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ANALYSIS OF SPATIAL AND TEMPORAL CHANGES OF INFORMATIZATION IN CHINA

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Since China's entry into the information society, the researchers have discovered the existence of the "digital divide" among regions. For this phenomenon, researches were focused on economics perspective, but lack of scale thinking in geography. Based on literature review, correlation analysis and anlysis of the hierarchy process, it is established informatization development index (IDI), and then calculated IDI for the 31 provinces in China in 2001-2011. The findings of this study are as follows. Firstly, national IDI steadily improved from 2001 to 2011. Secondly, there are significant regional differences in informatization, and the IDI declines gradually from Eastern China to Western China. From 2001 to 2011, the development of IDI in Eastern China is faster than Central China and Western China, and the regional digital gap is becoming bigger. While, the development of IDI in Western China is faster than Central China, and the regional digital gap is becoming smaller. Finally, provincial digital gap in Western China is smaller than before, but in Eastern China it is becoming bigger. In addition, the study also shows that China's informatization is the response of economy, but the polarization degree of informatization is larger than economy.

Key words: informatization development index (IDI), scale, digital divide, spatial – temporal change, China

INTRODUCTION

The widely use of information and communication technologies (ICT) has produced "the end of geography" (O'B r i e n, 1992), namely, the popularization of ICT resulted in distance friction loss due to information transmission. Facing with this challenge, geographers have made a positive response from aspects of theory (J i, 1988; S h a, S h i, 1996; B a k i s, L u, 2000; Z h o u et al., 2004; Sun, 2012) and practice (Hu, 2003; Liu et al., 2004; Li, 2006; Liu, 2007; Lu et al., 2008; D u n n i n g, 2009; S t a t i s t i c a l R e s e a r c h ..., 2010; N i a n et al., 2010; W a n g, Q i u, 2011; S o n g, L i u, 2013a,b), and proved that information technology did not lead

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to the geography death. For the significant differences among countries or among regions in information infrastructure, application level of information technology etc., the "digital divide" theory is becoming popular.

Currently, the digital divide analysis of regional and provincial in China are focused on two aspects: 1) with only one index (L i u, 2007; N i a n et al., 2010; W a n g, Q i u, 2011), such as internet penetration rate, mobile phone penetration rate, and so on; 2) using comprehensive indexes to rank simply (S t a t i s t i c a l R e s e a r c h..., 2010; H u, 2003; L i, 2006; S o n g, 2012; S o n g, L i u, 2013). The level of informatization development is a comprehensive concept, the above two aspects remains unconvincing. For this reason, it is necessary to establish a comprehensive index system in the view of information geography, and apply the multiple-scales methods to analyze the spatial-temporal change of regional and provincial informatization of China. The aim of this article is to provide decision basis for the national informatization process and economic development, and also rich the research methods and research content of information geography.

MATERIALS AND METHODS

INDEX OF IDI

Since the mid-1990s, the information and communication technologies (ICT) have became the core of the measurement of informatization (R e n, L i, 2011). Such as the Information Industry of China issued the „National Informatization Indices Program" in 2000 (The Ministry of information industry, 2013), the National Bureau of Statistics proposed information development index (Y a n g et al., 2011) in 2005 and optimized it in 2011. In 2007, the International Telecommunication Union (ITU) launched the informatization development index (IDI_{ITU}) (International Telecommunication Union, 2011). Based on the above three sets of representative index systems, 32 indicators were been selected on the principles of comprehensiveness, representativeness, science oriented and data availability. Then, we did correlation analysis with them, and excluded the highly relevant indicators and built an appropriate IDI index system eventually (Table 1).

WEIGHT OF INDICATORS

Currently, the analytic hierarchy process method and the principal component analysis method are the representative methods to calculate the weight of IDI indicators, but the analytic hierarchy process method is better than the principal component analysis method to reflect the information elements layered and classification level (S o n g, J i a n g, 2001), it is more practical for macroeconomic policy-making, also. So, we used the analytic hierarchy process method to calculate the index weight, and the main steps as follows: 1) Send „expert assessment questionnaire"(issued 20, recovered 13) to experts in the spheres of information geography, regional economics and the information industry department. And the questionnaire were designed with three kinds of scale of „important", "equally important" and "unimportant" to reduce the burden on expert judgment. 2) Then, results of the expert judgment were collated,

