

East Asian Trade Flows of Cultural Goods: A Gravity Model Approach

Shasha Yu, Eui Burm Park

Abstract

With the market evaluation of economic globalization exchanges between different cultures, cultural trade has been developing at an accelerated speed, and also playing an important role in East Asian intra-regional trade. In this research the author used gravity trade model to explain the causal relationship between dependent variable trade flows and several independent variables applying with five categories cultural goods which classified in HS codes. Firstly for cultural heritage trade flow, the results indicated that economic masses of bilateral countries have no significant influences on it; GDP per capita of host country and adjacency factor with partner country have significant negative influences on it; Internet coverage ratio has improved cultural heritages exchanges in East Asian regions. Secondly for printed matter cultural goods trade flow, the distance factor has significant negative influence but common language has significant positive influence on it. Thirdly for recorded media cultural goods, only economic masses and GDP per capita of bilateral countries can improved their trade flows. Fourthly for visual arts cultural products trade flows, almost all variables we tested have significant influences on it. Fifthly for cinema photography cultural goods trade flow, the influenced factor are same with cultural heritage products except they have strong positive interaction relationship with economic masses and common language. At last, the paper figured out some important and potential sectors for cultural goods trade in East Asia and gave some suggestions to government and cultural goods product enterprises.

Keywords : Cultural Goods, Gravity Model

Shasha Yu | Doctoral Candidate, Department of International Trade and Business, Graduate School, Kangwon National University(yushasha721@hotmail.com), Main Author.

Eui Burm Park | Professor, Department of International Trade and Business, Kangwon National University(euibpark@kangwon.ac.kr), Correspondent Author.

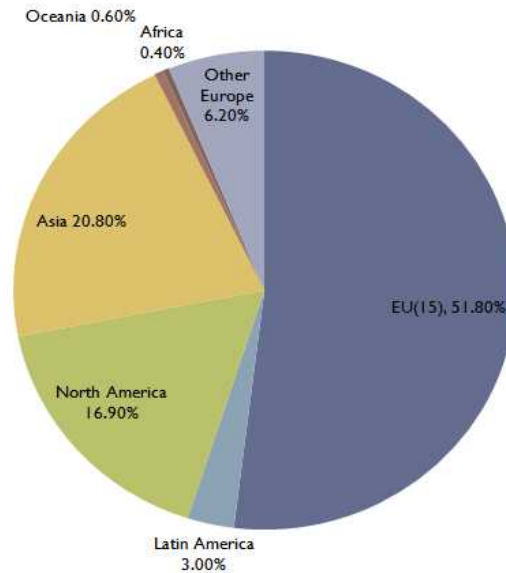
I. Introduction

There were many studies that shed light on the reasons that world trades expand from the developed countries to developing countries. Also following by the information' communications and goods' exchanges with different counties, people's identification about foreign culture have changed. In China, foreign products occupy a huge market share rather than domestic products. It depends on the foreign direct investment economic cooperation programs improved by foreign culture exchange and foreign technology which into integration with domestic products.

This paper focus on East Asian intra-regions' cultural goods trade flows characters. There are several reasons: Firstly, East Asia is the representative region of Eastern culture, it including Japan, Republic of Korea, People Republic of China and so on. Both socialist states and capitalist state exist in this place, and all the members have powerful political and economic positions in world. Secondly, these countries almost have same cultural original resources. Long times ago, these regions' people almost spoke in similar language, and they enjoyed same social morality, such as Confucianism. Thirdly, compared to other continent countries, Asia countries

are very close to each other in geographical condition, they do not need higher transportation costs for trading, and similar longitude geography give them similar natural climates. Lastly, most researches about cultural goods are only focused on European and North America regions trade inflows, fewer people took interests on East Asia regions's cultural goods trade. Actually, East Asia also occupied a large world trade share of cultural goods in recent years(<Figure 1>).

In pace with manufactural industries developing, cultural services and goods exchanges in Asia became very popular. Culture has many definitions, it affects everything that people do in their society because of the differences among their ideas, values, attitudes, and normative or expected patterns of behavior. Culture is not genetically inherited, it cannot exist on its own, but it always shared by members of one society. Culture effect the way people perceive and behave in any setting. When walking about the international environment, culture is usually observed at a national level.



<Figure 1> Exports Share of Cultural Goods in World

In recently society, cultural expenditures have grown extremely rapidly. A major explanation of this growth phenomenon is that the emergence of information society developed so fast, combined with the developing of leisure and cultural tourism industries. People's consumption opinion was changed from old generation to new generation. In the first traditional stage main economic and industrial structure almost were concentrated on clothing and foods industries. In second stage consumptive style has transferred to self-sustainable consumption and livelihood consuming. Right now, consumptive style has been transferred to tourism consumption and commodities culture consumption pro-

cedures. Today, household expenditures on recreation and cultural enjoyment included audio-visual, photographic and computer equipment, CDs and DVDs, musical instruments, camper vans, sports equipment, toys, domestic pets and related products, gardening tools and plants, newspapers, tickets to sporting matches, cinemas and theatres, and spending on gambling (including lottery-tickets) purchase behaviors, these kinds of money spend was account around 5% for each family. The growth in consumption was associated with an equally impressive to raise the cultural goods' trade. During 1980 and 1998, annual world trade of cultural goods increased by 300% going from 95 340

to 387 927 millions US dollars. Until 1996, the cultural products became the largest export industry in the United States it has already surpassed traditional industries for the first time.

