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Cultural Diversity and the Export Structure of Chinese Cultural Products

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***Abstract*—Based on the export data of Chinese cultural products to major cultural trading countries, this paper decomposed the export structure of Chinese cultural products. Then we measured the cultural diversity of China with the help of the perfect cultural diversity index, and then empirically tested the impact of China's cultural diversity on the export structure of cultural products. The empirical results show that the impact of cultural diversity on the extensive margin of China's cultural exports is significantly positive, while the impact on the intensive marginal is uncertain. Finally, we put forward policy suggestions for the development of China's cultural export trade based on the basic conclusions.**

Keywords—cultural diversity; Intensive margin; Extensive margin; the export of Chinese cultural products

I. INTRODUCTION

Since the beginning of the new century, the trend of economic globalization has become more and more intense. Countries around the world continue to promote trade liberalization, and going abroad to conduct cultural exchanges has become an important way for cooperation between countries. The development trend of cultural diversity is gradually formed in the process of various ideological and cultural interaction. At the same time, cultural products trade has gradually became a new field of competition among countries. With the continuous implementation of the "going out" strategy, China's cultural products export volume increased from $6.17 billion in 2007 to $78.66 billion in 2016, which means that China's cultural products export trade has greatly increased. After analysis of its export structure, we can clearly find that most of the growth of Chinese cultural products export is driven by intensive margin, extensive margin contributes little to it. Therefore, how to adjust the structure and achieve the balanced development of extensive margin and intensive margin become very important. In today's open culture, China continues to enrich its cultural diversity with its great inclusiveness. So, can the change of cultural diversity prompt China to adjust the binary marginal structure of cultural products export and improve the structure of China's cultural trade?For this problem, this paper aims at the product data of China's exports to major cultural trading partners from 2007 to 2016, to explore how cultural diversity affects the binary margin of Chinese cultural products export, and offer suggestions for the future development of China's cultural enterprises.

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II. LITERATURE REVIEW

A. Cultural diversity and export of cultural products

At present, there is little research on the relationship between cultural diversity and cultural products trade. Andrew Stirling pointed out that cultural diversity should include three aspects at the same time: "type number, equilibrium degree and difference". However, currently, literature only discusses the impact of cultural product trade from the perspective of difference. Most scholars use cultural distance constructed by Hofstede to replace cultural differences between countries(Hongtao Wang,2014; Jun Shao and Xiaoyi Wu, 2014). Only a few scholars can apply comprehensive indicators of cultural diversity: such as Ruxiao Qu and Yanping Zeng (2015) explore and analyze the changes brought by cultural diversity changes to China's cultural product trade with the help of panel VAR model.

B. Decomposition of dual margin and its influencing factors

The research of dual margin began with Melitz's new trade theory. Later studies based on specific product levels, such as electromechanical products and high-tech products, found that the increase of China's export to them depends on the intensive margin (Aijun Fan, 2012; Qingfeng Kong , 2011). Bernard et al(2010) started from the data of American enterprises and found that the short-term change of American trade volume comes from the intensive margin, while the long-term expansion margin plays an increasing role. Amiti and Freund (2008) and amurgo-pacheco et al(2008) showed that the intensive margin can explain most of the growth in trade volume, but for the developing countries that are gradually expanding, the extensive margin accounts for an increasing proportion of trade expansion. In addition, many scholars research the impact of trade costs on the binary margin from the perspective of trade costs (amurgo-pacheco et al.,2008; Persson, 2000); Based on the perspective of product elasticity of substitution, the mechanism of its influence on the binary margin is analyzed (Chaney, 2008; xuefeng Qian and xiong ping, 2010).Hui Liu and Jianhong Qi (2014) firstly decomposed the export structure of cultural products and then explored the factors affecting the dual margin of China's cultural products export. Ruxiao Qu and Xiu Yang (2015) made a quantitative analysis of the impact of different trade costs on the binary marginal of Chinese cultural products export from the perspective of cultural differences.