Table 1

Index of IDI and weight of indicators

	Level 1	Weight	Level 2	Level 3	Synthetic Weight
Informatization Development Index（IDI）			Paper	Paper prints of Books, magazines and newspapers per ten thousand people a year	0.0103
			Traditional media	Numbers of broadcast program per ten thousand a year	0.0094
				Numbers of TV program per ten thousand a year	0.0094
	ICT resource	0.132	Internet	Numbers of domain names per ten thousand a year	0.0335
				Numbers of bytes of web pages per ten thousand a year	0.0335
			Telephone	Call time of fixed telephone annual per capita	0.0180
				Call time of mobile phone annual per capita	0.0180
			Optical fiber density of long-distance	Length of long-distance fiber cable per square kilometer	0.1740
			Penetration rate of cable TV	Numbers of households cable TV per hundred families	0.0264
	ICT infrastructure	0.338	Telephone penetration rate	Fixed telephone penetration rate	0.0242
				Mobile phone penetration rate	0.0242
			Computer penetration rate	Family computer numbers per one hundred	0.0923
			Internet penetration rate	Numbers of Internet users per million	0.0983
	ICT application	0.182	ICT Application in enterprise	Numbers of the “Top 500 of Chinese enterprise information”	0.0297

			ICT application in government	Points of provincial government website	0.0541
			ICT industry inputs	Information infrastructure investment as a share of GDP	0.0417
	ICT industry	0.250		The proportion of total investment in R&D investment	0.0417
			ICT industry output	Post and telecommunications business as a share of GDP	0.1668
	ICT Consumption	0.098	Quality of users	The proportion of the population of graduates	0.0490
			ICT consumption coefficient	Information consumption accounting the proportion of daily consumption	0.0490

calculated and checked, and the CI of each discriminant matrix was less than 0.1, so the weights of indicators were qualified (Table 1).

DATA SOURCES AND PROCESSING

The data were collected from the *China Statistical Yearbook*, *China Information Yearbook*, *China Radio and TV yearbook*, *China Internet Development Statistics Report* and the official website of the Ministry of Commerce in 2002-2012. Due to the lack of fixed telephone call time per capita and mobile phone call time per capita between 2001 and 2005, thus respectively use bureau telephone exchange capacity per capita and mobile phone exchange capacity per capita to replace them. Similarly, information industry R&D investment accounted for the proportion of total investment in social R&D with the proportion of tertiary industry R&D substitute. Other individual incomplete data were supplemented by linear regression analysis method or arithmetic mean method.

In this paper we used the basic evaluation model of comprehensive assessment method, namely a simple linear weighting method:

$$IDI = \sum_{i=1}^{n} P_i W_i$$

Table 2

IDI in the 31 provinces of China in 2001-2011

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Beijing	174.9	189.4	193.1	196.0	205.4	235.1	313.8	415.9	439.9	430.0	566.2
Tianjin	82.7	94.1	102.4	106.4	118.0	130.6	148.7	165.3	182.0	192.0	212.2
Hebei	42.2	48.6	56.2	68.1	71.5	75.0	78.7	94.5	101.9	105.1	119.3
Shanxi	52.4	58.8	61.4	70.6	78.7	83.6	89.0	102.3	114.7	114.8	126.0
Inner Mongolia	38.9	43.6	47.5	53.1	57.5	58.1	69.4	73.8	82.3	85.5	97.8
Liaoning	59.6	67.6	76.3	89.9	89.8	93.8	103.3	117.5	126.9	134.6	143.2
Jilin	53.8	60.0	65.0	71.9	78.9	83.5	87.1	91.5	100.6	102.7	111.3
Heilongjiang	56.9	62.2	69.2	73.3	80.8	83.4	89.6	95.8	102.4	100.0	106.9
Shanghai	142.8	160.7	201.7	216.5	227.6	221.4	285.6	301.6	325.9	325.0	345.2
Jiangsu	56.4	62.5	80.4	93.6	104.7	117.5	131.5	139.7	158.5	171.7	186.3
Zhejiang	71.2	84.8	100.5	112.8	124.7	135.1	157.1	170.9	195.2	195.7	214.5
Anhui	45.1	53.8	60.2	69.1	74.2	80.5	85.5	86.7	97.7	104.7	115.1
Fujian	66.9	76.6	87.4	97.8	107.0	103.6	127.5	144.1	165.9	165.9	176.7
Jiangxi	48.0	53.7	58.6	62.6	67.8	71.9	82.2	83.4	97.3	92.2	103.5
Shandong	50.9	64.5	61.9	63.6	80.8	90.5	98.6	106.0	123.4	124.1	141.0
Henan	46.6	51.5	55.9	67.2	68.5	77.9	81.7	89.1	100.3	102.7	112.5
Hubei	52.3	56.8	63.5	71.0	75.4	81.5	90.4	97.1	110.2	111.3	124.4
Hunan	43.7	50.0	57.9	64.8	69.2	75.3	87.6	94.7	103.1	102.5	109.3
Guangdong	93.5	111.3	121.5	137.0	137.9	145.0	175.5	180.6	189.2	188.8	210.9
Guangxi	40.2	50.8	59.7	71.4	74.7	73.5	82.0	88.4	97.3	97.4	111.7
Hainan	43.0	53.0	55.6	62.8	66.0	76.6	88.4	102.2	105.3	112.5	132.3
Chongqing	55.6	64.0	67.6	71.3	78.5	87.8	94.8	97.1	108.0	111.0	113.0
Sichuan	45.5	50.2	55.2	63.1	67.4	70.7	83.6	90.4	106.2	100.4	111.8
Guizhou	38.3	46.2	58.8	63.5	67.1	74.1	82.0	87.7	95.5	96.2	110.2
Yunnan	39.2	46.6	49.4	58.4	64.2	65.1	73.2	78.8	86.3	89.1	101.3
Tibet	29.6	31.4	36.6	39.9	42.9	48.8	63.4	70.0	74.6	81.8	86.8
Shaanxi	55.1	66.4	77.6	89.3	93.9	100.5	101.7	108.6	126.0	122.0	132.6
Gansu	46.1	43.0	53.4	58.8	60.5	59.3	65.2	70.9	83.3	84.2	93.7
Qinghai	44.6	38.8	44.7	46.9	49.4	51.6	61.7	73.4	80.0	82.9	90.3
Ningxia	54.9	56.7	58.7	64.6	67.7	74.9	83.9	89.8	102.0	102.2	111.4
Xinjiang	38.9	52.4	60.2	64.4	63.9	66.4	77.2	89.4	93.2	99.3	113.4
Mean	58.4	66.1	74.1	81.9	87.6	93.3	107.73	119.27	131.45	133.16	149.37

