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Conference Paper

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50th Congress of the European Regional Science Association: "Sustainable Regional Growth and Development in the Creative Knowledge Economy", 19-23 August 2010, Jönköping, Sweden

Provided in Cooperation with:

European Regional Science Association (ERSA)

Suggested Citation: Kloudova, Jitka; Zhang, Jianpeng (2010) : Creative Industries and Regional Development: Evidence from China, 50th Congress of the European Regional Science Association: "Sustainable Regional Growth and Development in the Creative Knowledge Economy", 19-23 August 2010, Jönköping, Sweden, European Regional Science Association (ERSA), Louvain-la-Neuve

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Creative Industries and Regional Development: Evidence from China

Jitka Kloudova, Jianpeng Zhang

Abstract

The creative economy is playing a more and more important role in regional development to generate income and jobs opportunity. At the centre of creative economy, many evidences show that the creative industries are the most dynamic emerging sectors. In many countries, especially in developed countries, the growth rate of creative industries is more than that of GDP and other industries. In this paper, we examined how is the relationship between the ratio of creative industries' value added to GDP and GDP per capital and if the growth rate of creative industries is more than that of secondary industry through the empirical analysis of Chinese 23 regions data.

The results show that strong and significant correlations can be found between the ratio of creative industries' value added and the GDP per capital. There is no evidence to show that growth rate of creative industries is deferent that of secondary industry for all the regions. But when we divide the samples as two groups, there is weak evidence to infer that the growth rate of creative industries is more than that of secondary industry for higher GDP per capital regions; on the contrary, there is overwhelming evidence to infer that the growth rate of secondary industry is more than that of creative industries for lower GDP per capital regions.

Key words: creative industries, secondary industry, regional development, China

Introduction

The creative economy is playing a more and more important role in regional development to generate income and jobs opportunity with globalization and the crisis of Fordism. At the centre of creative economy, many evidences show that the creative industries are the most dynamic emerging sectors. By the statistic data from UNCTAD, trade in creative goods and services increased at an unprecedented average annual rate of 8.7 per cent over the period 2000-2005. World exports of creative products were valued at \$424.4 billion in 2005 as compared to \$227.5 billion in 1996. Creative services also enjoyed rapid export growth – 8.8 per cent annually between 1996 and 2005 (UN, 2008). In many countries, especially in developed countries, the growth rate of creative industries is more than that of GDP and other industries. The growth rate of creative industries were 6% per annum between 1997 and 2005 in UK, which was double that of GDP per capital, 3% over the same period. The value-added of creative industries is in the secondary place after finance in UK (DCMS, 2007).

There has spurred heated debate about the definition and theory of creative industries since the beginning (Howkins, 2001; Hartley, 2005; Florida, 2002; DCMS, 1998; UNCTAD, 2008, etc.). Florida's theory is one of getting most argues and reviews, which was used to the creative index not only in USA, but also Europe and developing countries. Hansen and Asheim (2009), etc analyzed the relevance of Florida's theory for Europe. Zhang and Kloudova (2008) researched the correlation of creative index and GDP per

capital in China using the modified Florida's 3T model. Kloudova (2009) used a simple model of the 3Ts for regions in the Czech Republic. It was found that the economic growth in the Czech Republic has no connection with the growth rate conditions for the creative economy. There was not find dependence between GDP per capita and creativity measured by Creativity Index.

In this paper, firstly, we examined how is the relationship between the ratio of creative industries' value added to GDP and GDP per capital. Secondly, we analyzed whether the growth rate of creative industries is more than that of secondary industry and whether growth of creative industries is related to the stage of economic stage by the empirical analysis of Chinese 23 regions data.

The Creative Industries and Regional Development: Theory and Development of Hypotheses

As a new economy model, the creative economy in developed countries is more advanced than developing countries. With the development of economy, the ratio of agriculture and industry to GDP is decreasing and the ratio of tertiary industry is increasing (Except for the special stage of economy, such as the developing and least developed countries). Therefore, the knowledge-based economy and creative economy also should consistent with the development of economy. This leads to hypothesis 1 (H1):

H1: Regions with a high the ratio of creative industries' value added to GDP have higher GDP per capital.

