Research Article

The Principle of Cultural Trade Flows with Proper Specification of Gravity Model

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ABSTRACT

This paper studied the cultural trade flows focused the period of 2001 to 2011 on bilateral trade of cultural goods among East Asia members, by investigating the factors that affect cultural goods trade volumes. The results showed the economic masses and GDP per capita of home country should improve the cultural goods' market competition, distance always places a negative but no significant influence, the colonial links has a positive affect. Also, the evaluation showed the consumers' preferences and tastes have influenced the cultural goods trading. Cultural goods' bilateral trade also has different characters with other manufactured goods and it provides significant impact of nation's soft power and economic strength.

Key words: Cultural Goods Trade; East Asia; Gravity Model; Influence factors

INTRODUCTION

Today the related cultural expenditures of household family have grown extremely rapidly. The major explanation of this growth is that emergence of information society, combined with the developing of leisure industry and of cultural tourism. For most developed nations, the household share was nearly reached to 20%. It is difficult to define what is cultural goods and services exactly, the household expenditures on recreation or cultural goods included audio-visual, photographic, computer equipment, musical instruments, camper vans, newspapers, tickets to sporting matches, cinemas and theatres, even the spending on gambling (including lottery -tickets) less any winning can accounted as the cultural expenditures. During twentieth century the annual world trade of cultural goods has increased by 300% going from 95.34 to 387.93 billion, that's why WTO enforced the rights law to protect the intellectual property of the creators.

This paper choose East Asia as a research object, since the members of East Asia faced a substantial challenge to sustain income growth and poverty reduction in the new competitive global economic system, as they still in recovering from the 1997 financial crisis and trying to adapt the China's emergence as a major trading partner. Japan was the leader that innovated and enforced cultural goods and services trade with America and Europe countries since 1960. By inspired of Japan example, Hong Kong China, Taiwan China, Singapore and Republic of Korea improved the technological innovation and strong the nation's competitiveness by using exporting orientation policies. In 1980s, Malaysia, Philippines, Thailand, Indonesia, these four countries also carried out the export orientation strategies, the abundant labour resources and attractive policy held of these regions attracted foreign direct investment from industrial nations. The industrial countries' capital and technologies inflow into these countries encouraged and developed whole Asia economic status and changed the consumption structures of people, it caused the cultural goods and services more and more important.

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LITERATURES

2.1 Definition of cultural goods

Lawrence &Phippips (2002) concluded that the new engine also been called 'Cultural industry', although the core value of this kind industry is intangible wealth, it can connected with manufactured industry and increase the manufacture products' cultural value by special designs or working procedures. United Nations Educational, Scientific, and Cultural Organization (UNESCO) defined the cultural industry as a collection activity in according with industrial standard produce, reproduce, storage, and allocation.

2.2 Trade in cultural goods

Stigler, Murphy & Becker (1977; 1988) studied about rational addiction, showed that the level of art consumption influence positively the marginal utility of consumer and its capacity to appreciate art. The traditional trade theory based on the comparative advantage of nation that means the different factor endowment of different country caused the various cultural goods or services trading. Mas-Colell (1999) indicates 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. Siweck (1988), Frand (1993) considered the external economies of scale insisted in the cultural productions, the cultural industries should congregated in some places and then cause the propagation effect, that is the resources of physical and labor also be used in the process, benefits to lowing the fix costs of the cultural productions, and get the advantage in price or quality.

Schulze(1999) empirical application focuses only on non-reproducible art products. He estimates a gravity equation with a sample that covers the 49 largest importing countries, and concluded that coefficient obtained for GDPs are significant at the 1%level and not statistically different from 1, distance has a negative and significant impact on trade and the estimated coefficient is equal to minus one, adjacency did not influenced the trade flows, but the language linking strongly increases trade. This influence of cultural affinity on trade in cultural goods is also underlined by differences in consumers' preferences. Francois and van Ypersele's (2002) model, cultural goods are characterized by fixed costs and are valued unequally by consumers. The authors show that barriers to trade could raise welfare in both countries; also they showed that barriers to trade could raise welfare in both countries when cultural goods are characterized by fixed costs in production and heterogeneity in consumers' tastes. Janeba (2007) who models cultural identity as the result of the interaction of individual consumption decisions suggests that - under certain conditions - free trade could generate losses.Olivier, Thoening&Verdier(2007) rely on a micro founded dynamics of cultural identity interacting with international trade equilibrium. So that cultural identity is associated with a positive externality among agents sharing culture or consumption patterns. Marvasti&Canterbery (2005) investigates the determinants of United States' motion pictures exports to 33countries. Use gravity equation over the period 1991-1995 reveals a positive impact of language, education and religion on exports. Anne, Silvio, Lionel & Thierry (2010) wrote a paper about bilateral trade of cultural goods using gravity model to explain language, colony, distances, and purchase prices' influences on trade.