To sum up, there is little research on cultural trade from the perspective of binary marginal, especially the connection

between cultural diversity and the binary marginal of cultural products export, which is almost blank. However, in today's open culture, China's cultural diversity is constantly changing, so it is of great practical significance to research the impact of cultural diversity on the dual marginal structure of China's cultural products export. Therefore, we adopt the new indicators improved by Benhamou and Peltier (2009) to comprehensively measure cultural diversity, and conduct an empirical test on the impact of cultural diversity on the binary margin of China's cultural products export based on the data at the product level.

III. CALCULATION OF CHINESE CULTURAL DIVERSITY AND DUAL MARGIN OF CULTURAL PRODUCTS EXPORT

A. *Measurement of cultural diversity*

First of all, we used the comprehensive indexes perfected by Benhamou and Peltier(2009) to measure the cultural diversity index of China from 2007 to 2016. On this basis, we drew the change trend chart of Chinese cultural diversity. China mainly imports copyright from the following countries and regions: USA, UK, Germany, France, Korea, Russia, Canada, Singapore, Japan, Hong Kong, Taiwan. Therefore, this paper takes the above 11 countries and regions as representatives to calculate the indicators of domestic cultural diversity. Choose copyright import data because: (1) With the gradual opening of China's economy and the increasing frequency of international trade, the traditional culture that was originally stable is constantly influenced by foreign cultures, the import of trade products, especially cultural products, directly brought foreign cultures to China, and people formed new ideas in the process of continuous contact.(2) cultural products can be copied in large quantities, but the copyright is the only one, so it can truly represent the cultural connotation of the social group where the originator lives.

1) The measurement of differences d_{ij}

Hofstede divides culture into six measurable dimensions, including right distance (PDI), individualism/collectivism (IDV), masculinity/femininity (MAS), uncertainty avoidance (UAI), long-term orientation (LTO), indulgence and restraint (IVR), and scores the performance of each country on each dimension. He thinks that the differences of these six dimensions are enough to substitute for the degree of cultural differences between countries. Like other literature studies, we also use the cultural distance index constructed in Hofstede's "cultural dimension theory" to represent cultural differences, that is, the differences of six dimensions replace the degree of cultural differences between two sample countries and between sample countries and China. In this paper, the classical KSI method is selected and extended to six dimensions. The specific calculation formula is as follows:

$$d_{ij}=\left[\frac{\sum_{k=1}^{6}(I_{ik}-I_{jk})^2}{V_k}\right]/6 \qquad (1)$$

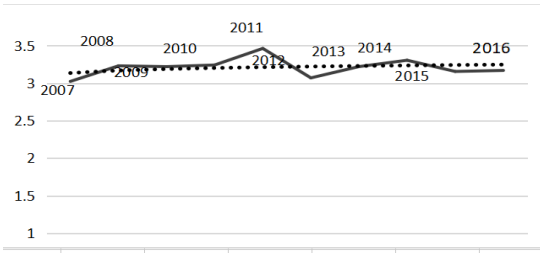
In this equation, I_{ik} and I_{jk} are respectively used to represent the scores of country i and country j on the k-th cultural dimension, and the variance of the k-th dimension of all sample countries is expressed in V_k.

2) Measurement of equilibrium degree p

From 2004 to 2016, China introduced 7 categories of copyright data from 11 representative countries and regions, including books, sound recordings, video recordings, electronic publications, software, films and TV programs. The proportion of countries in the copyright data of the total sample countries was calculated, and the equilibrium degree p was obtained.

3) The measurement of cultural diversity

Through the above calculation, we can get the values of various factors in the comprehensive index of cultural diversity $\sum_{ij} d_{ij} d_{ik} d_{kj} p_i p_j$, and calculate the comprehensive index of cultural diversity. After the calculation, we can draw the trend chart of cultural diversity index of China from 2007 to 2016 as follows:



FIGI.TREND CHART OF CHINESE CULTURAL DIVERSITY INDEX

According to figure 1, we can find that the cultural diversity in China has been basically stable since 2007, which fully indicates that the cultural connotation contained by China in the process of communicating with other foreign cultures gradually becomes stable in the process of constantly enriching.