According to Florida, the creative class, which constitutes the core of innovative industries, is engine of regional development in the creative era (Florida, 2002). Creativity and innovation are already recognized as primary drivers of economic growth, productivity, and living standards. The growth rate of creative industries is higher than the growth rate of other industries and the average growth rate of whole economy in most developed countries. By contrast, in the developing world, the creative economy has not been able to realize its full potential and the poorest countries remain marginal players in world markets for creative goods and services (UNCTAD, 2008). Therefore, we are questioning how the growth of creative industries in developing countries is and whether it is the main driver of regional development also considering the deferent stage of economic development. Here we compared the growth rate of creative industries and secondary industry. This leads to hypothesis 2 (H2):

H2: The growth rate of value-added of creative industries (CI) is higher than that of secondary industry (SI) in regional development.

Dataset and Methods

For the feasibility of research and the accessibility of the data, we used the broad definition of creative industries based on the definition of Florida on creative class. The premise is that the industries which the employment was main comprised by creative

class can be considered as creative industries. Thus, the creative industries include seven related industries in our model, that is,

- 1) Information Transmission, Computer Services and Software
- 2) Lease and Business Affairs Services
- 3) Scientific Research, Polytechnological Services and Geological Prospecting
- 4) Culture, Sports and Recreation
- 5) Banking and Insurance
- 6) Education
- 7) Health Care, Social Security and Social Welfare

This definition is combined the definition of Florida to creative class and the economic stage of China, which is highly consistent with the Florida's creative class model. There are at least three common characteristics in these industries as following: Firstly, they are knowledge-based industries that need a big mount of expert knowledge and have relatively complicated jobs. Second, the creative and innovative works take the majority in these industries. Therefore, the majority workers in these industries are creative worker, that is, creative class. Third, they are all sub-group of tertiary industry (or service industry). If the creative industries defined by DCMS are called the narrow definition, the definition in this paper can be called broad definition. In the previously research, we have used this definition to analyze the creative index in China for each region. The result showed that there is significant correlation between the creative index and GDP per capital.

In order to getting comparable data, we also adjusted some part of definition. There will be some disputes about whether the sports, geological prospecting and social welfare belong to creative industries. However, we must have a trade-off between being able to say something based on compromised and being able to say nothing. There are two reasons we include these industries: First, they are controversial parts. Although some experts don't agree that these industries are creative industries, some others agree that. Second, the biggest advantage this definition is that we can use the data from Statistical Yearbooks nearly for all regions.

According to this definition, the ratio of value-added of creative industries to GDP and GDP per capital uses the data from regional Statistical Yearbooks in 2008. The data the value-added of creative industries and secondary industries are from the regional Statistical Yearbooks from 2006-2008. The 23 regions data were researched in this paper because the data availability.

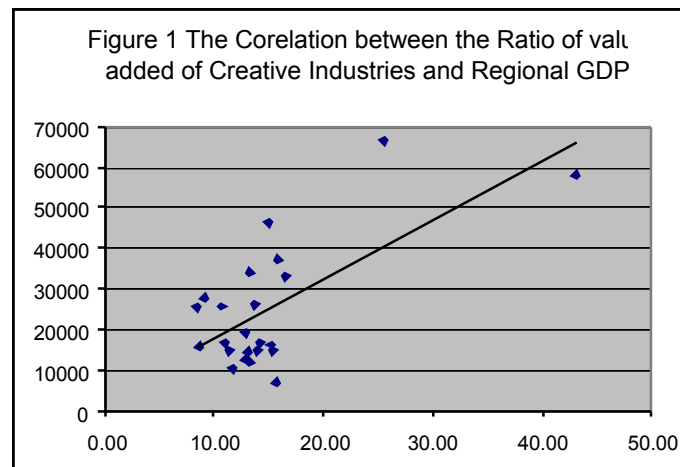
China, the Creative Industries and Regional Development: Statistical Findings