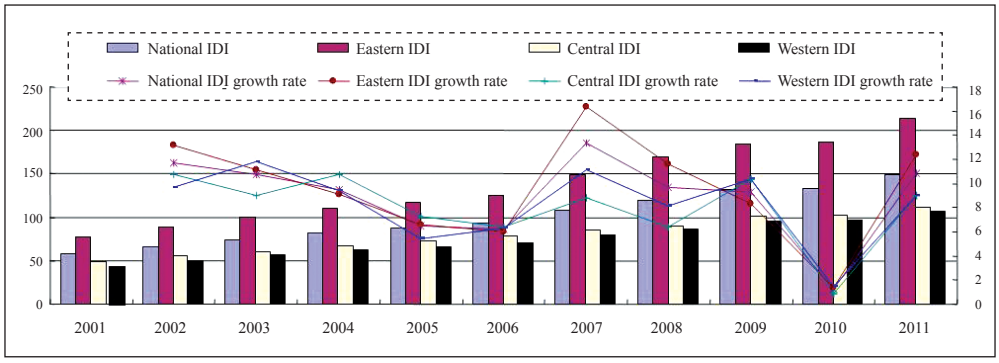

Fig.1. Development of IDI in China and the 3 regions in 2001-2011

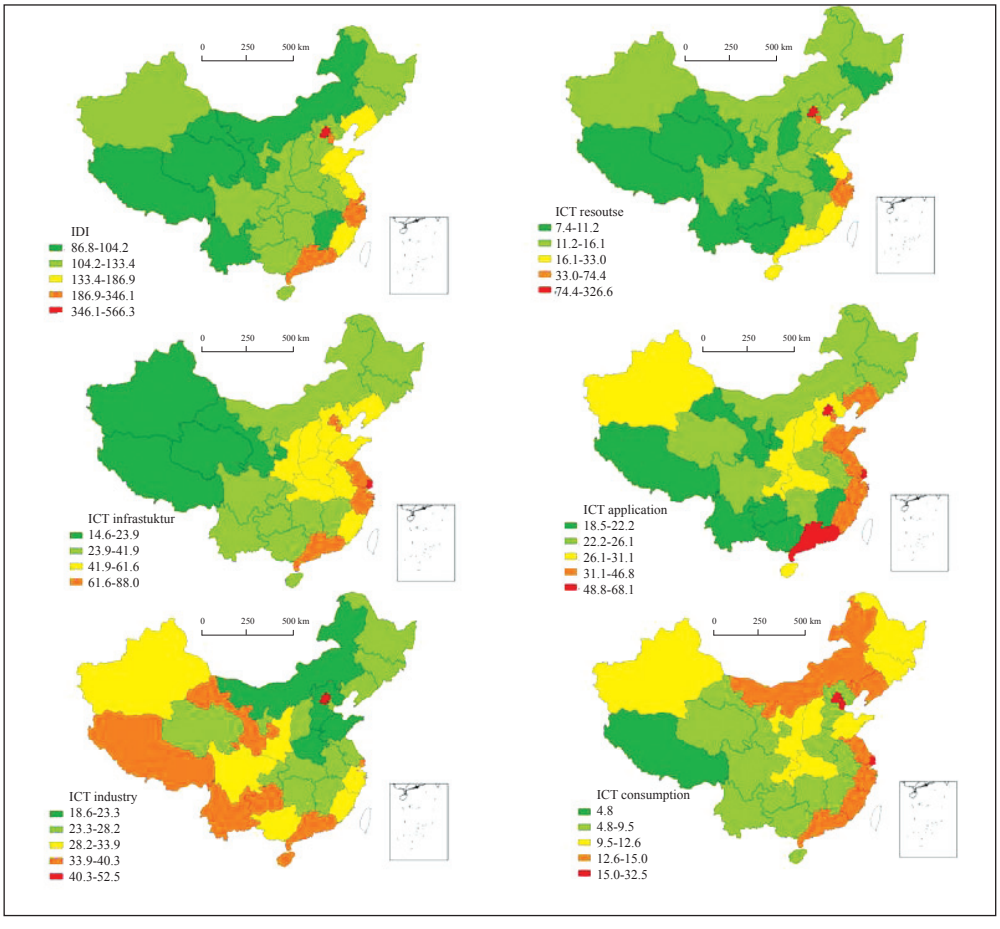

Fig. 4. Spatial difference maps of IDI and its factors at arious regions of China in 2011