Cultural productions are defined as arts, entertainment, and recreation, as well as components of education, the information sector, wholesaling and retailing, manufacturing, for example, musical instruments and accommodation. In addition, the Cultural productions are defined for the purpose of this paper as a broad collection of economic activities associated with the consumption of culture. According to the statistics(2007) which released by the UNCTAD(United Nations Conference on Trade and Development), the global production value of Cultural production has been 130 thousands billion, and increased by 7% each year. The research by OECD(Organization for Economic Co-operation and Development) also released that the cultural and created industries play an important status in each membership countries in OECD, and the average increasing rate is 5%–20%. The World Bank forecasted that the world related cultural production's value will has about 7% appropriation in world GDP. The sharp increasing and developing of world cultural goods products and exchanges accelerated the international cultural

goods and services trade, the technology and digital computer promote the speed and scale of whole cultural trade. As a part of the international trade, the cultural trades not only bring lots of profits, but also impress the country's impression in world.

According to these information above we can learn that cultural goods have already occupied an important share in all trade activities. The culture relative goods and services communications spread out the whole world. Especially in East Asia, the cultural trade was developed faster than before.

The main research objectives of this paper are tried to explore which factors have significant influences on the whole structure of East Asia cultural goods market. It asks to what extent are country-specific policies and customers' purchase intentions directly related to cultural goods trade flows after controlling for market size, income per person, and other factors that affect transaction costs such as distance, and colonial or linguistic ties between countries.

To do so, in this paper the author used gravity model approach to estimate the trade flows in East Asia region. Firstly using sets of indicators that specifically to measure: economic mass, human development index, GDP per capita, distance, internet coverage

rates. These indicators obviated the need to rely on proxy determinants of cultural goods trade pattern. This involved an econometrics that methodology that corrects in standard gravity model. and then based on the empirical analysis results, some suggestions will present to cultural products enterprises also some support political measures will present to government. As we know that in future, cultural trades developing tendency will accelerate quickly than other manufacture industries, both products and consuming demands will increase sharply, so this is a challenge to both national enterprises and government to expand their economic scale and ability.

II. Literature Review

1. Cultural Goods

Different country has different definition range on cultural goods. In United States, they has no mentioned about 'Cultural Goods' but instead by 'Copyright Goods', that is why most cultural goods have intellectual property rights protected. In Japan, government defined all industries that related with culture are included to cultural industry. Such as traditional show, exhibition,

news media, leisure and entertainment, radio, film, television, sports, tourism, all they called as 'Content Industry', Japanese people emphasized much more on the character of cultural industry itself.

United Nations Educational, Scientific, and Cultural Organization(UNESCO) defined the cultural production as a collection activity in according with industrial standard produce, reproduce, storage, and allocation. UNESCO has reported that the main cultural productions and services are divided into two levels as the core level and the relative level. In core level it including two categories: first one is core cultural goods and second one is core cultural services. The concrete concepts of these goods are listing as following <Table 1> shown.

In this paper's analysis procedure, cultural goods were classified applying with HS code. (Harmonized Commodity Description and Coding System)¹⁾ We chose Cultural Heritage, Printed Matter(including Books, Newspapers, Periodicals, and other printed matter), Music and

1) Harmonized Commodity Description and Coding System of tariff nomenclature is an internationally standard system of names and numbers for classifying traded products developed and maintained by the World Customs Organization(WCO), one independent intergovernmental organization with over 170 member countries based in Brussels, Belgium.

Performing arts, Visual arts and Cinema 2>).
 Photography these five items cultural
 goods as the research objects (<Table

<Table 1> Cultural Goods and Services

Core Cultural Goods	Core Cultural Service	Related Cultural goods
1) Cultural heritage; Antique	Tax on books; License fee	Equipment/support material
2) Books	Electrommunicaitons; Information services	Musical instruments
Newspapers, Periodicals	Individual leisure Services	Sound player Recorder; Recorded sound media
Other printed matter		Cinema tog, photographic Supplies
3) Audio-visual products Such as Disc, Magnetic tape, Others		Television
4) Visual-artistic products. Such as Painting, Other (Sculpture, statues)		Radio receivers
5) Audio-visual media, Such as Visual games, Photograph, films		

Notes: UNESCO classification

<Table 2> List Codes of Cultural Goods in Harmonized System(HS)

FCS category	HS96	HS 96 label
1.Cultural heritage		
Collections	9705	Collections and collectors pieces
Antiques	9706	Antiques of an age exceeding 100 years
2.Printed matter	49	Printed books, newspaper, pictures and other products, etc
Books	4901	Printed reading books, brochures, leaflets, etc
	4903	Children's picture, drawing or coloring books
Newspapers and periodicals	4902	Newspapers, journal and periodicals, whether or not illustrated or containing advertising material
Other printed matter	4904	Music, printed or in manuscript, whether or not bound or illustrated
	4905	Maps and hydrographic or similar charts, including atlases, wall maps
	4909	Postcards, printed or illustrated; printed greeting cards
	4910	Calendars of any kind, printed, including calendar blocks
	491191	Pictures, designs and photographs
	9704	Used postage/ revenue stamps and the like/ unused not of current/ new issue
3.Music and the Performing arts		
Recorded media	852410	Gramophone records
	852432	Discs for laser reading systems for reproducing sound only
	852451	Magnetic tape recorded (excl. 852440) of a width not > 4mm
	852452	Magnetic tape recorded (excl. 852440) of a width not 4mm<x<6.5mm
	852453	Magnetic tape recorded (excl. 852440) of a width > 6.5mm
	852499	Other recorded media for sound
4.Visual arts		
Paintings	9701	Paintings, drawings, pastels, collages, etc (hand-made)
Other Visual arts	9702	Original engravings, prints and lithographs
	9703	Original sculptures and statuary, in any material
	392640	Statuettes and other ornamental articles
	442010	Statuettes and other ornaments, of wood
	6913	Statuettes and other ornamental ceramic articles
	830621	Statuettes and other ornaments, of base metal plated with precious metal
	830629	Other statuettes and other ornaments, of base metal
	9601	Worked ivory, bone, tortoiseshell, horn, antlers, coral, mother-of- pearl and other animal carving material, and articles of these materials (including articles obtained by moulding)
5.Cinema and Photography		
Photography	370590	Photographic plates and film, exposed and developed, other than cinematographic film, other than for offset reproduction and microfilms
Cinema	3706	Cinematograph film, exposed and developed without incorporated sound track
New media	950410	Videogames used with a television receiver

