

Regional Difference in Social Capital and Its Impact on Regional Economic Growth in China

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Abstract: Social capital has played an increasingly important role in regional development. China is a country with high stocks of social capital. Using several different indicators of social capital, this study tries to research the regional disparities in social capital and the influence of social capital on economic growth of China in 1978–2004. Measuring social capital with indicators of associations, charities and blood donation rates, this study finds significant regional disparities in social capital at provincial level in China. Those indicators for social capital are highly correlated with regional economic performance. Statistical analysis shows that social capital has a significant and positive effect on a long-term provincial economic growth. This relationship exists after controlling policy, macro location factors, and per capita GDP in the initial year. The empirical findings indicate that institutions, culture and social relations are critical for regional development in China. Therefore, the creation and support of social capital should be paid more attention to when making regional policy.

Keywords: social capital; trust; economic growth; transaction cost

1 Introduction

The obvious regional economic disparities exist whether inside country or among the countries of the world. Many studies have highlighted the important role of history, culture and institutions in explaining regional disparities in economic development, and economic process is thought as a type of social and cultural process too (Swank, 1996; Thrift and Olds, 1996). Martin (2000) suggested that a full understanding of the formation and evolution of economic landscape demands the consideration of the social institutions within which the economic activities occur. Regions with better economic performance usually have dense social networks, which integrate all kinds of institutions and organizations providing public goods and information. Amin and Thrift (1994) termed these institutes and organizations as 'institution thickness'. Therefore, the prevailing factors used to explain regional development have shifted from specialization, agglomeration and the like to social and cultural capital, including trust, social network, social cognition and cooperation between firms, and innovation milieu

(Murphy, 2006). In economic geography, social-cultural factors are regarded as stimulus or limitations for regional development, and one of the most important factors is social capital (Tura and Harmaakorpi, 2005). Since it was first introduced by Bourdieu (1986), social capital study has attracted researchers from almost all the social science, as well as those from geography (Putnam, 1995; Leonardi, 1996; Knack and Keefer, 1997; Woolcock, 1998; Glaeser *et al.*, 2000; Whiteley, 2000; Mohan and Mohan, 2002; Guiso *et al.*, 2004; Beugelsdijk and Schaik, 2005a; 2005b; Iyer *et al.*, 2005).

Social capital stems and cumulates from specific natural, historical and cultural backgrounds. Therefore, social capital has significant regional differences, meaning that social capital has a geographical dimension (Mohan and Mohan, 2002). Due to the nature of social capital, it can not be duplicated easily in other regions. With the declining of relative importance of natural endowments for regional development and the convergence trend in human capital endowments, social capital becomes increasingly important for regional development in the long run (Whiteley, 2000; Mohan and

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Mohan, 2002).

In countries and regions with high stocks of social capital, people are more likely to trust each other, be engaged in social networks, and participate in public affairs, which will reduce the transaction costs in economic activities (Fukuyama, 1995). Moreover, people may take collective actions when facing internal or external challenges. Finally, intense social networks may generate information spillovers and promote the transmission of knowledge. The mutual trust will help to establish cooperation in R&D and other economic activities, which is especially important over the long-term for the formation of industrial agglomeration, innovation and regional development (Cooke *et al.*, 1997; Cohen and Fields, 2000; Maskell, 2000; Wolfe, 2002; Tura and Harmaakorpi, 2005). There are a number of studies focusing on intra-country and inter-country differences of social capital and the effects of social capital on economic performance (Helliwell and Putnam, 1995; Helliwell, 1996a; Knack and Keefer, 1997; Guiso *et al.*, 2004; Iyer *et al.*, 2005; Lyon, 2005; Beugelsdijk and Schaik, 2005a; 2005b; Cooke *et al.*, 2005; Callois and Aubert, 2007).

The measurement of social capital might include examining general trust, public participation, social connections and social norms, among other possibilities (Putnam, 1993; 1995; Fukuyama, 1995; Knack and Keefer, 1997; Guiso *et al.*, 2004). Trust is a key indicator measuring social capital in many previous studies. In inter-country studies, data were mainly drawn from the World Values Survey (Knack and Keefer, 1997). Putnam (1993) measured social capital using a civism indicator of a community in his study on Italy. The civism indicator usually includes the voting rate, the participation in associations and in charities and the like. Putnam (1995) measured social capital from two aspects when illustrating the decline of social capital in USA. One is the political participation as calculated by voting rates and the trust on governments, and the other is the participation in public affairs as measured by the percentage of the population that is active in some kind of social organization. Guiso *et al.* (2004) used voting rates and blood donation rates as the measurements of social capital in Italy and considered the blood donation rate as an embodiment of civism in a region. However, there has not been any consensus measurement.