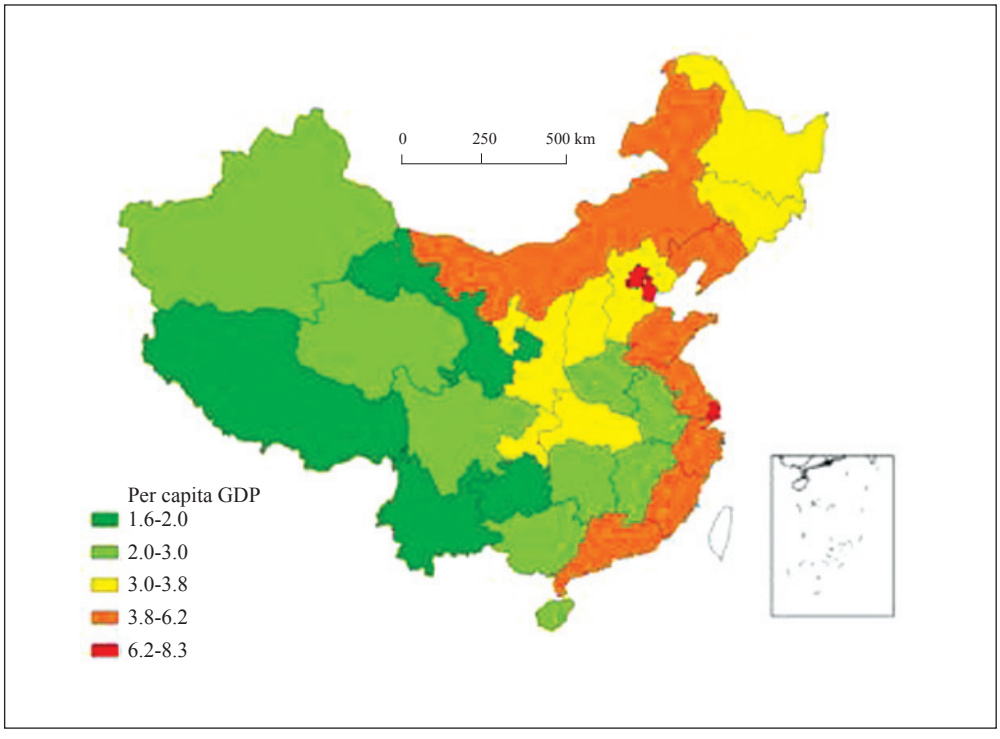

Fig. 5. Spatial pattern of China's economic development level in 2011
(The level of economic development is only represented by the GDP per capita)

In this expression, IDI represented the informatization development index; P_i represented the value of the i-th of level three indicators after dimensionless processing; W_i represented comprehensive weights of the i-th of level three indicators.

Then, the raw data were handled dimensionlessly with means meathod, and the process as follows. First we calculated the average of the raw data of each indicator of 31 provincial regions of China (without data of Hong Kong, Macao and Taiwan) from 2001 to 2011. Secondly we used the average of the raw data of each index as the reference value 100 to normalize all raw data. So, we substituted the normalized values into the comprehensive evaluation model to calculate the 31 provincial regions' IDI from 2001 to 2011 (Table 2).

RESULTS AND DISCUSSION

Spatial-temporal change of the development of China's informatizaion studied in 3 kinds of scales: country scale, regional scale and provincial scale. The regions refer to the Eastern China, the Central China and the Western China. The Eastern China includes Beijing, Shanghai, Tianjin, Liaoning, Hebei, Shandong, Jiangsu, Zhejiang, Fujian, Guangdong, Guangxi and Hainan. The Central China contains Hunan, Hubei, Shanxi, Henan, Anhui, Jiangxi, Inner Mongolia, Jilin and Heilongjiang. The Western China consisted by Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang, Sichuan, Chongqing, Yunnan, Guizhou and Tibet.

TEMPORAL CHANGE ANALYSIS OF NATIONAL INFORMATIZATION DEVELOPMENT

National IDI steadily improved from 2001 to 2011, and its mean value continued growth from 58.4 to 149.4 at an average annual growth rate of 9.9% (Table 3, Fig.1 – appendix), which is faster than the GDP growth rate (8%) in the same period. From the Fig.1, it can be seen that the IDI growth rate fluctuated significant in 2001-2011, and it has two down stages and two up stages: 2001-2005 and 2007-2010 are the decline periods; 2005-2007 and 2010-2011 are the rise periods. This phenomenon can be explained as follow. From 2001 to 2005, the mobile phone and the internet as the core of the rapid development of information and communication technology, at the same time, the traditional fixed-line telephone basically become saturated and even decreased, so that the growth rate of IDI dropped. From 2005 to 2007, with students who were the College Expansion between 1999 and 2001 into the society, information professionals increased, improving the quality of information on the subject, information consumption increases, so that the IDI growth rate increased rapidly. From 2007 to 2008, the world financial crisis had negative effects on China‘s information industry development and the information consumption, in addtion, from 2009 to 2010, China carried out network consolidation and canceled nearly 50% of the internet domain names, these factors shows in IDI growth decline. From 2010 to 2011, with the 3G network fully opened, IDI growth rebounded soon.

In time dimension, from 2001 to 2011, the IDI of the 3 regions has increased quickly (Table 3, Fig.1 – appendix). The IDI of Eastern China increased from 77.0 to 213.3, and its average annual growth rate was 10.7%. The IDI of Central China increased from 48.6 to 111.9 with an average annual growth rate 8.7%. The IDI of Western China increased from 44.8 to 106.8 with the average annual growth of 9.1%. IDI growth rate of the three regions are similar to the national, all of them present two slow-growth periods and two high-growth periods.

In spatial dimension, the digital divide among regions is obvious. In the 11 years, development level of information technology of Eastern China has always been significantly higher than the Central China and Western China, but the development level of Central China slightly higher than Western China.