Some authors agreed that the classical trade theories (such as David Ricardo's comparative advantage theory) also can be used to explain cultural goods trade conditions. The leading of Neo-Walrasian theorist Mas-Colell(1999) indicated the advantages of nations decided their position in trade, for example, Norway has a comparative advantage in making frozen ice, Spanish has a comparative advantage in canvas, England has advantage in Shakespeare dramas.....if we use the David Ricardo model to explain this, instead of cloth by disc, in this way the wine and disc trade will give both nations gains. To avoid the absolute conclusion, Mas-Colell indicated that the trade must depend on the character of the cultural productions, such as the art performing, hence it is impossible to achieve the absolute or complete specialization.

Schulze(1999) divided the cultural productions into three categories: replica productions, non-replica productions and live performing. For the replicate productions, the classical trade theory is accountable, but for the non replica productions and living performing products, the traditional trade theory is inapplicability. Based on the above views, Schulze(1999) also expounded the internal economies of scale excised in the cultural productions. He used the movie industry as an example, since

the fixed cost of this industry was much higher than the replicate cost in later producing procedure. So that the large-size company will put into the high program cost firstly, the lower replicate cost can dispersed the fixed costs in later producing procedure, and then they can get the absolute advantage compared with that small-sized companies so that force the latter companies quit the market.

There are also some other researchers would like use new theories to explain cultural goods trade pattern. The American economist Throsby(1999) said that cultural value was different from, although related to economic values. And he considered that the new trade theory 'Similar Preference of Demand' stands out an important effect in the production and marketing of the cultural production. The consumer view of the culture can be equitable to the gains for future knowledges and experiences. In other words, the possibility of export nation decided the demand of import nation, the more similar demand structure, the larger trade happened between the two nations.

2. Gravity Trade Model

Gravity model has been successful applied to flows of varying types such as migration, foreign direct investment,

and more specifically to international flows. Firstly the gravity model estimates the pattern of international trade. While the model's basic form consists of factors that have more to do with geography and spatiality, the gravity model has been used to test hypotheses rooted in purer economic theories of trade as well.

Anderson(1979) made the first formal attempt to derive the gravity equation from a model that assumed product differentiation. Bergstrand(1985, 1989) also explored the theoretical determination of bilateral trade in a series of papers, in which gravity equations were associated with simple monopolistic competition models.

Helpman(1987) used a differentiated product framework with increasing returns to scale to justify the gravity model. Deardorff(1995) has proven that the gravity equation characterizes many models and can be justified from standard trade theories. He also argued that the relative distance of trading partners should also have an impact on the volume of trade.

Frankel(1997) showed that regionalization could be explained by geographical proximity and preferential trade agreements, when holding constant for the size of the trading partners and other variables that stimulate or impede bilateral trade. He also identified

shipping cost, time elapsed in transporting and cultural unfamiliarity. Frankel also added dummy variables of common language and same border.

Filippini(2003) used a gravity equation model to analyze trade flows between East Asian industrializing countries (including P.R China) and some developed countries in order to show the surprising trade performance of East Asian countries. He found high propensity of Asian countries to exchange high-tech manufactured products with Japan and USA. In addition, China played a very important role as an exporter and as importer too in recent years.

Geda(2002) tested the determinants of trade using COMESA as a case study. He found that good macroeconomic policies(such as financial deepening and infrastructure development) are important determinants of bilateral trade in Africa. But regional integration arrangements failed to positively affect intra-regional trade.

Rahman(2004) applied a generalized gravity model to analyze Bangladesh trade flows with its trading partners using the panel data estimation techniques. The results showed that Bangladesh's trade is positively determined by the size of the economies, per capita GDP differential of the countries involved and openness of the trading countries. Also the major determinants of

Bangladesh's exports were found to be exchange rate, partner countries total import demand, and the openness of its economy. Transportation cost was found considered as a negative influence factor.

<Table 3> Variables in Cultural Goods Related Trade Flows

Researchers	Variables
Anne-lesia; Silvio H.T Tai	Distance;Adjacency;Common Language; Colonial Links; Religion;
Marvasti; Canterbury	Language; Education; Religion; Trade Policy;
Francois; Van Ypersele	Trade Barriers; Fixed Costs; Heterogeneity in Consumer's tastes
Boisso; Ferrantino; Melitz	GDP; Distance; Linguistic;
Rose; Eichengreen; Irwin	GDP; Distance; Part Colonial Links
Wagner; Guiso	GDP; Distance; Immigration-Trade Link
Achay L.	GDP; Distance; Regional Integration Agreement
Filippini C	GDP; Distance; Exchange Rate Volatility; Regional Integration Agreement; Infrastructure
Martinez-Zarzoso	GDP; Distance; Infrastructure; Income Differences; Exchange Rates

The above <Table 3> shows that the related variables in cultural goods re- searches. The left column is listing about the literature researchers' name, right column is the variables that related with cultural goods trade. We can learn except the basic economic masses and spatial factors, the most often using variables are common language

and adjacency, then education background of national people also has been considered, income differences between countries also were verified that they have effected the cultural goods' trade flows.