There have been few studies on social capital at regional level in China. In this study, we employ trust, participation in association and in charity, and blood donation rate as the main measurements of social capital in China, and it was found that there exist huge regional disparities in social capital at provincial level. Statistical analysis shows that social capital has significantly stimulated China's provincial economic growth.

2 Measurement of Social Capital and Data

In this study, we adopted a definition of social capital similar to those of Putnam (1993) and Fukuyama (1995), and considered social capital as common norms and values in a community, which can promote collaboration and formation of social networks. Thus, this article measured social capital by the numbers of associations, charities and blood donation rates in each province in China. The data of blood donation were used from the *China Association of Transfusing*^① (Chinese Society of Blood Transfusion, 2000). The data of associations and charities were drawn from *China Civil Affairs' Statistical Yearbook* (Ministry of Civil Affairs of China, 2000–2007). Meanwhile, we also apply the World Values Survey to measuring general trust in China, which is an alternative measurement of social capital.

The question in the World Values Survey is as follows: Generally, would you say that most people can be trusted or that you need to be very careful in dealing with people?

- ① Most people can be trusted
- ② Cannot be too careful
- ③ Do not know

If more respondents believe 'most people can be trusted', it means the stock of social capital is higher in that region or country.

3 Regional Differences of Social Capital in China

3.1 Social capital as a whole in China

The World Values Survey covers most countries in the world, including China. Table 1 presents the survey results in China in 1990, 2001, 2006 and 2007. In 1990, 60.3% of the respondents believed that 'most people can

① The data are only available for year 2000, and Tibet, Hong Kong, Macao and Taiwan are not included.

Table 1 General trust in China and some other countries

	China				US	Britain	Former West Germany
	1990	1995	2001	2007	2006	2006	2006
Most people can be trusted (%)	60.3	52.3	54.5	52.27	39.56	30.43	40.8
Cannot be too careful (%)	39.7	47.7	45.5	47.73	60.44	69.57	59.2
Interviewee number	983	1445	963	1873	1241	1022	880

Source: World Values Survey Association, 2009

be trusted'. The proportion decreased to 52.3% in 1995, increased slightly to 54.5% in 2001, and declined again slightly to 52.27% in 2007. Compared to most other countries or regions, the general trust level was very high in China in the latest survey. China's score was much higher than that of USA, Britain and Former West Germany. This result is similar to Inglehart's survey (Inglehart, 2004). Helliwell (1996b) pointed out that there were some potential problems in measuring general trust in China because of the culture differences between the West and China.

According to *China Civil Affairs' Statistical Yearbook*, the association is a reciprocal organization constituted by the people with common characteristics, and non-profit and non-governmental are its fundamental features. The Chinese government promulgated a *Regulation on the Registration of Associations* in 1989, and then started to provide official statistics of associations in 1990. There were 154 502 associations in 1992 and the figure increased to 191 946 in 2006^①. Local associations are playing an increasingly important role in building up the regional fame for some specific products within an industrial cluster, facilitating cooperation in production and R&D activities, and dealing with a dumping charge in the international market (Yu *et al.*, 2002; Zheng *et al.*, 2006). To some extent, the increase of number of associations in China implies the growth of social interactions: people are more likely to stay together for some common purposes and try to improve their conditions through collective actions (Chen and Qiu, 1999).

Civil Affairs' Statistical Yearbook started to publish statistic data on charities in 1999. Both numbers of charities and the fundraising have grown rapidly. The number of charities increased from 92 in 1999 to 695 in 2006 and their fundraising increased from 195×10^6 yuan

(RMB) to 2.9×10^9 yuan (Fig. 1).

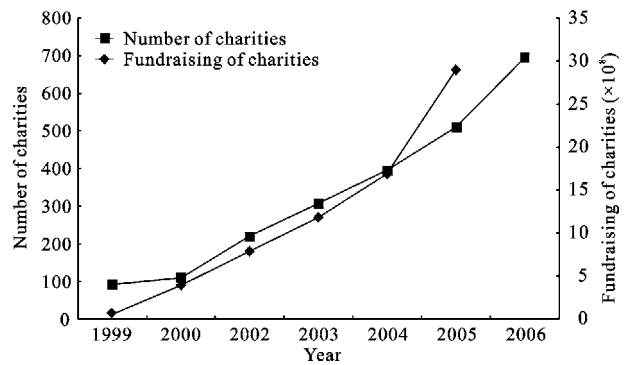


Fig. 1 Number of charities and their fundraising in China in 1999–2006

According to the Chinese Society of Blood Transfusion (2000), there were totally 6 834 612 person-times of blood donation in China in 2000.