EMPIRICAL RESEARCH

Most researchers would like use gravity model for testing international trade, based on original model the author will added some new variables to modified using panel data.

3.1 Research Model

Utility function apply a constant elasticity of substitution(CES) with a weight *aij*for each country pair describing bilateral preferences, as following formula show,

$$U_j = \left[\sum_i^R \int_i^R a_{ij} x_{ij}(z)^{(\sigma-1)/\sigma} dz \right]^{\sigma/(\sigma-1)} = \left[\sum_i^R a_{ij} n_i x_{ij}^{(\sigma-1)/\sigma} \right]^{\sigma/(\sigma-1)} \quad (1)$$

with elasticity of substitution σ＞1. Considering iceberg costs, demand function is therefore derived from utility optimization:

$$n_i p_{ij} x_{ij} = E_j P_j^{\sigma-1} n_i p_i^{1-\sigma} T_{ij}^{1-\sigma} a_{ij}^{\sigma-1}$$

Where *Pj* is the price index:

$$P_j = \left[\sum_i^r \int_i^r a_{ij} p_{ij}(z)^{(\sigma-1)/\sigma} dz \right]^{\sigma/(\sigma-1)} = \left[\sum_i^R a_{ij}^{\sigma-1} n_i p_{ij}^{1-\sigma-1} \right]^{1/(1-\sigma)} \quad (2)$$

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Transaction costs are a log linear function of distance, but common language, colonial links and adjacency are supposed to reduce these costs. So based on original model, the research model is expressed by:

$$T_{ij} = dist^{\delta} \exp(-\xi_t languageij - \rho_t colonyij - \psi_t adjacencyij)$$

Bilateral preferences *aij* are a function of cultural proximity, which is captured in this article by trade in printed matters, religion similarity and number of peaceful years for each pair of countries in East Asia. So preferences are shown:

$$a_{ijt} = (1 + culturesijt)^{\alpha} \exp(\xi_a languageij + \rho_a colonij + \psi_a adjacencyij)$$

Referring to all factors above, the final estimate equation can be presented as following:

$$\ln Export = \alpha_1 \ln(dij) + \alpha_2 \ln(GDPi) + \alpha_3 \ln(GDPj) + \beta_1 \ln(0.1 + culturesijt)$$
$$+ \beta_2 languageij + \beta_3 colonyij + \beta_4 adjacencyij + uijt$$

Common Language can provide more efficient bilateral information channels and easier communication between countries. Adjacency also contributes to better bilateral information. 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. Actually, overall trade between two countries is more important when two partners have more proximate cultural tastes. Both Adjacency and Common Language were dummy variable, if same border or language, it was 1, otherwise, it was 0.

The former studies found cultural exchanges are weakly affected by physical distances, a very strong exception compared to trade in other types of goods. Besides, home bias for cultural goods seems to be relatively small.

3.2 Data
The estimations of determinants for bilateral flows are all core cultural goods: traditional cultural productions printed matter, and modern cultural productions cinema. Data time period was from 2007 to 2011, the sub time period of 5years among East Asia trading members.

3.3 Results
Since Heteroscedasticity is corrected with White's method and year random-effects are included in all our regressions. The first columns report OLS results, second column reports GLS estimates and the last one report random-effects estimates with all measured nations. Actually the consumption of cultural goods has character that is addictive, so that it should have hysteresis effect so the author adds lagged trade to the testing.

Tab.1: Simple Gravity on Printed Matters

	Dependent Variable: Export of Printed Matter		
	OLS	**GLS**	**RE**
LnGDPi	11.19*** (1.70)	3.84*** (0.82)	-0.27 (-0.08)
LnGDPj	9.39*** (1.31)	2.00** (0.42)	4.88*** (1.00)
Ln distance	1.31 (0.91)	-1.24 (-2.14)	-0.33 (-0.48)
Common Language	3.67*** (10.47)	0.69 (4.48)	0.76 (4.50)
Colonial Links	3.23*** (1.48)	0.78 (0.48)	1.76 (0.50)
Adjacency	-2.42** (-6.77)	1.13* (7.44)	-0.11 (-0.65)
P.R China	4.35*** (13.8)		4.46*** (10.08)
Japan	4.48*** (15.15)		4.76*** (11.28)
SouthKorea	4.48*** (12.2)		4.08*** (8.89)
ASEAN	1.46** (10.8)		1.77 (6.8)
Constant	-1.57 (-11.87)	0.96 (13.9)	-0.21 (-2.70)
R^2	0.83	0.62	0.88

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Note: ***,** and * denote one, five, and ten percent level of significance.