B. *Measurement of binary margin of Chinese cultural products export*

Before the binary marginal measurement of the export of Chinese cultural products, we defined the connotation and classification of cultural products. This paper selects data based on UNESCO classification framework. According to UNESCO, the cultural products have been into six categories: unification of cultural heritage, visual arts and crafts, publications, audio-visual and interactive media, design and creativity.To the end, this paper will based on the 2009 UNESCO cultural products classification framework and extract from Uncomtrade database 85 coding for the calculation of dual margin.

For the definition of binary margin, we refer to the definition of amurgo-pacheco &Pierola(2008), which strictly defines the intensive margin as follows: continue to export products that have been exported to the original market (old product old market). The definition of extensive margin mainly includes two types: first, the products that have been exported are exported to new markets and face new consumer groups (old products and new markets); second, the products that have not been exported are exported to new markets (new products and new markets).

the calculation of them is based on the practice of Xuefeng Qian (2010).

IV. MODEL SETTING AND EMPIRICAL ANALYSIS

A. Model setting

This paper is based on Chaney's (2008) model, and further extends the model in detail:

$$EM_{ij}=\left(\frac{\sigma}{\sigma-1}\right)^{\sigma}\times\frac{Y_iY_j}{Y}\times f_{ij}^{\frac{\gamma}{\sigma-1}}\times\left(\frac{w_i\tau_{ij}}{\theta_j}\right)^{-\gamma} \quad (2)$$

$$IM_{ij}=\lambda_1\times\left(\frac{Y_j}{Y}\right)^{(\sigma-1)/\gamma}\times\left(\frac{\theta_j}{\tau_{ji}}\right)^{\sigma-1}\times\left(\frac{\psi}{w_i}\right)^{\sigma-1} \quad (3)$$

In equations (2) and (3),τ_{ij},f_{ij}, Y, and θ_j are respectively used to refer to variable trade cost, fixed trade cost, size of economic scale and multilateral resistance. σ、ψ、λ_1 respectively represent alternative elasticity between products, productivity and constant. Through the model, we can summarize the main factors that affect the binary marginal. We found that the factors that affect the intensive margin and the extensive margin are different, mainly manifested as the fixed trade cost. The fixed trade cost affects the extensive margin because it affects the threshold for enterprises to go out.In this paper, we believe cultural diversity as an important part of variable trade costs can significantly affect the binary margin of Chinese cultural products. For this reason, we set up a model that affects the binary marginal value of Chinese cultural products export by referring to previous studies,as follows:

$$\mathrm{Ln}(EM_{ij})=\beta_0+\beta_1\mathrm{Ln}(\mathrm{CD}_{ij})+\beta_2\mathrm{Ln}(\mathrm{Dis}_{ij})+\beta_3\mathrm{Ln}(\mathrm{fix}_j)+\beta_4\mathrm{Ln}(\mathrm{Info}_j)+\beta_5\mathrm{Ln}(\mathrm{GDP}_j)+\varepsilon \quad (4)$$

$$\mathrm{Ln}(IM_{ij})=\beta_0+\beta_1\mathrm{Ln}(\mathrm{CD}_{ij})+\beta_2\mathrm{Ln}(\mathrm{Dis}_{ij})+\beta_3\mathrm{Ln}(\mathrm{Info}_j)+\beta_4\mathrm{Ln}(\mathrm{GDP}_j)+\varepsilon \quad (5)$$

Where β_0 and ε represent the constant and error .

B. Data selection

1) The extensive margin and intensive margin of explained variables (EM_{ij},IM_{ij}).In this paper, its calculation is based on the practice of Xuefeng Qian (2010), as described above. Then the data source is the classification of cultural products published by UNESCO in 2009 and the code HS07. Data from the Uncomtrade database.
2) Core explanatory variable Ln(CD_{ij}) : cultural diversity index of China, as measured by the method described above. The data comes from the statistical yearbook of China's tertiary industry and https://geert-hofstede.com.
3) Control variable Ln(Info_j): the degree of informatization. In this paper, we measure the product of the number of Internet users per 100 and the number of mobile phone owners per 100, data from ITU statistical database.
4) Control variable Ln(Dis_{ij}):represented by the geographical distance between trade parties, the data comes from the GeoDist database of CEPII.
5) Control variable Ln(GDP_j): economic scale of importing country. The data came from the UN statistics agency database.
6) Control variable Ln(fix_j): fixed trade cost of importing country. We use the index of economic freedom in the Heritage Foundation publications as an alternative variable to countries' fixed trade costs.