China is a country with high stock of social capital and our preliminary investigation indicates that there has been a growing trend of social capital in the whole country.

3.2 Regional differences of social capital in China

Figure 2 presents the geographical distribution of social capital measured by association in China. In terms of association number, Zhejiang Province, Qinghai Province and Tianjin had more associations per 10 000 persons than other provinces. In addition, in terms of the average number of charities per 10 000 persons, Zhejiang, Jiangxi and Jiangsu were the top three. Finally, Beijing, Shanghai and Zhejiang had the highest blood donation rates among all the provinces. Overall, the provinces in the eastern China have higher stocks of social capital, and provinces in the Central China have lower stocks than those in the western China do.

There exists a significant positive relationship between

① A new version of *Regulation on Registration of Association* was promulgated in 1998 to reinforce the regulation of associations in China. After that, the total number of associations decreased in several years until 2001. That is one reason why data for 2000 were chosen in this study. Another reason for choosing this year was to match with the blood donation data, which was only available for the year 2000.

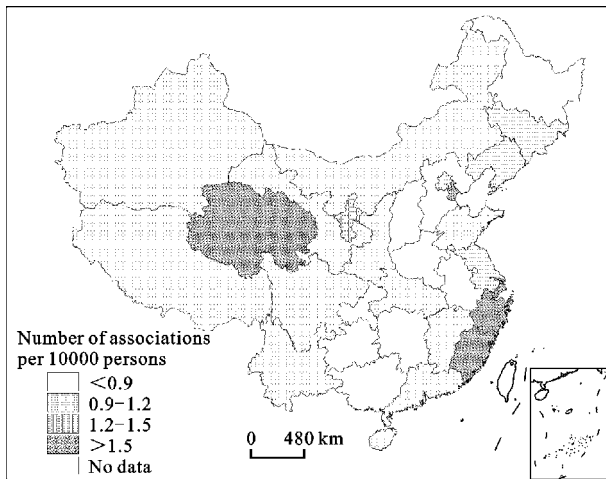


Fig. 2 Number of associations per 10000 persons in provinces of China in 2000

per capita GDP and all three social capital indicators across provinces. The correlation coefficients between per capita GDP and the number of associations per 10 000 persons, and the number of charities per 10 000 persons, and blood donation rate are 0.55 ($p = 0.0013$), 0.42 ($p = 0.0000$) and 0.84 ($p = 0.0182$), respectively. Moreover, there are four types of associations, which are academic association, industrial association, specialized association and united association. In 2000, the total numbers of each sort were 40 152, 36 605, 34 849 and 16 361, respectively. The authors also measured social capital by examining each of them separately and calculated the correlation coefficients between them and per capita GDP. The indicators measured by specialized and united association density are significantly correlated with economic performance, with coefficients of 0.68 ($p = 0.0000$) and 0.63 ($p = 0.0000$), respectively.

4 Social Capital and Economic Growth

Existing empirical studies provided solid evidence to show that social capital is a crucial factor influencing economic growth in the long term (Helliwell and Putnam, 1995; Knack and Keefer, 1997).

China has obtained great economic achievements since the adoption of open policy. However, its economic performance is not evenly distributed in space. For an example, in 2000, Shanghai had the highest per capita GDP of 27 187 yuan in China whereas Guizhou had the lowest of only 2 819 yuan. Many studies on China's regional economic disparities highlighted the

role of policy, human capital, geographical factors and among others (Lin *et al.*, 1998; Démurger *et al.*, 2002; Yang *et al.*, 2002; Wu and Wang, 2008). Significant regional differences in social capital exist in China, and social capital is highly correlated with regional economic performance. The correlation coefficient between economic growth rate and the number of united associations per 10 000 persons is 0.59 ($p = 0.0005$).

Here, an empirical model is introduced to investigate the relationship between social capital and economic growth at provincial level since the late 1970s. According to statistics, the number of associations decreased in several years and reached its lowest point in 2001. Due to the limitation of data, we apply the indicators of association number, charity number and blood donation rates in 2000 to measuring social capital. In addition, we use association densities in the years of 1992, 1994 and 1996 as alternative variables to measure social capital. Because there are four types of associations, we measure the social capital using the average density of those four types of associations to check the robustness of statistical results. The GDP data are from the *Comprehensive Statistical Data and Materials on 55 Years of New China* (National Bureau of Statistics of China, 2004), and the growth rate of per capita GDP is based on constant prices in 1978. Three important control variables are included in the model, including per capita GDP in 1978, preferential policy, and location factors. Among them, preferential policy is a very important control variable in the model, which plays a significant role in stimulating regional economic growth (Démurger *et al.*, 2002).

