the business trip, does not show statistical significance at all for OECD countries whereas it shows strong importance for other countries. The above observations imply that, in general, Koreans travelling to richer countries are those more for pleasure trips and are ready to take high travel costs than those travelling to less developed countries. On the other hand, those who travel to less developed countries are more price-sensitive and have higher proportion of business travel than those traveling to rich countries.

The effect of distance on Korean outbound tourism is compared for two period years; single year comparison between 2004 and 2012 and multi-year comparison between 2004-2006 and 2010-2012. The results show that the importance of distance factor in Korean overseas tourism has never disappeared but increased over the years. The result implies that Korean tourists travel to more geographically and culturally close destination countries such as China, Japan, South East Asian countries than other remote part of the world.

Lastly, the issue of data selection was dealt at the last subsection. Just as in the case of international trade, the study on international tourism may suffer biased estimation results due to the zero tourist information. Since destination countries collect and report only tourist arrival information of the considerable number of tourists, defining the dataset whether the empty part is zero or not is a hard job.

Future research could expand the case study by comparing tourism demand among several countries. Also, further research could broaden the analysis to cover additional factors affecting international tourism such as tourism infrastructure, visa requirements, and cultural attractions.

#### Appendix: List of countries used in the analysis

|             |                |               |
|-------------|----------------|---------------|
| Japan       | India          | Slovakia      |
| China       | Laos           | Austria       |
| Hong Kong   | Bhutan         | Finland       |
| Thailand    | Jordan         | Canada        |
| Turkey      | Yemen          | United States |
| Macao       | Seychelles     | Jamaica       |
| Vietnam     | Mauritius      | Guatemala     |
| Nepal       | Swaziland      | Chile         |
| Sri Lanka   | South Africa   | Costa Rica    |
| Cyprus      | Uganda         | Brazil        |
| Israel      | Sierra Leone   | Ecuador       |
| Maldives    | Germany        | Panama        |
| Malaysia    | United Kingdom | Peru          |
| Philippines | Russia         | Mexico        |
| Indonesia   | Macedonia      | New Zealand   |
| Cambodia    | Sweden         | Australia     |
| Mongolia    | Slovenia       | Fiji          |
| Singapore   | Georgia        |               |



## V. SUMMARY, CONCLUSIONS, AND POLICY IMPLICATIONS

### 1. Conclusions of the Study

Cultural products such as TV series, movies, animation, and music have had immense influences on people's preferences and tastes. At the age of social network service (SNS) and smartphones, the access to cultural goods becomes easier and, consequently, their influences on the various forms of life are getting stronger. Whereas previously TV dramas could be watched only through TVs, these days they can easily be watched from IP TVs, computer monitors, or mobile devices connected to websites that provide instant streaming services. This thesis adopted a gravity theoretical framework to capture the dynamic interactions of economic development and cultural influences derived from international trade. The key findings are summarized as follows;

The sudden rise of the Korean wave resulted mainly from dynamic interactions between cultural proximity and product sophistication. According to the model, geographically closely located countries tend to share common cultural heritages and characteristics and so they have relatively low mental barriers to each other's cultural products. Another factor influencing the trade in cultural goods is the product sophistication or attractiveness. Since it is extremely difficult to measure such product qualities using quantitative data, this paper instead used the economic size as a proxy variable. The logic behind the proxy selection is that as the economy of a country gets bigger and the society becomes affluent, the domestic consumers' product demand also grows into higher standard. To meet such high standard of consumer expectations the products should also become more attractive and competitive. The first paper suggested that since Korea is regionally closely located to such countries as China, Japan, Hong Kong, Taiwan, and South East Asian countries, it is relatively easier for Korean cultural products to cross those borders than to cross the borders of remotely located countries once its products become highly sophisticated and competitive.