Table 1 and Figure 1 show that there are significant correlations between and the Ratio of Creative Industries to Regional GDP and Regional GDP. Beijing, Shanghai, Guangdong is the top three of the ratio, which are also in the top three ranks according to GDP per capital. But there are also some abnormal phenomena. The GDP per capital of Gansu and Ningxia is very low but the ratio is very high; the GDP per capital in Jiangsu is high but the ratio is very low. The specific reason is not very clear now. We infer the main reason

is related to the stage of economic stage. For instance, the main regional value-added is from secondary industry in Jiangsu because it has more advanced industry.

Table 1 The Correlations between the Ratio of CI and Regional GDP

| | |
|---------------------------------|------------|
| the Ratio of CE to Regional GDP | 1 |
| GDP per capital | 0.671708 1 |



The Comparison of Creative Industries and Secondary Industry

The populations are the growth rates of creative industries and secondary industry for 31 regions in China mainland in 2006 and 2007. The objective of this part is to compare two populations of interval data. The two-sample assuming equal variances test statistic and paired two samples for means test statistic were used, separately. The confidence level is 95%. Table 2 shows that the result is not support previously hypothesis that the growth rate of creative industries is higher than secondary industry. The mean growth rate is even not creative industries bigger than secondary industry but vice verse. The value of the test statistic is $t=0.46$ with a p-value of 0.32. And then, we used the matched pairs experiment dividing the growth rate into 46 groups according to the regional growth rate. Table 3 shows us the result of paired comparison. The value of the test statistic is $t=0.42$ with a p-value of 0.34. For two methods, There is all no evidence to infer that the growth rate of creative industries is deferent that of secondary industry.

Table 2 t-Test: Two-Sample Assuming Equal Variances

| | The Growth rate of SI% | The Growth rate of CI % |
|-----------------|------------------------|-------------------------|
| Mean | 21.21 | 20.59 |
| Variance | 28.63 | 54.65 |
| Observations | 46.00 | 46.00 |
| Pooled Variance | 41.64 | |

| | |
|------------------------------|-------|
| Hypothesized Mean Difference | 0.00 |
| df | 90.00 |
| t Stat | 0.46 |
| P(T<=t) one-tail | 0.32 |
| t Critical one-tail | 1.66 |
| P(T<=t) two-tail | 0.65 |
| t Critical two-tail | 1.99 |

Table 3 t-Test: Paired Two Sample for Means

| | <i>The Growth rate of SI %</i> | <i>The Growth rate of CI %</i> |
|------------------------------|--------------------------------|--------------------------------|
| Mean | 21.21 | 20.59 |
| Variance | 28.63 | 54.65 |
| Observations | 46.00 | 46.00 |
| Pearson Correlation | -0.19 | |
| Hypothesized Mean Difference | 0.00 | |
| df | 45.00 | |
| t Stat | 0.42 | |
| P(T<=t) one-tail | 0.34 | |
| t Critical one-tail | 1.68 | |
| P(T<=t) two-tail | 0.67 | |
| t Critical two-tail | 2.01 | |

Is there really no deference between the growth rate of creative industries and secondary industry for deferent stage of economic development? For getting the further information from the data, we divided the data into two groups according to the regional GDP per capital. The regions belong to higher GDP per capital group, which are bigger than 19,000 Chinese yuan; the others belong to lower group.

Table 4 shows the result of t-test for higher GDP per capital group. The mean growth rate of creative industries is 22.93%; the secondary industry is 19.61%. The value of the test statistic is $t=1.54$ with a p-value of 0.065, which means that there are weak evidence to indicate that the mean growth rate of creative industries bigger than that of secondary industry for higher GDP per capital group.