Table 3

Development of IDI in China and the 3 regions in 2001-2011

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Annual growth rate (%)
Eastern	77.0	88.7	99.7	109.6	117.3	124.8	149.2	168.9	184.3	186.9	213.3	10.7%
Central	48.6	54.5	59.9	67.1	72.3	77.3	84.7	90.5	101.0	101.8	111.9	8.7%
Western	44.8	49.6	56.2	62.0	65.5	69.9	78.7	85.6	95.5	96.9	106.5	9.1%
National	58.4	66.1	74.1	81.9	87.6	93.3	107.7	119.3	131.4	133.2	149.4	9.9%

In order to study the absolute digital divide of the 3 regions, IDI of 3 regions subtracted of each other by year. The results show that the absolute digital divide between Eastern China and Western China is small, during the 11 years it has remained around 5.3. The absolute digital gap between Eastern China and Central China and between Eastern China and Western China are obviously expanded. For example, the absolute digital divide of Eastern China and Western China is expanded from 28.4 to 101.4 in 2001-2011, and it is expanded by nearly 5.6 times. The digital divide of the 3 regions has two linear growth phase, in 2001-2005 and in 2006-2011, the latter growth rate is greater than the former (Fig.2). This is the result of the dual role that the level of information of eastern part has a good foundation and growing fast.

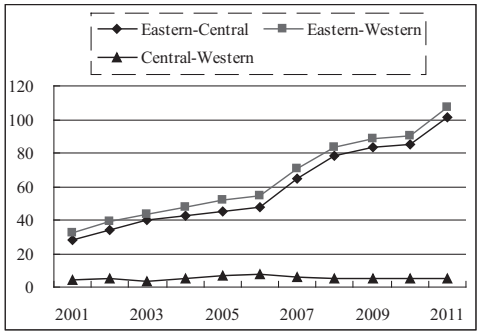

Fig.2. Digital divide among the 3 regions in 2001-2011

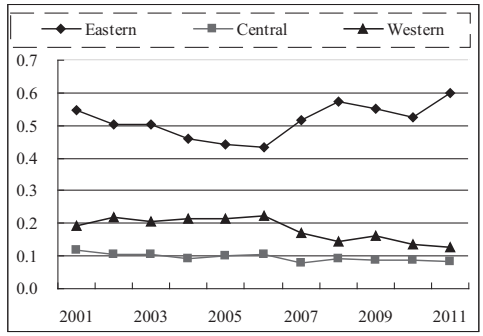

Fig.3. Digital divide inner the 3 regions in 2001-2011

SPATIAL-TEMPORAL CHANGE ANALYSIS OF INFORMATIZATION IN THE PROVINCES

Table 4 shows that the IDI of most of the eastern provinces are higher than the western provinces in 2011. Beijing, Shanxi and Shaanxi are ranked top in their regions, at the same time. Beijing's IDI is the top in China, as well as Shanxi's and Shaanxi's IDI is larger than all provinces, cities and districts of Central China and Western China.

In the Eastern China, the polarization phenomenon of IDI among provinces is obvious. For example, Beijing's IDI is 5.1 times higher than Guangxi, which is the lowest one. In addition to Beijing, Shanghai and Zhejiang, the IDI of other provinces, cities and districts are lower than the region's average value.

In the Central China or Western China, the polarization phenomenon of IDI among provinces is not obvious. The IDI of central provinces are mostly around the mean value 111.9, and the polarization is not existed. Compared with the central provinces, the western provinces IDI has slightly polarization. For example, Shaanxi has the highest IDI and is 5.1 times higher than that in Tibet, which is the lowest one.

Table 4 also shows that from 2001 to 2011 the average annual growth rate of IDI of the most eastern provinces, cities and districts is higher than central provinces and western provinces, the average annual growth rate of IDI of the most western provinces, cities and districts is higher than central provinces.

In the Eastern China, in addition to Guangdong, Liaoning, Shanghai and Tianjin, IDI average annual growth rate of other provinces, cities and districts is higher than the regional average growth rate. And Beijing's IDI growth rate is 4 percentage higher then Guangdong. In the Western China, IDI growth rate of Chongqing, Qinghai, Gansu and Ningxia is below the regional average annual growth rate, and Tibet's IDI growth rate is 4.1 percentage higher than Chongqing. In the Central China, with the exception of Heilongjiang, Jilin, and Jiangxi, the annual IDI growth rate of other provinces is greater than the regional average IDI growth rate. The annual IDI growth rate of Anhui, the top one among provinces, is 3.3 point higher than that of Heilongjiang, which ranks in the last place.