The second paper studied the trade diffusion effect of the Korean wave in the cosmetics industry. The distinct features of the study are two folds. First, the paper

utilizes the Google Trends query index with a key word “Korean drama” to measure the degree of each country’s exposure to or interest in the Korean cultural goods. One advantage of this approach is that it overcomes the data constraint of Korean cultural export to only a few countries and expands the scope to any country where the Google Trends data are available. Second, the paper investigates the possible effects of the Korean wave on cosmetics export that could vary according to the different trade groups by dividing import countries into two groups; 74 countries worldwide and ASEAN member countries. The results suggested that the Korean wave leads to cosmetics export to culturally close ASEAN countries but show weak relation with cosmetics export to worldwide.

The third paper examines the determinants of Korean tourists going abroad. The paper analyzes the panel data of Korean outbound tourists from Korea Tourism Organization that include 53 destination countries from 2004 to 2012. The main findings suggest as follows; first, Korean tourists are less price-sensitive to trips to OECD countries than to other countries; second, the importance of the distance factor in Korean overseas tourism has never disappeared but increased continuously. The second finding is especially meaningful from the perspective of the cultural trade. Distance as a proxy factor for cultural connection can also be applied to Tourism and the study result suggests that Korean tourists visit culturally close neighboring countries more often than farther located countries.

## **2. Limitations of the Study and Future Agendas**

The most distinct features of this dissertation are the authentic and creative study topics and data selections. However, there still are some areas to be improved and expanded as follows.

Firstly, the study focused only on Korean export of cultural goods and on Korean outbound tourism. Future studies can examine cases of other countries.

Secondly, to overcome the data constraint and expand the study areas, future studies can adopt the innovative data mining methods such as ‘Big data’ as well as interviews from related sample populations.

Thirdly, whereas the second paper dealt only with cosmetics industry, the future studies can expand to other industries such as food, clothes, accessories, and kitchenware. Also, the future studies can compare the trade diffusion effects of cultural trade in partially substituted products with other products.

### **3. Policy Implications**

Based on the analyses of the thesis so far, several policies can be suggested with regard to the following relevant parties; the Korean government, Korean industries, and foreign governments.

#### **3.1 The Korean government**

After the rise of the Korean wave, the government realized the potential economic benefits the phenomenon can bring in and started to actively seek ways to take advantage of it. However, the government's role should rather be focused on providing and nurturing the environment in which creative ideas and arts can flourish. On the one hand, the government should cultivate the free market conditions where high quality cultural products can be continuously made out of fair competitions. On the other hand, the government should also provide assistance to some experimental projects with high potential where private agencies are reluctant to participate in due to high risks or uncertainties involved.

The government should also recognize the pitfalls of the cultural imperialism and the negative responses from the neighboring countries such as China and Japan. For example, the huge success of the TV drama 'Jewel in the Palace' in 2015 so alarmed the Chinese government that thereafter the Chinese major TV channels practically stopped broadcasting Korean dramas. To alleviate the fear of Korean cultural domination in the neighboring countries, the government can facilitate such mutual cooperation as co-production of cultural goods. In fact, private sectors already have initiated in this direction. For example, a successful girl singing group, Miss A, and a famous boy singing group, EXO, were created with Chinese singers as some of their members. Also, a popular boy singing group, 2MP, has a Thai-American singer, Nichkhun Buck Horvejkul, as one of the members. The productions of TV dramas and

movies also have witnessed the increasing number of co-productions with and investment from other Asian countries.

Since tourists frequently visit geographically and culturally close countries, the government should find out and develop the differentiating strengths which have comparative advantages against neighboring competing countries. For example, after the disposable income of Chinese people grew rapidly, the number of Chinese tourists visiting neighboring countries also grew exponentially but not evenly. To make sure the sustainable flow of such a large number of incoming tourists, the central as well as local governments can promote culturally and historically interconnected tour sites with a specific theme. Korea has already been benefited by a large number of Asian tourists visiting the locations of such famous TV dramas as ‘Winter Sonata’, ‘The 1<sup>st</sup> Shop of Coffee Prince’, ‘Secret Garden’ and ‘My Love from the Star’.