Following Barro (1991), we have the following general growth model:

$$Growth = \beta_0 + \beta_1 GDP_{78} + \beta_2 SC_i + \beta_3 Policy + \beta_4 East + \beta_5 Middle + \delta$$

where *Growth* denotes the growth rate of per capita GDP at a constant price of each province during the period of 1978–2004; GDP_{78} is per capita GDP in 1978, which is used to be a control variable for the convergence effect in economic growth; SC_i stands for i th indicator of social capital ($i = 10$) (Table 2). *Policy* represents the preferential development policies granted to each province by the central government. We construct the preferential policy indicator based on the number of open economic zones in each province and

the extent of preferential treatment. According to preferential policies that open economic zones offer, the weights are assigned to their host provinces^① (Table 3). *East* and *Middle* are dummy variables denoting provinces that are located in eastern and middle parts of China, respectively. β_0 is a constant, β_1 – β_5 are the coefficients, and δ is the error item. According to the SC_i , we can get models 1–10 (Table 4).

The correlation analysis shows that there is no serious multicollinearity in the estimations. For each indicator used to measure the social capital, the coefficients of SC_i are always positive in the regressions, and are significant in most cases. The model fits best when using blood donation rates and the specialized association density as the indicators of social capital. The initial per capita GDP in 1978 (GDP_{78}) is negatively correlated with economic growth in most cases, indicating that regional economic growth has the convergence trend. The coefficient on the policy variable is significant and positive. Empirical results suggest that social capital has significantly positive effects on regional economic growth. This relationship exists after controlling for other variables, including initial per capita GDP, policy and macro location factors in 1978.

We apply some alternative measurements of social capital to checking the robustness of the results. Social capital measured by specialized associations and united associations has a significant positive relationship with regional economic growth. The other two, academic associations and industrial associations, are positively correlated with economic growth but not significantly. Moreover, we measure social capital using the number of associations in year 1992, 1994 and 1996. The coefficients on social capital measured by the number of associations in 1992, 1994 and 1996 are positive but insignificant.

Because the data (in 2000) used to measure social capital are not those in the initial year of the time period (1978–2004) we investigate, there is a potential problem of endogeneity. Therefore, we chose 1992, 1994 and 1996 respectively as the initial year of our study period to check the potential problem. Social capital is measured by the number of associations per 10 000 persons in those initial years. Table 5 shows the results of the re-estimations. When social capital is the only independent variable in the model, its coefficient is significantly positive. When adding other control variables in the regressions, the coefficient of social capital is still positive and statistically significant in two of them. The results support the argument that social capital contributes to regional economic growth in China.

5 Discussion and Conclusions

Economic activities are performed in the social, political and institutional context. As one of the critical non-economic factors, social capital has been widely argued to influence economic growth. Through measuring social capital with association number, charity number and blood donation rate, this study finds obvious significant correlation with GDP in the initial year. Rapid economic growth in Zhejiang, Jiangsu and some other provinces may be as regional disparities in social capital at provincial level in China. It is found that social capital is highly correlated with regional economic performance. Our statistical analysis shows that social capital has a significant positive effect on economic growth at provincial level in the long term and the positive relationship exists even after controlling policy, macro location factors, and per capita GDP associated with a high level of social capital. People in regions with greater stocks of social capital are

Table 2 Social capital indicator

Indicator	Description	Indicator	Description
SC_1	Number of associations per 10000 persons in 2000	SC_6	Number of specialized associations per 10000 persons in 2000
SC_2	Person-times of blood donation rate per 10000 persons in 2000	SC_7	Number of united associations per 10000 persons in 2000
SC_3	Number of charities per 10000 persons in 2000	SC_8	Number of associations per 10000 persons in 1996
SC_4	Number of academic associations per 10000 persons in 2000	SC_9	Number of associations per 10000 persons in 1994
SC_5	Number of industrial associations per 10000 persons in 2000	SC_{10}	Number of associations per 10000 persons in 1992

① The weights are as follows: Weight = 3: Special Economic Zones and Shanghai Pudong New Area; Weight = 2: Economic and Technological Development Zones and Border Economic Cooperation Zones; Weight = 1: coastal open cities, coastal open economic zones, open coastal belt, 10 major cities along the Changjiang River, 13 bonded areas in major coastal port cities, and all capital cities of inland provinces and autonomous regions; Weight = 0: no open zone.