III. Empirical Model

1. Empirical Model

For bilateral trade empirical analysis research, most researchers would like use gravity model to testing international trade pattern, for particular trade pattern conditions added some new variables can increase the explanatory of gravity model.

Since Tinbergen(1962) and Poyhonen (1963) had improved trade gravity model using, it has been well know that the simple gravity equation, in which the volume of trade between two countries is proportional to the product of their masses and inversely related to the distance between them, is empirically highly successful. Recently, with renewed interest among economists in geography, it has again become widely used in the literatures. Indeed, many researchers have shown that the gravity equation can be derived from many different models of international trade (Helpman and Krugman 1985; Bergstrand 1989; Deardorff 1988; Eaton and Kortum 2002; Evenett and Keller 2002). Thus, it possesses "more theoretical foundation than any other trade model"(Baldwin 2006).

The standard gravity equation can take the following form:

$$\ln EX_{ijt} / IM_{ijt} = \alpha + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 \ln DIST_{ij} + \varepsilon_{ijt}$$

Where $\ln EX_{ijt} / IM_{ijt}$ = log of export/ import flows from country i to country j at time t

$\ln GDP_{it}$ = log of GDP of country i at time t

$\ln GDP_{jt}$ = log of GDP of country j at time t

$\ln DIST_{ij}$ = log of geographical distance between country i and country j

ε_{ijt} = random disturbance term.

In this paper based on Gravity Model we added some new variables to improve the cultural goods' trade model explanatory. In first Model the new determinant is Human development index (HDI), HDI means a composite statistic used to rank countries by level of 'human development' and separate developed, developing, and underdeveloped countries. The statistic was composed of data on life expectancy, education and GDP per-capita (as an indicator of standard living) collected at the national level using the formula given in the methodology section. Because HDI is including some other factors that we did not know, so in order to avoid multi-collinearity with other determinants, we used Model 2 to ex-

plain the other determinants' interaction relationships with cultural goods trade inflows.

1) Model 1:

$$\begin{aligned} \ln EX_{ijt} = & \alpha + \beta_1 \ln GDP_{it} + \\ & \beta_2 \ln GDP_{jt} + \beta_3 \ln DIST_{ij} + \\ & \beta_4 HDI_i + \varepsilon_{ijt} \end{aligned}$$

Where HDI= Human Development Index of Country i.

In second Model, the new adding determinants are common language, same border, GDP per capita of both home and host countries, and the number of internet users in home countries, which also means the internet coverage ratio of home country. so the new equation was as following formula shown:

2) Model 2:

$$\begin{aligned} \ln EX_{ijt} = & \alpha + \beta_1 \ln GDP_{it} + \\ & \beta_2 \ln GDP_{jt} + \beta_3 \ln DIST_{ij} + \\ & \beta_4 \ln PGDP_{it} + \beta_5 \ln PGDP_{jt} + \\ & \beta_6 COMLANG_{ij} + \beta_7 CONTIG_{ij} + \\ & \beta_8 (InternetUsers)_{it} + \varepsilon_{ijt} \end{aligned}$$

where $\ln PGDP_i = \log$ of GDP per capita in country i at time t.

$\ln PGDP_j = \log$ of GDP per capita in country j at time t.

$COMLANG_{ij}$ = common language, if the value is 1 means economy i and economy j share same language, otherwise the value is 0.

$CONTIG_{ij}$ = same border, if the value is 1 means economy i and economy j share same border, otherwise the value is 0.

Internet Users = the number of internet users in country i.

Common Language was a dummy variable. Much more efficient bilateral information channels and easier communication methods between countries if they use same language. Especially for cultural industry, translation tool is very important for consumers' understanding on goods. So we assumed that same language can improved cultural goods trade developing fast.

Adjacency also contributed to better bilateral information and it was a dummy variable, too. The same border effect gives a measure of international cultural market fragmentation, which could mostly consist on the one hand and on protectionist trade policies of differences in consumers' preferences on the other hand.

GDP per capita means an approximation of the value of goods produced

per person in one country, equal to the country's GDP divided by the total number of people in the country. It also can be equal to number of varieties and prices in country. GDP per capita always be used to measure peoples' living standard. In this paper, we considered both export country and import country's people's consume level have significant positive influences on cultural goods trade flows.

Population of internet users, the global system of interconnected computer networks that use the standard internet protocol suite to serve billions of users worldwide, it carries a vast array of information resources and services, really affect the new generations' life style, most traditional communications media. So, following with the information share, it stimulated people to enjoy importing much more foreign cultural goods.

IV. Analysis Results

STATA 10.0 is used to analyze all trade models. All data time period was from 2004 to 2008, the sub time period of 5 years. The analysis countries were People Republic of China, Hong Kong China, Macao China, Republic of Korea and Japan. Because the data resources

of North Korea, and Taiwan China were hard to find in public resources, also Mongolia has small amount of cultural goods trade, no more than 1000 US dollar in recent years. So I omitted the trade amounts in these regions. Since the data were bilateral trade data resources, so all empirical analysis were based on panel data.

To control for the representative of all products sample, we firstly estimate each category cultural good trade values as the dependent variable with model equation, and then analysis whole cultural goods trade value as the dependent variable. So the following <Table 4> is the analysis results of Cultural Heritage cultural goods with OLS analysis, Random GLS analysis, and Robust analysis. In model 1, the R square values indicated that these four indices have no enough explanatory force to effect intra-regional cultural goods trade in East Asia.