C. Empirical analysis

We chose to use panel random effect regression and poisson regression for equation (4) and equation (5).

1) Extensive marginal estimation

According to the regression results in tableI, we found that either regression 1 or regression 2, the core explanatory variable, cultural diversity, has always had a positive impact on the extensive margin of China's cultural exports, and in regression 1 coefficient is larger, this fully demonstrates that the rich cultural connotation is conducive to the extensive marginal growth of Chinese cultural products' export. This is consistent with the reality: under the form of constant open, with its great inclusiveness, Chinese culture welcomes the exchanges between cultures of different countries and our cultures, we become more and more understand the foreign culture, the Chinese cultural enterprises in this environment gradually understand foreign people's preferences, capture their cultural demand, produce more products from foreign consumer tastes, it promoted the China's cultural enterprises to produce more kinds of cultural products. It makes the export of Chinese cultural products grow more along the extensive margin.

TABLE I. EXTENSIVE MARGINAL ESTIMATION

Explanatory variables	*Regression 1*	*Regression 2*
Ln(CD_{ij})	42.546* (2.47)	4.397*** (3.47)
Ln(Dis_{ij})	-2.84* (-1.78)	-0.932*** (-12.14)
Ln(Info_j)	4.544*** (3.63)	0.577*** (3.39)
Ln(fix_j)	-18.882*** (-3.75)	-10.565*** (-16.05)
Ln(GDP_j)	-0.534* (-1.64)	-0.917*** (-11.98)
_cons	38.198 (1.14)	70.885*** (15.01)
Time effect	Yes	Yes
N	230	230

t statistics in parentheses
* p < 0.05, ** p < 0.01, *** p < 0.001

2) Intensive marginal estimation

According to the regression results in table II, it can be seen that the cultural diversity of the core explanatory variable is significantly positive only in regression 1, but not significant in regression 2, indicating that the impact of cultural diversity on the intensive margin is uncertain. The significant results in regression 1 can be interpreted as

follows: with the further deepening of the communication between China and the exporting countries of existing cultural products, China has become a familiar supplier of cultural products for importing countries. The importing countries continue to increase the demand for cultural products by relying on their trust in China, thereby promoting the export of original cultural products.

TABLE II. INTENSIVE MARGINAL ESTIMATION

Explanatory variables	*Regression 1*	*Regression 2*
Ln(CD_{ij})	8.077*** (4.21)	0.028 (0.07)
Ln(Dis_{ij})	-0495** (-2.50)	-0.117* (-1.68)
Ln($Info_j$)	0.123 (0.81)	0.007 (0.12)
Ln(GDP_j)	0.838*** (6.78)	0.053*** (3.80)
_cons	10.958** (2.43)	1.651** (2.42)
Time effect	Yes	Yes
N	230	230

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

V. CONCLUSIONS AND POLICY RECOMMENDATIONS

A. Basic conclusions

It is found that in the process of continuous communication between China and foreign cultures, its cultural connotation is constantly enriched, and the cultural diversity generally tends to steady growth, which has a positive effect on the extensive margin of Chinese cultural products export, but the impact on the intensive margin is uncertain.

B. Policy recommendations

1) Chinese culture should treat different kinds of foreign culture with learning attitude, select the essence and discard the dregs, and enrich own cultural connotation in the continuous communication with foreign culture. Chinese cultural enterprises should explore the essence of foreign culture in the context of cultural diversity, accurate taste orientation for foreign consumers'demand, and produce cultural products more suitable for foreign consumers.

2) Innovation is also needed in the field of culture. Cultural enterprises should not only innovate in the content of cultural products, but also innovate in the form of guiding domestic cultural products to go out.

3) Improving the cultural industrial chain and promoting the export of cultural products with the help of the tools of the information age.

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