

# Study on the Ability for Jilin Province of China to Undertake Outsourced International Service

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**Abstract** Technology, economy, human capital and policy are essential facilities of undertaking international service outsourcing for an area based on analyzing the influencing factors. With principal component analysis, this paper evaluates the ability to undertake international service outsourcing in Jilin Province of China with the purpose of constructing an index system. It shows that the ability in Jilin Province is weak. It is essential for Jilin province of China to improve the technology, to train and introduce talents, and to perfect the soft environment in order to further develop the ability to undertake international service outsourcing.

**Key words** International service outsourcing; Influencing factor; Ability to undertake; Jilin Province

## 1 Introduction

With the developing of the international service outsourcing, many scholars studied the reason or the influencing factors of transferring service from developed country to developing country, and the factors are important for the developing country to improve the competitive ability to undertake international service outsourcing.

(Loh 1992) believes that the reasons of developing service outsourcing are impulse of economic circle, the competitive pressure in market and impetus of gaining competitive advantage<sup>[1]</sup>. (Sanchez 1996) suggests that specialization of knowledge bring the innovation of producing style, and the modularization conditions the international service outsourcing development<sup>[2]</sup>. (Groot 1998), (Costa 2001) and (Grossman 2004) think that the low cost is the most important factor of transnational corporation choosing international service outsourcing<sup>[3][4][5]</sup>. (Yeats 2001) believes that the influencing factors of transferring service from developed country to developing country are trade barrier, labor cost, transport infrastructure and transport cost, the behavior of government (duty, rent, infrastructure, exchange rate, communication infrastructure, political situation, commercial environment), language<sup>[6]</sup>. (Skinner 1974), (Quinn & Hilmer 1994) think that international service outsourcing can increase the productivity and decrease the operators' cost so that improve the core competitiveness in enterprises<sup>[7]</sup>. (Chen Fei 2005) explains the reason of developing international service outsourcing from the point of external environment (technology, economic, market) and internal environment (decreasing cost, improving core competitiveness)<sup>[8]</sup>. (Wang Xiaohong 2007) believes that international industrial specialization, difference of labor cost, improving core competitiveness are the important factors of international service outsourcing<sup>[9]</sup>. (Zhu Shengyoung and Li Wenxiu 2009) think that the outsourcing demand of manufacturing industry and service, information technology, market environment change, the raise in labor costs play a positive role in service outsourcing. Moreover, the service opening promotes the development of offshore service outsourcing<sup>[10]</sup>.

In a word, transnational corporation think about frequently the factors in technology, economic and the behavior of government when they choose the region of undertaking international service outsourcing. So, the influencing factors of improving the competitive ability to undertake international service outsourcing can be summarized as technology, economy, human capital and policy.

## 2 Influencing Factors of Undertaking Outsourced International Service

### 2.1 Technology

With the development of technology, service outsourcing comes into being and develops as a knowledge-intensive industry. First, the specialized knowledge standardization and digitization brought from technology can break the service producing chain into small parts, and some small parts can shift to other specialized company. Second, with the development of communication, especially with the development of internet, the cost of collecting, processing, delivering information becomes cheap, so the service outsourcing can cross the national boundaries easily. At the same time, technology can determine the ability to undertake international service outsourcing. On the one hand, since the service outsourcing

is a knowledge-intensive industry, the technological level affects the service kinds and quality which the contractor can support. On the other hand, the convenient communication can strengthen the contact and reduce the deal cost between the contractor and the contract-issuing party, so a region with developed communication can undertake international service outsourcing easily.

### **2.2 Economic development**

Economic development is an important influencing factor of the ability to undertake international service outsourcing. First, the consumption is big in the developed region. Choosing a company in the developed region to undertake international service outsourcing, exploiting and producing the produce which meet the local consumption is a good strategy for the foreign enterprise to occupy the host market and gain profit over a long period of time. Second, the foreign direct investment is more in the developed region than in the less developed region, and the regional distribution of FDI can set an example. With the “follow-the-leader” pattern, the foreign enterprise prefers the contractor in developed region to that in less developed region. Third, the contractor in a region with opening service industry can undertake international service outsourcing easily. The regions with opening service industry often have a good market access. The level of service open is different in China, and it's higher in developed region than in less developed region. So the ability to undertake international service outsourcing of the contractor in region is good. Last, service department and service structure is more mature in developed region, and the mature service department and service structure can provide related and auxiliary industries for service outsourcing. The company in the region can reduce cost and the operation is convenient.