Table 4 t-Test: Two-Sample Assuming Equal Variances

| | <i>The Growth rate of CI %</i> | <i>The Growth rate of SI %</i> |
|------------------------------|--------------------------------|--------------------------------|
| Mean | 22.93 | 19.61 |
| Variance | 64.10 | 37.64 |
| Observations | 22.00 | 22.00 |
| Pooled Variance | 50.87 | |
| Hypothesized Mean Difference | 0.00 | |
| df | 42.00 | |
| t Stat | 1.54 | |

| | |
|---------------------|-------|
| P(T<=t) one-tail | 0.065 |
| t Critical one-tail | 1.68 |
| P(T<=t) two-tail | 0.13 |
| t Critical two-tail | 2.02 |

Table 5 shows the result of t-test for lower GDP per capital group. The mean growth rate of secondary industry is 22.67%; the growth rate of creative industries is 18.44%. The value of the test statistic is $t=2.78$ with a p-value of 0.004, which means that there are overwhelming evidence to indicate that the growth rate of secondary industry bigger than that of creative industries for lower GDP per capital group.

| Table 5 t-Test: Two-Sample Assuming Equal Variances | | |
|---|--------------------------------|--------------------------------|
| | <i>The Growth rate of SI %</i> | <i>The Growth rate of CI %</i> |
| Mean | 22.67 | 18.44 |
| Variance | 16.98 | 38.36 |
| Observations | 24.00 | 24.00 |
| Pooled Variance | 27.67 | |
| Hypothesized Mean Difference | 0.00 | |
| df | 46.00 | |
| t Stat | 2.78 | |
| P(T<=t) one-tail | 0.004 | |
| t Critical one-tail | 1.30 | |
| P(T<=t) two-tail | 0.01 | |
| t Critical two-tail | 1.68 | |

Checking the required condition

The t-test techniques require that the populations be normally distributed. Here we check to see whether the requirement is satisfied by drawing the histograms Figure 2 and Figure 3 of the data. Although the histograms are not perfectly bell shaped, it appears that the data are at least approximately normal. Because this technique is robust, we can be confident in the validity of the results.

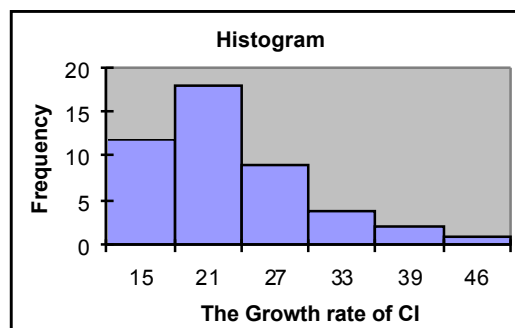


Figure 2

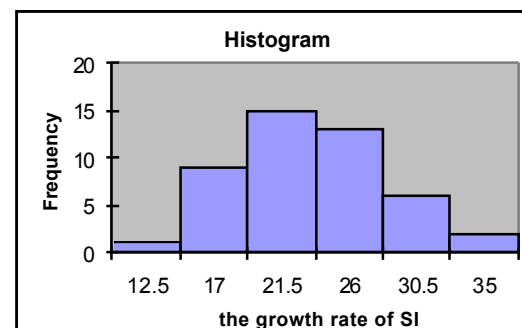


Figure 3

Conclusion

The creative economy is considered the engines of regional development in globalized economy. In this paper, we examined whether it is also the engines of regional economic growth in developing countries, here in China, by the quantitative analysis. There are two contributions in this paper:

Firstly, the ratio of creative industries' value added to GDP has a strong and significant correlation with GDP per capital.

Secondly, taken the result of Table 4 and Table 5 together, the mean growth rate of creative industries is bigger in the higher GDP per capital group. On the contrary, the mean growth rate of secondary industry is bigger in the lower GDP per capital group. Therefore, we can get the conclusion that the creative industries is more important for regional development which are more advanced and the secondary industry has bigger contribution to the development of relatively behind regions. It means that secondary industry is the engine of regional development which are in the early industrialize stage.

Both conclusions are all support that the creative economy is an advanced economy model. The creative economy will play more and more important role with the economic transition from industry to more advanced economy in developing countries.

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