

A Study on Integration Degree of Tradable Goods and Service Market of China's 36 Cities

MingmingLiu^{1,a}, YanzhenWang¹, XiuminLi¹

¹School of Economics, Northeast Normal University, Changchun, Jilin, China

^aliumm910917@126.com

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Abstract: This paper measures China's market integration by the price difference among regions of eight categories of goods and service. We select tradable goods price data of China's 36 cities in twelve years. We calculate the overall and classified Gini coefficients to analyze integration level of China's market and classified goods and service markets. The result shows that the market price difference among regions is not very large and presents decrease trend, which indicates that China's market integration level is increasingly high. In addition, the market integration levels of foods, household equipment and supplies, alcohol and tobacco are very high, which have contributed to the realization of regional market integration.

Introduction

Since reform and opening-up, China gradually steps into socialist market economy, so state mandatory plan has been replaced by market mechanisms gradually. At the same time China's economy has obtained continuous rapid growth. As can be concluded from the historical experiences, forming a unified domestic market is the key to economic development for most countries and regions. "The 13th Five-Year Plan" in 2015 emphasized to guide the actions of market participants. Therefore, the role of market in resources allocation has been paid more and more attention, and thus strengthening the role of market, forming a larger domestic market will affect China's economic development. So the study on China's market integration and achieving a higher degree of market integration is of great significance to China.

China's market integration process has been highly concerned by many scholars. In existing literature, many methods have been used to measure the market integration degree. Among them, trade flows analysis is widely used. Naughton (1999) uses multiregional input-output table of 1987 and 1992 to study the industrial trade flows among China's provinces^[1]. And then Poncet (2003) adds the input-output table of 1997, and uses "border effect" model to study trade flows among provinces^[2]. Li and Zhao (2008) find that the border effect among China's eight economic regions is still large, and the domestic market has a certain degree of segmentation^[3]. Xing and Li (2009) empirically study the local preference level of provincial trade and find that China's domestic market integration has a higher level^[4].

Meanwhile, many scholars measure China's market integration indirectly by studying the regional specialization level. Bai et al. (2004) use the Hoover coefficient to measure China's specialization level, which shows that China's market integration is increasing^[5]. Fan (2004) finds that China's market integration level has improved since the reform by calculating regional relative specialization index, inter-regional regional specialization index and regional industry average concentration ratio^[6].

Another common method is law of one price. Parsley et al. (1996) estimate the market segmentation index among cities with the prices panel data of 48 cities in the US^[7]. Zhu (2004) analyzes the difference by regional and national price index, and finds that China's market integration level has a slight fluctuation^[8]. Guet et al. (2006) analyze the methods of regional market integration, and use China's regional commodities price index to evaluate market integration degree^[9]. Shenget et al. (2011) measure China's market segmentation based on Parsley et al. (1996), and find that China's market integration degree is continuously improving^[10].

In summary, it is controversial that whether China's domestic market integration has been achieved. Generally speaking, the methods of measuring market integration include trade flows, law

of one price and specialization index. In view of the price difference among regions and research on time series behavior could be better able to analyze China's domestic market integration, so this paper adopts the method of law of one price. The difference is this paper selects tradable goods and service price data from residents' consumption of China's 36 cities, and calculates the Gini coefficient to analyze China's regional price difference and measure domestic market integration degree¹. In addition, this paper calculates the classified Gini coefficients to analyze integration levels of different kinds of goods and service markets.

The choice of commodities basket and data

This paper selects China's 36 cities, including Beijing, Tianjin, Shijiazhuang, Taiyuan, Hohhot, Shenyang, Dalian, Changchun, Harbin, Shanghai, Nanjing, Hangzhou, and so on. The price data of tradable goods and services from residents' consumption, such as foods, clothing, medical care, transportation and communications, entertainment and education, household equipment and supplies, living, alcohol and tobacco. And then we calculate Gini coefficient to describe the price difference and fluctuation of tradable goods and service among China's regions and observe the degree of China's market integration. In addition, this paper only involves a part of goods and service in residents' consumption, which can enter the domestic market (often called as tradable goods). The tradability of tradable goods is very strong, and of non-tradable goods is very low, however, the division of tradable and non-tradable goods is not set in stone.