The most special character of cultural heritage goods is that both home country and host countries' GDP have no significant influence on their trade flows. Because the Cultural Heritage goods including tangible culture, such as buildings, works for art, and artifacts, they are often unique and irreplaceable so that the governments always try hard to protect them not to be exchange. In Model 2, distance revealed that it has

significant positive influence on trade flows, that means people would like to buy cultural heritage goods from further countries. GDP per capita of home country has significant results in OLS analysis but not steady in other two analysis procedures. GDP per capita of

host country has five percents level of significant negative influence on trade flows and it is steady in other two analysis procedures.

<Table 4> Cultural Heritage Analysis Results

	OLS		RM GLS		Robust	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Ln GDPi	-0.38* (-1.74)	-0.13 (-0.50)	0.08 (0.21)	0.19 (0.48)	-0.38 (-1.68)	-0.13 (-0.48)
Ln GDPj	0.40* (1.86)	0.21 (0.87)	0.75* (2.27)	0.20 (0.52)	0.4 (1.24)	0.21 (0.93)
Ln DIST	0.22 (0.60)	2.31** (2.40)	-0.44 (-0.69)	2.66* (1.66)	0.22 (0.49)	2.31** (2.32)
HDIi	-1.63 (-0.37)		5.08 (0.56)		-1.63 (-0.40)	
LnPGDPi		0.54* (1.98)		0.56 (1.14)		0.54 (1.66)
LnPGDPj		-1.44** (-2.29)		-2.04** (-2.04)		-1.44** (-2.45)
COMLij		8.31* (1.91)		10.78 (1.60)		8.31* (1.90)
CONTij		-9.44** (-2.22)		-11.74* (-1.72)		-9.44** (-2.10)
Internet Users		0.01** (2.09)		0.01** (2.14)		0.01** (2.20)
Constant	11.91** (2.29)	-0.02 (-0.02)	5.08 (0.56)	-3.30 (-0.21)	11.91* (1.94)	0.20 (-0.02)
R2	0.21	0.52	0.37	0.74	0.21	0.52

Notes: ***, **, and * denote one, five, and ten percent level of significance, respectively.(the above number is estimated coefficient; the under bracket number is t-value.)

So it means if the income per capita of import country is higher, they will export less cultural goods to other countries, this results is consistent with real trade flows(<Table 5>). Common language only has ten percent level of significant to improve cultural goods trade, it means that the Information Modernization can make information

transparent that people can learn the information much easier than before. The same border of two countries has significant negative influence on trade. And lastly the internet coverage ratio has five percents level of significant to stimulate cultural goods trade developing, this is consistent with distance's positive influences.

<Table 5> Trade Flows in P.R. China, Korea and Japan

Data Item	P.R. China		Korea		Japan	
	Export	Import	Export	Import	Export	Import
Cultural Heritage	2,721,629	2,572,127	341,852	8,591,736	7,104,606	23,690,357
Printed Matter	5,174,553,598	1,772,374,140	1,743,882,156	572,162,449	980,672,525	2,202,174,679
Recorded Media	703,621,385	1,590,843,765	123,291,939	439,753,688	747,134,455	825,438,334
Visual Arts	3,556,030,154	26,700,353	300,448,483	220,161,834	125,503,291	553,098,360
Audiovisual Media	5,011,665,684	195,170,701	97,911,400	285,087,781	432,340,078	1,203,009,629

<Table 6> Analysis Results of Printed Matters

	OLS		RM GLS		Robust	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Ln GDPi	1.20*** (7.76)	1.77*** (10.85)	0.74*** (3.21)	1.20*** (4.04)	1.20*** (6.13)	1.77*** (8.05)
Ln GDPj	0.85*** (5.99)	1.17*** (6.67)	0.41* (1.80)	0.91** (2.93)	0.85*** (5.73)	1.17*** (5.41)
Ln DIST	-1.01*** (-3.65)	1.32 (1.50)	-0.75 (-1.14)	-0.56 (-0.26)	-1.01*** (-3.56)	1.32** (2.03)
HDli	-3.70 (-0.96)		-7.04 (-0.93)		-3.70 (-0.98)	
LnPGDPi		0.08 (0.30)		-0.73 (-1.60)		-3.70 (-0.98)
LnPGDPj		-0.68 (-1.21)		0.03 (0.05)		0.08 (0.54)
COMLij		12.31*** (3.49)		2.75 (0.33)		12.31*** (4.40)
CONTij		-8.25** (-2.24)		-0.08 (-0.09)		-8.25** (-3.14)
Internet Users		0.00 (1.57)		0.00 (-1.12)		-0.68 (-1.10)
Constant	-0.89 (-0.20)	-30.9*** (-3.78)	11.54 (1.47)	1.41 (0.09)	-0.89 (-0.25)	0.00 (1.27)
R2	0.47	0.67	0.58	0.64	0.47	0.67

Notes: ***, **, and * denote one, five, and ten percent level of significance, respectively. (the above number is estimated coefficient; the under bracket number is t-value.)

The above <Table 6> shows that printed matter cultural goods conditions, both home and host countries' economic masses stimulated people to consuming more printed matters goods. This is common sensible that people in higher living level need more printed matter to satisfy their gratification. In

this series of analysis procedures, except model 1 empirical results the other estimated coefficients of distance factor are negative but no significant. Because for printed matter, their total cost mainly depend on the material cost and transportation cost. Both home and host countries' GDP per capita has no signi-

ficant influences on printed matters's trade inflows and the estimated coefficients are very small. Language, and adjacency have same significant influences with Cultural Heritage goods although we though that computer have changed the traditional reading ways the results show that its influence is weak.