### **3.2 Korean industries**

Korean cultural industries have evolved so far through shrewd governmental assistance and high level of domestic competition. To take advantage of the Korean wave and further development of the cultural industry, the followings are suggested.

Firstly, the industry as a whole should reflect on what the success factors of its products abroad are and strive to improve the quality of their products instead of replicating the same line of product concept and storylines. The rise and fall of the Hong Kong movie industry should be a good lesson. The Guardian (2011) describes that the Hong Kong film industry produced 238 films in 1993 but six years later, the production crashed to just 40 films a year. One of the reasons why the Hong Kong film industry declined so abruptly is that as more investment came in for the movies, the quantity of productions went up and the quality went down. The themes of the movies and the characters began to repeat themselves and the audience eventually lost confidence in the Hong Kong films.

Secondly, as new media for delivering dramas, movies, and animations are developed, the industry should find new ways to cooperate with various distribution channels.

For example, since China regulates the import of foreign dramas and restrict them from broadcasting in the prime time TV channels, most of the Korean dramas are sold to and viewed from the Chinese Internet sites.

Thirdly, as for the Korean cosmetics industry and other consumer goods industries, the rise of the Korean wave provides a golden opportunity for them to venture into the global market. They need to develop strategies to take advantage of the enhanced Korean brand image. Of course their product quality should also meet the expected high standard from the foreign consumers. The combination of the Korean brand image with the quality products will cement foreign consumers' confidence in products 'made in Korea'.

### **3.3 Foreign governments and industries**

The Korean wave in Asia is a phenomenon resulting from the cultural ties among Asian countries and competitive product qualities. The foreign countries can also learn the lessons and implement them for developing their domestic cultural industries which can also be competitive abroad. To achieve such an objective, the following policies are suggested.

Firstly, just like the previous suggestion for the Korean government, governmental intervention in the industries should be limited. The market knows, by trials and errors, the best combinations of local context and universal themes that can appeal to the international audiences. Too much governmental censorship and regulations stifle the artistic and creative spirits that are essential parts of the cultural industry.

Secondly, to learn the know-how of the advanced production skills and techniques, the cooperation in the form of productions with and investment in foreign cultural industries is suggested.

Thirdly, too much nationalistic approach should be restricted. On the one hand, blindly rejecting the foreign cultural influences renders the society and its people

stagnant. On the other hand, producing cultural contents boasting the extreme national pride at the cost of that of neighboring countries can only bring in backfire and resentment.

Lastly, the success case of Korean strategy of tourism promotion utilizing the Korean wave can be benchmarked. Once cultural contents in the form of either TV dramas or films are exported and appreciated abroad, the tourism authorities can develop tour sites based on the cultural contents to attract incoming tourists.



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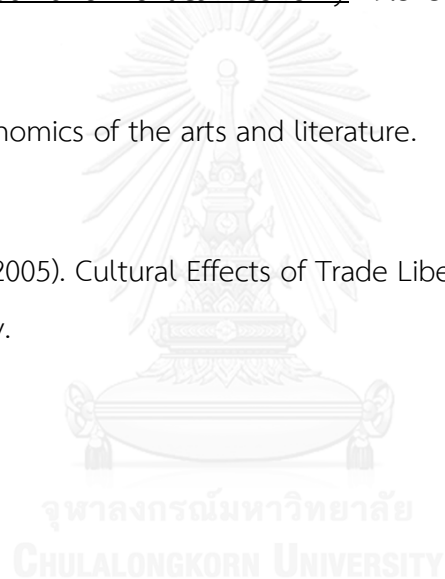
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APPENDIX

จุฬาลงกรณ์มหาวิทยาลัย  
CHULALONGKORN UNIVERSITY

## VITA

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