Table 3 Preferential policy indicator weight in 1978–2004

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Average
Beijing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	0.9630
Tianjin	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.5556
Hebei	0	0	0	0	0	0	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.4074
Shanxi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	2	2	2	2	0.6296
IM*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	0.9630
Liaoning	0	0	0	0	0	0	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.4074
Jilin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	0.9630
Heilongjiang	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	0.9630
Shanghai	0	0	0	0	0	0	1	1	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2.0370
Jiangsu	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.5556
Zhejiang	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.5556
Anhui	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2	2	0.9259
Fujian	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2.5556
Jiangxi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	0.6667
Shandong	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.5556
Henan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	0.6667
Hubei	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2	2	0.9259
Hunan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	0.6667
Guangdong	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2.8889
Guangxi	0	0	0	0	0	0	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1.4074
Hainan	0	0	0	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1.8889
Chongqing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2	2	0.9259
Sichuan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2	2	2	2	2	2	2	0.9259
Guizhou	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	0.6667
Yunnan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	0.9630
Tibet	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	2	2	2	2	0.6296
Shaanxi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	0.6667
Gansu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	2	2	2	0.5926
Qinghai	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	0.6667
Ningxia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	2	2	2	2	0.6296
Xinjiang	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	2	2	2	0.9630

Notes: 1. * IM is Inner Mongolia; 2. Hong Kong, Macao and Taiwan are not included

Table 4 Impacts of social capital on provincial economic growth rate

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
β_0	0.123***	0.118***	0.152***	0.117**	0.114**	0.138*	0.127**	0.121***	0.120**	0.121***
β_1	-0.011***	-0.009***	-0.016***	-0.009**	-0.008**	-0.014*	-0.011***	-0.010***	-0.010**	-0.010**
β_2	0.010*	0.039**	0.0002*	0.009	0.006	0.042*	0.064**	0.005	0.003	0.004
β_3	0.011**	0.014***	0.015***	0.012**	0.013**	0.012*	0.007	0.011**	0.012**	0.011**
β_4	0.013**	0.009	0.004	0.014*	0.013*	0.013*	0.013**	0.014**	0.013*	0.014
β_5	0.009**	0.006	0.004	0.007	0.007	0.011*	0.008*	0.008*	0.008*	0.008*
Sample number	31	31	30	31	31	31	31	31	31	31
Adjusted R^2	0.612	0.629	0.663	0.557	0.552	0.699	0.626	0.587	0.568	0.576
F	10.460	11.190	12.390	8.540	8.390	14.950	11.030	9.540	8.890	9.130

Notes: * denotes significance at $p < 0.10$; ** denotes significance at $p < 0.05$; *** denotes significance at $p < 0.01$

Table 5 Impacts of social capital on provincial economic growth rate in different periods

	1992–2004		1994–2004		1996–2004	
	Model 10 ^a	Model 10	Model 9 ^a	Model 9	Model 8 ^a	Model 8
β_0	0.088***	0.125**	0.081***	0.08	0.069***	0.048
β_2	0.009**	0.008	0.009**	0.008*	0.008***	0.007**
β_1		-0.006		-0.001		0.002
β_4		0.025***		0.012		0.006
β_5		0.014**		0.011*		0.007
Sample number	31	31	31	31	31	31
Adjusted R^2	0.1022	0.3676	0.1433	0.2332	0.2229	0.3063
F	4.41	5.36	6.02	3.28	9.61	4.31

Notes: 1. a means only social capital included in the model; 2. * denotes significance at $p < 0.10$; ** denotes significance at $p < 0.05$; *** denotes significance at $p < 0.01$

more likely to trust each other, participate in public affairs and engage in local social networks. Therefore, transaction costs can be significantly reduced and people find it easier to collaborate and take collective actions, which is particularly important for the formation of industrial clusters and economic development. The empirical results in this study confirm the importance of institution, culture and social relationships for regional development in China.

People in China are joining in some sort of associations and the number of people that donate to charity is quickly rising, although things are not the same in different areas. Social capital is not able to be created or eliminated as quickly and easily as physical capital and it is embedded in the local social and culture conditions. Social capital is connected with local history and conventions. The increase and sustainment of social capital should be carefully considered when making regional policy.

There have been few studies on social capital in China at a regional scale. The key challenge comes from the lack of suitable measurements for social capital. On the one hand, we need to measure collective social capital more precisely through a variety of ways and had better construct the time series data for the sake of more rigorous quantitative analysis. On the other hand, general trust is a very important indicator to measure social capital and we need to find a better tool to measure it. Finally, we need to explore the micro foundation about where social capital comes from and how it works using some case studies in the future.

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