Table 4

IDI in 2011 and its average annual growth rate in 2001-2011 of the 3 regions' provinces

Eastern provinces	IDI	Average annual growth rate (%)	Central provinces	IDI	Average annual growth rate (%)	Western Provinces	IDI	Average annual growth rate (%)
Beijing	566.2	12.5	Shanxi	126.0	9.2	Shaanxi	132.6	9.2
Shanghai	345.2	9.2	Hubei	124.4	9.0	Xinjiang	113.3	11.3
Zhejiang	214.5	11.7	Anhui	115.1	9.8	Chongqing	113.0	7.3
Tianjin	212.1	9.9	Henan	112.5	9.2	Sichuan	111.8	9.4
Guangdong	210.9	8.5	Jilin	111.2	7.5	Ningxia	111.4	7.3
Jiangsu	186.3	12.7	Hunan	109.3	9.6	Guizhou	110.2	11.2
Fujian	176.7	10.2	Heilongjiang	106.9	6.5	Yunnan	101.3	10.0
Liaoning	143.2	9.2	Jiangxi	103.5	8.0	Gansu	93.7	7.4
Shandong	141.0	10.7	Inner Mongolia	97.8	9.7	Qinghai	90.3	7.3
Hainan	132.3	11.9				Tibet	86.8	11.4
Hebei	119.3	11.0						
Guangxi	111.7	10.8						
Mean value	**213.3**	**10.7**	**Mean value**	**111.9**	**8.7**	**Mean value**	**106.5**	**9.1**

To further analyze the inter-provincial differences and changes in IDI, the CV (coefficient of variability) among provinces of the 3 regions is calculated by year, and the CV represents the relative digital divide. The result shows that the digital divide among provinces in Eastern China is more obvious than Central China and Western China, and in the Central China it is the smallest one, also. In 2001-2006, the relative digital divide in Eastern China has been slowly closed, and it is almost remained unchanged in Western China and Central China. But the phenomenon has changed in 2006-2011, when the relative digital divide in the Eastern China is expanded quickly while it is reduced rapidly in Western China, but it is kept unchanged in the Central China (Fig. 3).

SPATIAL DIFFERENCES OF IDI FACTORS

The above studies show that the spatial differences of IDI in China are significant. In order to further explain this difference and explore its geographical effects, the following studies are focused on IDI factors in spatial pattern done by the data of 2011, and explore their relationship with the spatial pattern of the economy.

In ArcGIS using Natural Breaks (Jenks) method on the 2011 IDI and its factors' index for classification, spatial difference maps are elaborated (Fig. 4 – appendix). Maps represent the IDI and its factors, which show significant spatial heterogeneity. In addition to the development of information industry, IDI and its various factors show a pattern that declines gradually from Eastern China to Western China, which is similar to the pattern of China's economy, but also there is a slight difference in some parts (Fig. 5 – appendix).

In order to further investigate the relationship between the IDI and its factors, and the GDP per capita, correlation analysis with SPSS is made. The results for the index of information industry development, IDI and its factors and the GDP per capita show a considerable linear correlation at the significant level of 0.01 (Table 5), indicating that China's development of ICT is the response of economy. The economically developed regions have developed transport infrastructure, concentration of high professional and active market, leading to the layout of ICT infrastructures, the application of ICT and the production and consumption of information to these areas. As for the development of information industry and economy show not significant correlation is due to the tendency of national policy. "Western Development" results in that the proportion of investment of communications network infrastructure increases rapidly in local GDP at economically undeveloped regions, so that the development of information industry is different from other factors' spatial pattern.

For a further study of the spatial difference of IDI factors, the GDP per capita, IDI and its factors coefficient of variation CV are calculated, as a spatial difference value (Table 6). It indicates: (1) IDI spatial difference is significant, and it's greater than the level of economic development's spatial difference. Thus it is not difficult to infer that the degree of concentration and disproportion of regional informatization is higher than regional economic. If the ICT is developed in the unbalanced way, it will inevitably lead to a more serious polarization pattern. (2) The various kinds of IDI factors' spatial difference are very diverse. The spatial difference value of information consumption and information infrastructures is closer to the GDP per capita, they

Table 5

Correlation coefficient of the GDP per capita and the IDI and its factors in China (p=0.01)

	IDI	ICT resource	ICT infrastructure	ICT application	ICT industry	ICT consumption
GDP per capita	0.771	0.885	0.808	0.852	0.102 (Insignificant)	0.597

are the continuation of economic development inertia. Both factors – information technology application and development of information industry – contribute little to the spatial difference of IDI, which means that they show a balanced development trend under the guidance of national policy. The information resources have maximum spatial difference and the polarization phenomenon is very obvious, such as information resources amount in Beijing is 10 times higher than in Tibet. It can be inferred that economically developed areas have better infrastructure to attract more professional and have larger consumer market information, and the result is greater production volume of information.