The following <Table 7> shows the results of Recorded Media cultural goods trade flows. In Model 1, both home and

host countries' GDP have one percent level of significant influences on trade flows. Distance has negative influences that is same with printed matter goods, the other factors has no significant influences on this category of cultural goods, R square values are around 0.55–0.65 which mean that these variables have more than half explanation force to effect recorded media goods trade.

<Table 7> Analysis Results of Recorded Media

	OLS		RM GLS		Robust	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Ln GDPi	1.10*** (5.68)	1.43*** (6.81)	0.77** (2.65)	0.68* (1.92)	1.1*** (5.27)	1.43*** (6.09)
Ln GDPj	0.77*** (4.76)	1.14*** (4.88)	0.63** (2.42)	0.70* (1.77)	0.77*** (3.88)	1.14*** (5.66)
Ln DIST	-0.59* (-1.78)	-0.15 (-0.13)	-0.46 (-0.80)	-0.09 (-0.04)	-0.59* (-1.70)	-0.15 (-0.21)
HDIi	6.45 (1.42)		2.68 (0.34)		6.45 (1.4)	
LnPGDPi		0.70* (1.92)		-0.42 (-0.61)		0.70** (2.41)
LnPGDPj		1.35* (1.90)		0.11 (0.10)		1.35** (2.47)
COMLij		0.62 (2.92)		0.96 (0.10)		2.92 (0.90)
CONTij		-1.44 (-0.29)		-2.75 (-0.27)		-1.44 (-0.41)
Internet Users		0.00 (-1.00)		0.00 (-0.41)		0.00 (-1.16)
Constant	-12.87* (-2.47)	-38.4*** (-3.57)	-4.50 (-0.52)	-0.53 (-0.03)	-12.87** (-2.18)	-38.4*** (-4.26)
R2	0.54	0.62	0.61	0.51	0.54	0.62

Notes: ***, **, and * denote one, five, and ten percent level of significance, respectively.(the above number is estimated coefficient; the under bracket number is t-value.)

For visual arts goods, they including paintings, statuettes, sculptures, and lithographs. Following <Table 8> results indicated that economic masses and distance have common sense influences on their trade flows. HDI index has a stronger effect on this kind of cultural goods trade inflows, because in Model 1, four variables' explanatory percents (R square value) is 56%–69%, compared with Model 2, GDP per capita,

Common Language, same border, and internet users number including three basic variables, the explanatory percents is 73%–77%. So, it means that HDI has a certain significant influence on visual arts goods, also common language and internet coverage ratio have advancing working on visual arts goods trade flows. Adjacency has negative influence on visual arts goods trade flows.

<Table 8> Analysis Results of Visual Arts

	OLS		RM GLS		Robust	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Ln GDPi	1.18*** (6.35)	1.86*** (8.54)	1.08*** (3.46)	1.60*** (5.06)	1.18*** (7.99)	1.86*** (8.56)
Ln GDPj	0.91*** (5.19)	1.21*** (5.82)	1.14*** (4.23)	1.06*** (3.22)	0.91*** (4.67)	1.21*** (6.36)
Ln DIST	-0.10 (-0.33)	1.92** (2.01)	-0.21 (-0.38)	1.78 (1.09)	-0.10 (-0.36)	1.92** (2.42)
HDIi	-0.24 (-0.06)		5.93 (0.79)		-0.24 (-0.07)	
LnPGDPi		0.09 (0.30)		-0.08 (-0.18)		0.09 (0.38)
LnPGDPj		-1.16* (-1.91)		-1.34 (-1.39)		-1.16** (-2.22)
COMLij		12.02** (3.06)		10.53 (1.59)		12.02** (3.52)
CONTij		-8.29* (-2.05)		-7.38 (-1.08)		-8.29** (-2.37)
Internet Users		0.01** (2.66)		0.01* (1.91)		0.01** (3.13)
Constant	-11.59** (-2.51)	-34.33*** (-3.74)	-18.23** (-2.23)	-24.76* (-1.73)	-11.59** (-2.81)	-34.33*** (-4.48)
R2	0.56	0.71	0.69	0.87	0.56	0.71

Notes: ***, **, and * denote one, five, and ten percent level of significance, respectively.(the above number is estimated coefficient; the under bracket number is t-value.)

<Table 9> shows the analysis results of cinema photography cultural goods. Except HDI index has no significant influence and GDP per capita of two bilateral countries has different sig-

nificant influences on its trade flows, the other variables all have same explanatory percents with visual arts cultural goods.

<Table 9> Analysis Results of Cinema Photography

	OLS		RM GLS		Robust	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Ln GDPi	1.07*** (9.36)	1.41*** (11.44)	0.89*** (4.40)	1.00*** (4.82)	1.07*** (9.05)	1.41*** (11.67)
Ln GDPj	0.76*** (5.85)	1.09*** (7.43)	0.94*** (4.09)	1.00*** (3.18)	0.76*** (5.49)	1.09*** (6.81)
Ln DIST	-0.65** (-2.89)	-1.21* (-1.70)	-0.73 (-1.49)	0.17 (0.11)	-0.65** (-3.18)	1.21** (2.09)
HDIi	5.76* (1.90)		6.63 (1.04)		5.76* (1.84)	
LnPGDPi		-0.38* (-1.70)		-0.61 (-1.55)		-0.38** (-2.57)
LnPGDPj		-0.50 (-1.11)		0.04 (0.06)		-0.50 (-1.17)
COMLij		10.23*** (3.49)		4.89 (0.75)		10.23*** (4.38)
CONTij		-7.07** (-2.36)		-2.40 (-0.36)		-7.07** (-2.98)
Internet Users		0.01** (2.88)		0.00 (1.60)		0.01** (3.06)
Constant	-9.97** (-2.71)	-23.2*** (-3.51)	-10.35 (-1.52)	-10.15 (-0.82)	-9.97** (-3.11)	-23.2*** (-3.88)
R2	0.55	0.73	0.58	0.77	0.55	0.73

Notes: ***, **, and * denote one, five, and ten percent level of significance, respectively. (the above number is estimated coefficient; the under bracket number is t-value.)

