



Research on the Export Potential of China 's Cultural Products to RCEP Countries

Siyu Yang^a, Lijiang Sun*

School of International business, Shanghai DianJi University, Shanghai, 201306, China

^aY18032014502@163.com

*Corresponding Author: sunlj@sdju.edu.cn

Abstract. As cultural exchanges become more widespread, the trade of cultural products has great potential. And in the context of the digital era, China should use the Internet to further expand the trade of cultural products. This paper aims at assessing the export efficiency of China's cultural products using a panel data set of 14 RCEP countries for the period 2012–2023. The results show that the export efficiency of China 's cultural products to RCEP countries is generally at a medium level, but it has a great export potential. Therefore, China should keep focusing on countries with large expansion space to further promote the trade of cultural product.

Keywords: Internet, Cultural products, RCEP, Stochastic frontier model

1 Introduction

Nowdays global cultural exchanges are booming. The trade in cultural products has a better development prospect^[1]. In the digital era, the Internet can reduce transaction costs, promote the effective allocation of resources which can promote trade efficiency. In 2020, China officially signed the Regional Comprehensive Economic Partnership Agreement (RCEP) with 14 countries including Japan, South Korea, Australia, New Zealand and ASEAN. Many agreements can reduce trade barriers and pay more attention to intellectual property protection and digital infrastructure construction, which will promote digital cultural trade^[2]. Therefore, it is necessary to study the export potential of China 's cultural products to promote the sustained growth^[3].

2 Analysis of China 's Export Status of Cultural Products to RCEP Partner Countries

2.1 Scale of Export Trade

Over the past 11 years, China's cultural products export to RCEP countries shows a upward trend, as shown in Table 1, from 5.2 billion USD in 2013 to 8.3 billion USD in

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2023. Moreover, the proportion is also increasing year by year, which indicates that China's export of cultural products to RCEP has potential.

Table 1. China's cultural products export (Unit: billion USD, %)

Year	2013	2015	2017	2019	2021	2023
China's exports of cultural products to RCEP countries	5.2	4.7	4.5	5.6	7.3	8.3
China's total exports of cultural products	114.5	83.5	61.4	72.8	88.7	83.2
Percentage	4.5	5.6	7.4	7.7	8.3	9.9

Source(s): UN Comtrade database

2.2 Structure of Export Trade

According to the 2009 UNESCO Framework for Cultural Statistics^[4], cultural products are classified into A to F categories, namely heritage, performance products, artworks, publications, media and creative design. As shown in Table 2 the export structure of cultural product is unbalanced. Among them, art and performance products are mostly exported, while media and design products are rarely exported.

Table 2. Exports of different cultural categories (Unit: million USD)

	2013	2015	2017	2019	2021	2023
Category A	0.0	5.4	2.8	0.5	0.0	0.0
Category B	963.4	983.8	891.8	1169.2	1367.2	1285.4
Category C	3939.5	3415.9	3418.5	4157.1	5730.9	6760.1
Category D	273.6	251.0	206.4	247.3	239.1	231.7
Category E	0.1	0.0	0.0	0.0	0.0	0.0
Category F	7.5	5.5	5.7	4.1	0.4	0.0

Source(s): UN Comtrade database

3 Empirical Study

3.1 Method

The stochastic frontier gravity model takes into account the random error term v and the unobservable non-efficiency factor μ . This paper will use the time-varying stochastic frontier gravity model and the trade inefficiency model to analyze factors. And the trade efficiency is estimated by the model to measure China's export potential. The basic theoretical model is expressed as:

$$T_{ijt} = f(x_{ijt}, \beta) \exp(v_{ijt}) \exp(-\mu_{ijt}), \mu_{ijt} \geq 0 \quad (1)$$

$$\ln T_{ijt} = \ln f(x_{ijt}, \beta) + v_{ijt} - \mu_{ijt}, \mu_{ijt} \geq 0 \quad (2)$$

$$T^*_{ijt} = f(x_{ijt}, \beta) \exp(v_{ijt}) \quad (3)$$

$$TE_{ijt} = T_{ijt}/T^*_{ijt} = \exp(-\mu_{ijt}) \tag{4}$$

Among them, T_{ijt} represents the trade volume; x_{ijt} is the core factor affecting the trade volume; β is the parameter vector to be estimated; v_{ijt} is a random factor, obeying the standard normal distribution; μ_{ijt} is a non-negative trade inefficiency term, which is independent of v_{ijt} and will restrict trade; T^* is trade potential ; TE is trade efficiency.