The research results on division of tradable and non-tradable goods are very different. Yu (2010) thinks that manufacturing and primary products belong to the tradable industry, and construction sector belongs to the non-tradable industry, and a part of service, such as real estate service, wholesale and retail, entertainment and educational service, medical care and social assistance, belong to tradable service^[11]. So according to our research objects and Yu (2010), we try our best to select the official price data of goods and service, and divide the goods of foods, clothing, transportation and communications, household equipment and supplies, alcohol and tobacco into tradable goods, and the service of medical care, entertainment and education, living are non-tradable goods. For tradable goods, we can obtain the data of grain, beans, meat, eggs and poultry, fish, vegetables, spices, fruit, milk and dairy products, sugar, tobacco, alcohol, clothing, durable goods, family daily groceries, etc.

Because of the availability of data, this paper uses price data of municipalities, the provincial capitals and developed cities, and the research objects are 36 cities' goods and service prices in 2003-2014. We will carry on the research according to the principles of comparability and authority. Firstly, we try to choose the goods that can trade and have the same or similar variety, quality and specifications among regions, and choose the local main products for those who have no unified brand. In the process of collecting data, we found that there are no separate price data in "China's Price Yearbook" after 2008, and there are only the national average prices, so we can't get the prices of 2007-2014. Therefore, we make use of the consumer price index of 36 cities in 2007-2014 (100 in last year) and the prices data of 2006 to calculate the prices of 2007-2014. Secondly, authoritative principle is that our sample data is obtained from the official statistics database.

Calculation of China's regional goods price difference

This paper selects tradable goods and service prices data of 36 cities in 2003-2014 to calculate Gini coefficient. Calculation method is as follows:

$$G = \frac{1}{2n(n-1)\mu} * \sum \sum |P_i - P_j|$$

where, n is number of cities; P_i and P_j shows each city's weighted average of goods and service prices, and there are 36 weighted averages each year. And $|P_i - P_j|$ is absolute value of the weighted

¹This paper's domestic market integration is mainly commodity market integration, so the scope of the concept is narrowed than market integration.

average price difference between any two cities. Then μ is the average of the indicators, which is the simple arithmetic average of P_i .

After calculating, we can obtain the value of P_i or P_j of 36 cities and the Gini coefficients in 12 years. Concrete results are shown in Table 1.

Table 1. Gini coefficient of China's 36 cities tradable goods and service prices

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Value	0.139	0.124	0.117	0.108	0.094	0.097	0.102	0.097	0.096	0.092	0.075	0.078

Data sources: The "China's Price Yearbook".

From Table 1, we can see that the Gini coefficient values are not high, which suggests that there is small price difference between 36 cities, so China's market integration level is somewhat high. In addition, from Table 1, we can find the values in 2008 and 2009 are slightly increased, and it means that price difference among regions is widening. In 2008, due to the outbreak of the financial crisis, regional authorities would take corresponding measures to protect the interests of their regions, so the price difference rises, and as can be seen, after 2009 the line starts to fall. Therefore, China's overall market integration level rises gradually.

This paper will make further study on kinds of tradable goods and service markets, and measure the integration degree of classified markets. Then we calculate classified Gini coefficients using above method. Then we can obtain five kinds of Gini coefficients of tradable goods and service of 36 cities in 12 years. The specific values and changes in the trend are showed in the chart below.