Lastly we use total cultural goods export trade flows among these five regions as the dependent variable to testing Model 1 and Model 2 applying

same three analysis procedures(<Table 10>). The results indicated that both home and host countries' economic masses have one percent level signi-

ificant positive influence on most cultural goods' trade volume among East Asia countries. These are consistent with my suppositions. Actually not in Asia countries, all regions and countries

pay attention on improving their productions abilities to enlarge trade volume.

<Table 10> Analysis Results of Total cultural goods

	OLS		RM GLS		Robust	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Ln GDPi	1.40*** (10.30)	1.89*** (13.67)	0.98*** (4.06)	1.30*** (5.46)	1.40*** (10.17)	1.81*** (11.77)
Ln GDPj	0.98*** (7.38)	1.24*** (7.56)	0.68** (2.82)	1.09*** (3.71)	0.98*** (7.30)	1.21*** (6.23)
Ln DIST	-1.19*** (-4.60)	1.02 (1.12)	-0.84 (-1.46)	0.61 (0.34)	-1.19*** (-5.58)	-0.06 (-0.39)
HDli	-3.17 (-0.86)		-4.28 (-0.56)		-3.17 (-0.86)	
LnPGDPi		-0.06 (-0.22)		-0.89* (-1.97)		-0.60 (-0.39)
LnPGDPj		-0.65 (-1.23)		-0.36 (-0.44)		-0.65 (-1.14)
COMLij		11.15*** (3.30)		7.76 (1.08)		11.15*** (4.02)
CONTij		-7.14** (-2.02)		-5.88 (-0.78)		-7.14** (-2.63)
Internet Users		0.00* (1.76)		0.00 (-0.33)		0.00* (1.43)
Constant	-3.77 (-0.86)	-27.94*** (-3.67)	4.06 (0.50)	-8.28 (-0.58)	-3.77 (-0.86)	-27.94*** (-3.58)
R2	0.58	0.74	0.65	0.74	0.58	0.74

Distance's estimated coefficients are considered almost negative in literatures studies. Although the results in this Model 2 were not significant in Model 1 it has one percent level significant influence. Compared with other regions,

these five regions were very nearby each other, the distance among these countries were not very far, the longest distance(between Japan and Macao China) is 2939 kilometers; the shortest distance (between Hong Kong China and

Macao China) was only 60 kilometers. Actually, with different goods, some literatures computed average distance between partners, such as manufactured goods should attach much more importance on actual transformation expenditure rather than cultural goods, because longer distance means the trade cost should very expensive.

Estimated coefficients of HDI were not significant for whole cultural goods trade inflows. So whether the human development index higher or lower has no relationship with cultural goods trade flows except Visual Arts goods. Different from GDP variables of two partner countries, Home country's GDP per capita in each category have no significant influence on trade flows except Visual arts and Recorded media goods, but host country's GDP per capita has negative influence on all cultural goods trade flows especially for cultural heritage goods.

We mentioned that common language was a dummy variable in these two model. All t-values showed that common language has significant positive influence on trade flows except Recorded Media goods. So if two regions used same language, the trade amounts of cultural goods categories between these two regions will increased. Printed matter and visual arts have one percentage significant positive influ-

ences between language and cultural goods' trade (t-values were 3.49*** and 3.50*** respectively). Because Printed Matter and Visual Arts goods ask for higher understanding in reading, same language in favor of more trade happened among these regions. Language factor has five percentage significant positive influence on Cinema photography categories trade flows. Common language only has ten percentages significant positive influence on cultural heritage's trade flows.

For adjacency factor, the results showed that all categories of cultural goods have negative correlations with adjacency factor except Recorded Media goods, If two trade countries has same border, the trade value of them will smaller than other partner countries without some border. All cultural goods have significant influences in adjacency factor. t-values of cultural heritage, printed matters, visual arts, and cinema photography were -2.22**, -2.24**, -2.36**, and -2.05** respectively. All countries used in this model were P.R China, Hong Kong China, Macao China, Japan, and P.R Korea, it means Chinese would like to trade with oversea countries rather than same border countries.

Internet coverage ratio of home country was a new variable in this paper, as mentioned in the report of 'international flows of selected cultural goods

and services, 1994–2003’, it said that the factor in development of Information and Communication Technologies have changed the traditional ways of cultural trade. Indeed the digital environment and internet have been central to the expanding trade system of cultural products. Estimated coefficients of cultural heritage, visual arts, and cinema photography were 0.01, 0.01, and 0.01, t-values were 2.09*, 2.88***, and 2.66**, respectively. And for total cultural goods, the estimated coefficient was 0.00 with t-value was 1.76*. It showed that if internet coverage ratio of home country was wider, the trade amounts of these cultural goods would increase. So information technological industry has no exact relationship with traditional cultural goods exchanges.