The time-varying stochastic frontier model mainly solves the problem that the trade inefficiency term μ changes with time. Its basic form is :

$$\mu_{ijt} = \{ \exp[-\eta(t-T)] \} \mu_{ij} \tag{5}$$

The trade inefficiency model uses one-step method to study the influencing factors of trade inefficiency. The trade inefficiency term μ is set to:

$$\mu_{ijt} = \alpha' z_{ijt} + \varepsilon_{ijt} \tag{6}$$

$$\ln T_{ijt} = \ln f(x_{ijt}, \beta) + v_{ijt} - (\alpha' z_{ijt} + \varepsilon_{ijt}) \tag{7}$$

3.1.1 Stochastic Frontier Gravity Model.

$$\ln EXP_{ijt} = \beta_0 + \beta_1 \ln PGDP_{it} + \beta_2 \ln PGDP_{jt} + \beta_3 \ln POP_{it} + \beta_4 \ln POP_{jt} + \beta_5 \ln DIS_{ij} + v_{ijt} - \mu_{ijt} \tag{8}$$

The dependent variable is the export value of cultural products (EXP_{ijt}). The independent variables are mainly divided into the following three groups: (1) $PGDP_{it}$ and $PGDP_{jt}$ represent the per capita GDP of China and the trading country; (2) POP_{it} and POP_{jt} represent the total population of China and the trading country; (3) DIS_{ij} represents the geographic distance.

3.1.2 Non-efficiency Model.

$$\mu_{ijt} = \alpha_0 + \alpha_1 NET + \alpha_2 NETc + \alpha_3 TAX + \alpha_4 SD + \alpha_5 FT + \alpha_6 LOG + \alpha_7 CD + \varepsilon_{ijt} \tag{9}$$

The independent variables are divided into the following six groups: (1)The internet penetration rate in RCEP countries (NET)and China (NETc) reflect the development of the Internet ; (2) The average tariff (TAX) reflects the national tariff barriers ; (3)Institutional distance (SD) reflects the institutional differences ; (4) The degree of trade openness(FT) measures the proportion of merchandise trade in total GDP; (5) The logistics performance(LOG) reflects a country 's logistics situation; (6)Cultural distance(CD) reflects the cultural difference.

3.1.3 Data Source.

Cultural products export data is from the UN Comtrade database. PGDP, POP, NET (c), FT, TAX, SD and LOG data are obtained from the World Bank database; DIS data is obtained from the CEPII database; CD data is gained from the Hofstede website.

3.2 Empirical Results

3.2.1 Model Practicability Test.

Before conducting empirical research, the applicability of the model should be tested. As shown in Table 3, by comparing the values of LR statistics, the null hypothesis should be rejected, so it is reasonable to choose the time-varying stochastic frontier gravity model.

Table 3. Hypothesis test results of stochastic frontier gravity model

Null hypothesis	Constraint model	Unconstrained model	LR statistic	1% threshold	Test results
Absence of trade inefficiency	-262.55	-165.44	194.21	10.501	rejection
Invariance of trade inefficiency	-165.44	-159.81	205.46	8.273	rejection

Source(s): The Authors' computation

3.2.2 Empirical Results of Stochastic Frontier Gravity Model.

According to Table 4, in the stochastic frontier gravity model, the estimated coefficients of China's GDP and RCEP countries' GDP and population variables are positive, indicating that the growth of these variables is conducive to the export of Chinese cultural products. But the estimated coefficient of China's population variables is negative, indicating that its growth has a certain inhibitory effect on the export. This may be due to the increasing domestic demand.