Table 2. Gini coefficients of China's classified goods and service prices

Year	Foods	Clothing	Transportation and Communications	Alcohol and Tobacco	Household Equipment and Supplies
2003	0.074	0.295	0.142	0.126	0.199
2004	0.073	0.324	0.168	0.137	0.106
2005	0.070	0.330	0.189	0.143	0.104
2006	0.080	0.314	0.210	0.147	0.110
2007	0.081	0.326	0.218	0.147	0.091
2008	0.083	0.321	0.202	0.164	0.092
2009	0.079	0.322	0.201	0.147	0.099
2010	0.083	0.326	0.196	0.126	0.098
2011	0.081	0.336	0.183	0.139	0.109
2012	0.081	0.334	0.187	0.143	0.094
2013	0.093	0.336	0.137	0.121	0.080
2014	0.098	0.335	0.148	0.101	0.085

Data sources: The "China's Price Yearbook".

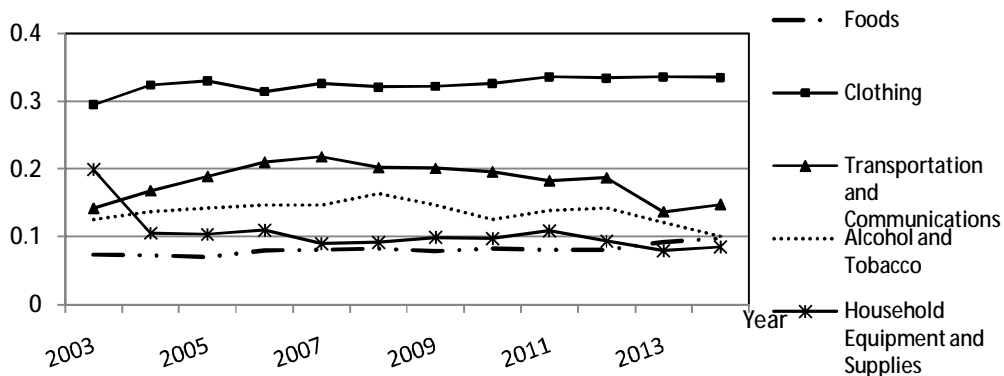


Fig. 1 The market integration level of China's classified goods and service

As can be seen, the price differences in China's classified goods and service markets are all little, so it means the integration levels of China's classified markets are very high. Among them, the price difference of foods is the smallest, followed by household equipment and supplies, alcohol and tobacco, and the price differences of other two categories are relatively larger. Therefore, we can see that the main reason of the price difference among regions in China is not foods, and in other words foods will contribute to the realization of China's market integration. Then the market integration levels of clothing and transportation and communications are a bit low, so we can see that they are

part of the reason for the price difference among regions. In addition, Gini coefficient values of alcohol and tobacco, household equipment and supplies are declining, which shows that their market integration levels are increasing.

Conclusions and Policy Suggestions

In conclusion, this paper uses law of one price to measure China's domestic market integration degree based on the tradable goods and service price data of 2003-2014. We can find that the Gini coefficient is decreasing substantially from 2003 to 2014, so it illustrates China's domestic market integration degree has improved. Then as can be seen, the values in 2008 and 2009 are abnormal, but they are reasonable, so they do not affect the overall conclusion. In addition, through the classified Gini coefficients, we find that the integration levels of foods, household equipment and supplies, alcohol and tobacco markets are very high, so they could contribute to China's domestic market integration; And the integration levels of clothing, transportation and communications markets are somewhat low, so we can further improve the integration degree of the two markets by taking appropriate measures.

Based on the above conclusions, this paper thinks that, China's market integration level is very high, but with the role of market strengthening gradually, China should further accelerate the process of domestic market integration. Suggestions are as follows: First, the governments should play a role of guidance actively, so as to strengthen the role of market and provide a good environment for economic development. Second, the leader should be enterprises. In the first place, deepen reform of state-owned enterprises, break monopolies and encourage competition in order to separate government functions from enterprise managements and weaken local protection motivation. Third, we should provide a good legal environment and a strong guarantee for the realization of market integration. Then guide and standardize the market integration process in our country.

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