Generally speaking that the explanatory variables are country-pair specific with very little or no time variation. Except distance has no significant influence on trade flows of printed matter, the GDP of the exporting country, difference in language, and same colonial links have a huge significant influence on current flows and their coefficients also strongly reflected. The estimations include dummies and the heteroscedasticity is corrected as previously with the white's method, the overall fit is high (larger than 0.83).

Tab.3:Simple Gravity on Cinema

	OLS	GLS	RE
	Dependent Variable: Export of Cinema		
LnGDPi	0.8	5.29***	0.87
	(0.55)	(1.59)	(0.59)
LnGDPj	8.15***	5.20***	6.72***
	(1.48)	(1.40)	(1.52)
Lndistance	0.15	0.62	0.12
	(0.12)	(0.82)	(0.13)
Common Language	1.51	1.28	1.20
	(5.2)	(6.82)	(5.46)
Colonial Links	3.51	4.28	1.67
	(1.2)	(0.82)	(2.46)
Adjacency	-0.59	-0.77	-0.51
	(-1.96)	(-4.06)	(-2.22)
P.R China	1.57		1.69*
	(6.72)		(7.31)
Japan	1.56		1.65*
	(7.20)		(7.68)
SouthKorea	1.27		1.39
	(4.72)		(5.34)
ASEAN	2.30		3.38
	(1.62)		(2.54)
Constant	-1.97*	-2.33**	-1.81*
	(-19.13)	(-31.98)	(-20.80)
R^2	0.77	0.82	0.93

Note: ***,** and * denote one, five, and ten percent level of significance

The second cultural sample the author consider the gravitational determinants of cinema trade, compared to the printed matters, the movies related products contain additional information on the magnitude of the bilateral trade relationship. the estimations were same with printed matter products, but the results showed that only the partner nations' economic sizes has significant influence on trade flows, the overall fit is nearly 0.77.

3.4 Explanation
The results showed that if bilateral trade is more important wen both countries have proximate cultural tastes. And for printed matters' estimated results, they are very similar to the ones usually found in the literature, coefficients of GDPs are close to the theoretical unit value, colonial links and common language have a positive impact on trade. The differences are that the distance is less affected to the trade flows. The adjacency factor also has negative influence on printed matter trading flows, since the reason should as same as distance factor, the countries would like importing much more products from the country which is farther to them.

For cinema products, the column OLS results figured out that exported country's economic scale has no significant influence on their film overseas selling, compared with Anne-Celia(2006) cinema trade research about US, France, Germany, Russia, Japan and some other developed nations, this is a opposite conclusion. It pointed out the East Asia still was prefer to consume in cinema, although these countries produce ability in films is increased in recent years, they are importing more western cultural films from other continents. And based on this reason, the other factors language, adjacency, and colonial links have no significant influences on cinema trade flows but with huge coefficient values.

CONCLUSION

This article mainly talking about printed matter and cinema's trade flows. Our purposes were trying to find out the principle of cultural trade flow in these similar historical nations about physical cultural communication.

Firstly author analyse cultural goods trade determinants. Verifying a significant cultural feature, captured by different variables supposed to approach cultural history between country pair. The similarity of culture increase

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trade of cultural goods, implying that more close is culturally a country to another, more they exchange cultural goods. And the concept of dominance of current exporters suggested effects of cultural influence from big exporters.

Secondly, these characteristics of different types of cultural goods have different related to the determinants. The printed matters, which is depending on much more labor and material resources produce process has the similar trading features with other manufactured products, larger GDP will improved more trading activities, and colonial links has positive influence on their cultural goods trading, Each members of East Asia is following with the regular patterns. But cinema industry which is related to the human and technological endowments developing has no significant influences with these factors we mentioned before, the similar historical background, the same language structure, or the economic mass of exported country. Except the import country's GDP value has positive relationship with cinema trade flows, that's accorded to the regular that high economic developing should following with the cultural industry well.

Finally, cultural flows deserve special considerations, in addition to national patrimony preservation and cultural diversification; it is worthy to observe the effect of cultural exchanges over the consumption behaviour. It is an important way to disseminate culture, to bias preferences and to affect directly international trade.

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