Table 6

Spatial difference value of GDP per capita, IDI and its factors

ICT resource	ICT infrastructure	ICT application	ICT industry	ICT consumption	IDI	GDP per capita
204.9%	56.2%	36.9%	22.6%	44.7%	60.9%	47.2%

CONCLUSION

(1) The IDI index system of this article is feasible, the result that is measured using the indicator system is basically consistent with the National Bureau's Statistics (Statistical Research Institute, 2010), and it can objectively reflect the law of the spatial-temporal change of regional and provincial informatization in China.

(2) From 2001 to 2011, the level of development of China's ICT is improved steadily, and its rate is greater than national economy, which is the achievement of the government vigorously promote the information society.

(3) In regional scale, the IDI gradient is decreased from Eastern China to Western China, which is consistent with other researchers' conclusions. During the 11 years, this pattern did not change, and digital divide between Eastern China and Western China increased larger. While, the digital divide between Central China and Western China is very small all the time. Therefore, there are difficulties in bridging the digital divide.

(4) In provincial scale, the relative digital divide among provinces in Eastern China is more obvious than Central China and Western China. From 2001 to 2006,

the relative gap among provinces in Eastern China has been gradually narrowed, but expanded in 2006-2011. During the 11 years, the relative digital divide among provinces in Western China is slightly obvious then the relative digital divide among provinces in Central China, and they got closer since 2006. The relative digital divide among the provinces in Central China is the smallest, it is also changed at least in 2001-2011.

(5) China's IDI is the continuation of economic development, and the spatial pattern of IDI and its factors is the response of the economy spatial pattern. Good location, well-developed transportation, many high professionals and active market at economically developed areas make the layout of ICT infrastructure, ICT consumption and production develop preferentially. However, the traditional geographical space has also been challenged by information space, the polarization phenomena of ICT is higher than economic, if the ICT is developed in the unbalanced way, a new polarization pattern would born soon.

(6) This article has some shortcomings as well, the IDI index system can be further optimized, such as, the proportion of mobile phone users, e-commerce level and others are added into indicator system. In addition, the article does not study the ICT's contribution to economic development, it also does not establish a mathematical model to analyze the causal relationship between IDI factors and economy, and these studies may offer more decision basis about advance of ICT and economic development of China.

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АНАЛИЗ НА ПРОСТРАНСТВЕНИТЕ И ВРЕМЕВИТЕ ПРОМЕНИ НА ИНФОРМАТИЗАЦИЯТА В КИТАЙ

Кюнзи Жу, Джинминг Са, Ючин Лиу, Сайпинг Шу, Румяна Вацева

(Р е з ю м е)

След навлизането на Китай в информационното общество изследователите установяват наличието на „цифрово разделение“ между регионите. За изучаването на това явление проучванията са фокусирани върху икономическата перспектива, но липсва географският пространствен обхват. Въз основа на направения преглед на литературата, на приложения корелационен анализ и анализа на йерархичните процеси е разработен индекс на развитието на информатизацията (ИРИ), който се изчислява за 31 провинции в Китай за периода 2001–2011 г. Резултатите от това изследване са, както следва: 1) националният ИРИ непрекъснато се подобрява през изследвания период; 2) съществуват значителни регионални различия в информатизацията и ИРИ постепенно се понижава от Източен към Западен Китай. От 2001 г. до 2011 г. развитието на ИРИ в Източен Китай е по-бързо в сравнение с Централен и Западен Китай, което води до по-големи регионални различия. Същевременно развитието на ИРИ в Западен Китай е по-бързо от това в Централен Китай, в резултат на което регионалните различия намаляват. Освен това диференциацията между провинциите в Западен Китай намалява, а в Източен Китай се увеличава. В заключение това изследване показва, че информатизацията в Китай е свързана с икономическото развитие, но степента на поляризация на информатизацията е по-голяма от тази на икономиката.