In the non-efficiency model, the coefficient symbols of China's Internet level, institutional distance, trade freedom, tariff and logistics performance are positive, indicating that the growth of these variables can reduce trade resistance and promote the export of cultural products. The coefficient symbols of Internet level in RCEP countries and cultural distance are positive, indicating that these variables increase trade resistance and is not conducive to export. This may be due to the higher level of local Internet, the more intense competition in cultural products, and the more difficult for China to export.

Table 4. Estimated results of the trade inefficiency model

Stochastic frontier function			Trade inefficiency function		
Variable	ratio	t-value	Variable	ratio	t-value
Constant	444.25***	444.57	Constant	15.87***	6.71
lnPGDP _j	0.07	1.52	NET	0.04**	2.34
lnPGDP _i	2.04***	7.10	NET _c	-0.05**	-2.26
lnPOP _j	0.38***	7.15	SD	-0.38*	-1.78
lnPOP _i	-23.61***	-54.03	FT	-0.04***	-5.68
lnDIS	0.41**	2.44	TAX	-0.30**	-2.10
			LOG	-3.76***	-5.96
			CD	0.53*	1.86

		σ_2	1.70***	8.80
		γ	0.94***	82.76
Log likelihood	-183.81			
LR test value	157.47			

Note(s):*Significant at 0.1 level; **significance at 0.5 level;***significance at 0.01 level

Source(s): The Authors' computation

3.2.3 Trade Efficiency and Potential.

The average export efficiency of Chinese cultural products to RCEP countries is 0.45. According to table 5, the top three countries for expansion space are Laos, Brunei and New Zealand, indicating that China should attach importance to these countries, so as to promote the sustainable development of trade.

Table 5. China's Trade Potential for Cultural Products Exports to RCEP Countries

Country	Trade efficiency	Actual trade (million USD)	Potential trade (million USD)	Trade potential (million USD)
Laos	0.03	683.6	24096.5	23412.9
Brunei	0.03	45.6	1435.5	1389.9
New Zealand	0.06	889.6	14097.6	13208.0
Myanmar	0.14	11.2	81.3	70.1
Indonesia	0.16	749.7	4751.4	4001.7
Philippines	0.31	5.5	17.6	12.1
Japan	0.49	1131.5	2306.0	1174.5
Australia	0.52	817.7	1563.6	745.9
Korea	0.61	567.2	931.4	364.2
Thailand	0.62	173.0	281.2	108.2
Cambodia	0.75	469.6	628.7	159.1
Malaysia	0.85	403.6	476.9	73.4
Vietnam	0.88	1890.0	2138.7	248.7
Singapore	0.92	439.4	479.4	40.1

Note(s): Potential trade = actual trade/trade efficiency; trade potential=potential trade -actual trade

Source(s): The Authors' computation

4 Conclusions and Recommendations

4.1 Conclusion

The time-varying stochastic frontier gravity model is used to empirically study the export potential of China's cultural products to 14 RCEP member countries from 2012 to 2023. The empirical results show that GDP growth, China Internet development level, trade freedom and logistics performance are conducive to cultural products export. The Internet development level of RCEP countries and cultural distance are not conducive

to the export of cultural products. China's exports of cultural products to RCEP countries are on the rise. At present, the efficiency of export trade is generally at a medium level, but it has great export potential.

4.2 Recommendations

China should strengthen cooperation with RCEP countries in digital and transportation infrastructure, so as to improve logistics performance and reduce the cost^[5]. According to the trade potential estimated, China should pay more attention to some countries which have high trade potential and make full use of the opportunities in the digital age^[6]. So as to improve cultural products export and fully release the trade potential. Meanwhile, China should deepen the application of technology to strengthen product innovation, establish cultural brand and further optimize the export structure^[7].

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