### **2.3 Human capital**

Human capital is the main factor in service industry, especially in the modern service industry such as design, research and development, soft service, business service. So, labor quality and cost become decisive factor of successful undertaking international service outsourcing. The labor with fundamental technology, soft technology and related technology is fit for the concrete business, and the labor with managing ability of modern enterprise and the ability of forecasting industrial tendency is fit to communicate with the foreign enterprise and promote the cooperation. Reducing cost is also an important factor for transnational corporation in developed country of outsourcing service business. The human capital cost in developed country is increased, so the region with low human capital cost can undertake some service producing link from the enterprises in developed country, which can save some cost.

### **2.4 Policy**

International service outsourcing is a new industry. Many countries realize the importance of developing international service outsourcing and take some policy to support and promote it. The behavior of government can standardize the development of service outsourcing industry. The compressive service outsourcing policy which is active, reliable, long-term, and sustainable not only can affect the economic development, but also can influence the competitive ability to undertake international service outsourcing.

### **2.5 Other factors**

Besides technology, economic, human capital and policy, location, language, and culture have an effect on undertaking international service outsourcing. The adjacent location, similar language and culture can reduce deal cost and communicate conveniently between contractor and the contract-issuing party.

## **3 Evaluation of the Ability to Undertake Outsourced International Service**

### **3.1 Establishing evaluation index system**

Based on the analyzing of influencing factors of undertaking international service outsourcing, considering the collected datum, this paper set an indicator system which comprised with four facets of technology, economy, human capital, and policy, and the number of all indicators is 14. (See table 1).

### **3.2 Collecting data**

The data comes from *China statistical yearbook* 2009 and every provincial statistical yearbook. Level of Policy Supporting can't be found in statistical yearbook, so the data of the indicator is gained from some experts.

The unit of every indicator is different and the numerical gap is quite large, so the data should be standardized. The way of standardization is standard deviation.

**Table 1 Appraisal Indicator System of Ability to Undertake Outsourced International Service**

	Influencing factors	indicators	unit
Ability to undertake international service outsourcing	technology	Ownership of Mobile Telephone Per 100 Urban Households	unit
		Ownership of Computer Per 100 Urban Households	set
		Transaction Value in Technical Market	10 000 Yuan
		Number of Patents Application Granted	piece
	economic	Gross Regional Product in Tertiary Industry	100 million Yuan
		Gross Regional Product in Information Transmission, Computer Services and Software	100 million Yuan
		Exports of High-tech Enterprises	10 000 US dollars
		Gross Regional Product	100 million Yuan
		Household Consumption Expenditure	Yuan
		FDI	10 000 US dollars
	Human capital	Number of People with education attainment of College and Higher Level	person
		Average Earning of Employed Persons in Information Transmission, Computer Services and Software	Yuan
		Number of Staff and Workers in Information Transmission, Computer Services and Software	10 000 persons
	policy	Level of Policy Supporting	

**3.3 Method of evaluation**

SPSS 15.0 and principal component analysis are utilized to analyze the data which contain 14 indicators and 31 provinces. Then the paper obtain the rotated component matrix, 14 initial eigenvalues (see table 2). The initial eigenvalues of three components exceed 1, and the percentage of cumulative variance is more than 80%, so 3 components are chosen to analyze the ability to undertake international service outsourcing.

**Table 2 Initial Eigenvalues**

	Total	% of Variance	Cumulative %		Total	% of Variance	Cumulative %
1	8.487	60.622	60.622	8	0.189	1.348	97.935
2	2.156	15.397	76.018	9	0.101	0.724	98.659
3	1.007	7.196	83.215	10	7.330E-02	0.524	99.183
4	0.702	5.013	88.228	11	5.750E-02	0.411	99.593
5	0.612	4.373	92.601	12	4.769E-02	0.341	99.934
6	0.342	2.444	95.044	13	6.770E-03	4.836E-02	99.982
7	0.216	1.543	96.587	14	2.466E-03	1.762E-02	100

The component score coefficient matrix and the standard datum which come from the principal component analysis is used to calculate the value of the components. (See table 3)

According the value of the components and initial eigenvalues, the value of ability to undertake international service outsourcing is calculated by the following formula:

$$F_r = \sum_{i=1}^3 F_i W_i \tag{1}$$

$$W_i = \lambda_i / \sum_{i=1}^3 \lambda_i \tag{2}$$

$F_r$  is the value of ability to undertake international service outsourcing;

$F_i$  is the value of the component;

$W_i$  is the weight of component;

$\lambda_i$  is the initial eigenvalues.