For regression analysis that multi-collinearity problem would incur. I tested for the sensitivity of the results to different gravity equation specifications. Some researchers would like use Transformed Least Squares to solve this problem, Mirza and Nicoletti(2004) express the variables in deviation from the mean exporter or the mean importer, obtaining two alternative regression equations, which are in turn estimated simultaneously by Seemingly Unrelated Regression SUR method. We used robustness check to measure these

results again, in the last column which showed all cultural goods' coefficients, we can learn the results were consistent with OLS estimation results. R square value stills 0.77 same with former estimations.

V. Conclusions

The rise of East Asia began to unfold at the end of the twentieth century when East Asian countries embarked on regional dialogue processes to promote and manage economic interactions among themselves and with the world economy. East Asian countries have achieved remarkable progress in their economic development over the past quarter century, rapidly increased their economic intra-regional interactions.

In order to find is there any special points on cultural goods trade patterns this paper using various databases and applying modern trade theory, UN comtrade data from 2004 to 2008, covering a number of reproducible cultural goods, we estimated a large set of gravity equations. Beyond the traditional results trade in cultural goods presents some conclusions:

Firstly, both home and host countries' economic masses can foster bilateral cultural goods trade flows in East Asia. Distance is a positive foster factor in

Cultural Heritage goods trade but significant negative influences on other kinds of cultural goods trades.

Secondly, human development index has a significant positive influence on Visual Arts and Cinema Photography these two categories of cultural goods trades but no significant influences on other kinds cultural goods trades.

Thirdly, income per capita of exported countries has significant foster effect on Cultural Heritage and Recorded Media these two kinds cultural goods trade but impede effect on Visual arts and Cinema Phonograph cultural goods trade. For imported countries' income per capita improve Recorded Media goods developing but hinder Cultural Heritage and Cinema Photography goods trade.

Fourthly, language factor improved bilateral trade of all categories cultural goods, adjacency of two partners countries has negative influence on whole cultural goods trade flows. This result is consistent with research results of Anne-lesia Disdier(2010). Internet's coverage ratio partially has positive effect on cultural heritage, visual arts and cinema photography's trade development.

In this paper, we did research on P.R. China, Republic of Korea, Japan, Hong-Kong China, and Macao China, these five areas' intra-regional cultural goods trade. Actually, in economic concept,

East Aisa including ASEAN members. The regional economies accelerated negotiations on bilateral and sub-regional FTAs: Japan-Korea EPA, Japan-ASEAN EPA, China-ASEAN FTA and Korea-ASEAN FTA all provide a critical basis for further integration and interdependence, we can consider about ASEAN members in future research.

In research model, we did not consider whether the government policy has any effect working on cultural goods trade. In other research about trade, they always use number of Special Economic Zones, or amount of foreign direct investment, joint venture to stand for government policy actions. Although the cultural industry in China still on infant stage, from last year 2010, Chinese government has already published many support policies to encourage national enterprises expand their production about cultural goods, we should add up the supported policies factors as new variables in future study.

<Recived: 27 May 2011>

<Revision Recived: 4 June 2011>

<Final Version Received: 10 June 2011>

References

- Anderson, James(1979), “A Theoretical Foundation for the Gravity Equation,” *American Economic Review*, 69(1), 106–116.
- Anderson, J. and E. Van Wincoop (2003), “Gravity with Gravitas: a Solution to the Border Puzzle,” *American Economic Review*, 93.
- Anne–Célia Disdier, Silivo H. T. Tai, Lionel Fontagn, and Thierry Mayer(2006), “Bilateral Trade of Cultural Goods,” *Jouranl of Economic Integration*, 145(4), 575–595.
- Baldwin, Richard and Daria Taglioni (2006), “Gravity for Dummies and Dummies for gravity equations,” *NBER Working Papers*, 12516, 1–29.
- Becker, G. S. and K. M. Murphy (1998), “A Theory of Rational Addiction,” *Journal of Political Economy*, 96(4), 675–700.
- Blomgerg, S. Brock and Gregory D. Hess(2005), “Terrorism or Tariffs: Which has a bigger Tax on Trade?,” *Review of Economics and Statistics forth coming*.
- Boisso, D. and M. Ferrantino(1997), “Economic Distance, Cultural Distance, and Openness in International Trade: Empirical Puzzles,” *Journal of Economic Integration*.
- Cano, Guiomar Alonso(2000), *Cultural, Trade and Globalization: Question and Answers*, UNSECO Publishing.
- Francois, P. and Tanguy Van Ypersele (2002), “On the protection of cultural goods,” *Journal of International economics*, 56(2), 359–369.
- Hyun Hoon Lee, Jung Hur(2009), *Trade Creation in the APEC region: Measurement of the Magnitude of and Changes in Intra–regional Trade since APEC's Inception*, Asia–Pacific Economic Cooperation.
- James, E. and R. Vitor(2005), “A model of international trade and cultural diversity,” *NBER working paper*.

- Julong Deng(1989), *The essential methods of Grey System*, Huazhong University of Science and Technology Press.
- Li, Quan and Drew Schaub(2004), "Economic Globalization and Transnational Terrorism: A Pooled Time-Series Analysis," *Journal of Conflict Resolution*, 48(2), 230-258.
- Miaojie Yu(2009), "Revaluation of the Chinese Yuan and Triad Trade : A Gravity Assessment," *Journal of Asian Economics*, 20(6), 655-668.
- Schulze, G. G.(1999), "International trade in art," *Journal of Cultural Economics*, 23, 109-136.
- Süleyman Tuluğ Ok(2010), "What Determines Intra-EU Trade? The gravity Model Revisited," *International Research Journal of Finance and Economics*, 39, 244-250.
- UNESCO, institute for statistics. International flows of selected cultural goods and services, 1994-2003.