The ability to undertake international service outsourcing is determined by  $F_r$ . The more  $F_r$ , the stronger of the ability to undertake international service outsourcing.

**3.4 Result of evaluation**

The value of ability to undertake international service outsourcing is gained and arranged in order of size. (see table 3)

**Table 3 The Value of Ability to Undertake Outsourced International Service in China**

Region	F1	F2	F3	F	Region	F1	F2	F3	F
Guangdong	2.926	0.873	0.276	2.317	Shaanxi	-0.368	0.196	0.085	-0.224
Jiangsu	2.815	-0.008	-0.796	1.980	Jiangxi	-0.244	-0.371	-0.349	-0.276
Shandong	1.592	-0.155	-0.398	1.097	Chongqing	-0.549	0.474	-0.089	-0.320
Zhejiang	1.268	0.904	-0.003	1.091	Guangxi	-0.663	1.145	-1.019	-0.359
Shanghai	-0.057	3.421	0.409	0.627	Jilin	-0.503	0.342	-0.654	-0.360
Liaoning	0.686	-0.773	0.642	0.412	Shanxi	-0.271	-1.031	0.097	-0.380
Sichuan	0.380	-0.838	0.337	0.151	Inner	-0.465	-0.323	-0.345	-0.428
Hebei	0.334	-0.432	-0.288	0.138	Mongolia	-0.566	-0.038	-0.489	-0.462
Henan	0.433	-0.877	-0.255	0.131	Yunnan	-0.541	-0.672	-0.154	-0.531
Hubei	0.371	-1.044	0.423	0.114	Xinjiang	-0.697	-0.166	-0.447	-0.577
Fujian	-0.172	1.765	-1.036	0.112	Guizhou	-0.654	-0.831	-0.337	-0.660
Beijing	-0.626	0.782	4.768	0.101	Gansu	-1.117	0.561	-0.588	-0.761
Hunan	0.291	-1.215	0.590	0.038	Hainan	-1.035	0.131	-0.634	-0.785
Heilongjiang	0.063	-1.232	0.750	-0.117	Ningxia	-0.951	-0.526	-0.362	-0.821
Anhui	0.005	-0.863	0.180	-0.141	Qinghai	-1.156	-0.216	-0.273	-0.906
Tianjin	-0.531	1.016	-0.040	-0.202	Tibet				

## 4 Conclusions

Table 3 shows that the ability to undertake international service outsourcing in Guangdong province is best in China, and the value is 2.317. The value in Jilin province is only -0.360, the distance of the ability between Jilin province and Guangdong province is great. Besides, the value of ability in Jilin province is lagging behind the value in 20 provinces in China. So, the ability to undertake international service outsourcing in Jilin province is weak in China. Some measures should be taken to improve the ability to undertake international service outsourcing in Jilin province.

### 4.1 Improving the level of technology

Technology is one of important factors of influencing undertaking international service outsourcing. It's essential for Jilin province of China to improve the level of technology. First, more capital and policy should be used to improve technological development in Jilin province of China. Platform should be built to promote transformation from science and technology into productivity. Second, communication infrastructure, such as telecommunication and internet should be perfected. The civil network and commercial network can be separated and developed respectively, so that the commercial network can have more capital to develop. In this way, network can meet the demand of developing international service outsourcing.

### 4.2 Training and introducing labors

International service outsourcing demands many compounding labors who master soft technology and managing ability. So, it's essential for Jilin province of China to perfect the talent cultivation and introduction. First, according the demand of market, government, company and school should train practical workers by education and training. Second, the service outsourcing company can introduce some labors with much experience from abroad.

### 4.3 Perfecting the soft environment

First, based on the experience of developing international service outsourcing in India, Mexico, and other region, the plan, goal and measures should be made in Jilin province of China to develop international service outsourcing. Second, system of preventing risk should be built in order to reduce the risk of company. The government may support more financing channel and loaning guarantee for the company of undertaking international service outsourcing. Third, information platform should be built to collect related information for the company. Forth, laws of knowledge right should be strengthened to protect the profit of the company.

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