



**LUND UNIVERSITY**  
School of Economics and Management

# The Effects of Social Organizations on Economic Performance

A Panel Study on China

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## **Abstract**

A large number of literatures and practitioners have investigated the relationship between social associations and the aggregate economic performance. Most of the studies have confirm the positive effect of social associations on economic performance in the democratic world. However, even though the social organization in China has been in rapid development, similar studies concerning China remain insufficient. This study examines the effectiveness of social organizations on provincial economic performance in China by using panel data for 31 provinces from 2002 to 2013. Several econometrics techniques have been utilized in this study including First Difference Method and Fixed Effect Panel Model. The results from the panel model revealed the positive effect of social group on provincial economic performance in China. Also, the effectiveness of social group is different four groups of provinces according to their level of development. Nevertheless, this study has confirmed the arguments in Social Capital theory that the effectiveness of social organization is highly contextual.

**Keywords: macroeconomic, social organization, NGO, economic performance, China, panel model, fixed effect model**

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# 1 Introduction

A prosperity of the social organization was labeled as a 'civic virtue' that inherited in a society. The societies characterized by the civic virtues were observed to have more sustainable economic growth, better government performance and higher institutional quality. In the society where the government and citizens are interacting in, social organizations play as the agencies who represent the citizens in pursuing their collective interests (Richter and Hatch, 2013). China was not recognized as a democratic regime under the global standard, nor does the Chinese society meet the universal expectation of a civil society. Hands from governments have been reaching in most part of the civil society. Social organizations are reported to be under an environment with strict regulations and supervisions, struggling to survive in a suppressed public space in China (Valentinov, 2008). Yet this view oversimplifies what is happening in China. By 2007, according to the report stated by Yu and Zhou (2013), there are around 387 000 non-governmental organizations had been registered officially, excluding the estimated three million grassroots unregistered organizations currently operating all around China such as the local merchandise commerce. It would be fair to assert that the dramatic growth of social organization in China is not just coincided with the economic growth in the recent decades. Instead, the development of social organization in the private sector contribute in some degree to the aggregated economic development. Putnam (1993) had examined the rationale behind the effect of the civic society on local government performance. He argued that civil society could increase the efficiency of economy and strengthen the stability of the society which benefit the economic performance. A dense network of social organization could contribute to the accumulation of social capital and the effective social collaboration on public issues (Woolcock, 1996; Coleman, 1993). Putnam further illustrated that a better civil community can forge an environment for effective institutions. Politics and the people in such societies are more likely to trust each for acting fairly and obeying the laws, and as a result are more likely to engaged in issues of common welfare. In his works, the

social organization was regarded as a crucial indicator of how advance the civic society is. Most of the researches have explained the economic outcomes of civic community in a social capital theoretic framework (Adler and Kwon, 2002; Dasgupta, 2005; Wasko and Faraj, 2005; Doner and Schneider, 2000). Existing literatures have examined the effect of intermediate factors on economic development empirically like democracy, institution quality, or civic engagement (Tavis, 2006; Temple, 1998). However seldom literatures have investigated the direct linkage between the growth of social organization and economic development. The findings are ambiguous and contextual. Overall limited literature has investigated into the empirical evidence for the relationship between the growth of social organization and the economic development. Less covers the developing world especially the in non-democratic political system.

## **1.1 Research Question**

Putnam (1996) assert that prosperity of social organizations was regarded as an indicator of civic community which was closely correlated to the regional institutional and government performance. He found that the disparity of civic community index in different regions in Italy could explain differences of their economic performance. Departure from the statement of Putnam, further studies found supporting evidence from developed countries (Streeck and Schmitter, 1999), and partial supporting evidence from developing countries (Evans, 1995; Maxfield and Schneider, 1997; Campos and Root, 1996; Kuo, 1995). Seldom of them have quantitatively test the effect of civic society on overall economy. Moreover, none of the research was conducted beyond a democratic political system (Wang and He, 2003). Hence, it is noteworthy to examine the validity of the assertion from Putnam and the following scholars in a non-democratic context like China. Nonetheless, inequality in economic performance as well as associational activities were observed in China. More NGOs and business associations are reported in regions in coastal provinces where higher GDP per capital and GDP growth were observed (Yang, 2002). Therefore, this thesis will try to answer

the questions ‘Does social organization positively contribute to the economic growth in China?’ and ‘Does the inequality in development of social organization explain the inequality of economic performance between provinces in China?’.

## **1.2 Method and Data**

In this thesis, to capture the effect of development of social organization on economic performance, OLS estimation will be used exploit the panel data collected in the provincial level in China. Specifically, Fixed Effect Model is utilized to control the time invariant differences cross sections. The use of provincial panel data analysis is argued to improve the validity of the result by taking data over time and over different provinces into account (Wooldridge, 2010). Also, with respect to the measure of the development of social organizations, number of Social Group is chosen instead of number of general Social Organization is used to improve the robustness of the results. This thesis will use a census data for provincial number of the Social Group from 2002 to 2013 from China Social Organization Administration Bureau. The rest of the data for contributing variable of GDP are collected from China Statistic Yearbook and National Bureau of Statistics of China.

## **1.3 Limitations**

One limitation of the study is from the data. The data for the social organization in China is rather incomplete and inconsistent for a continuous time period. Regulatory environment for social organization has experienced several radical change since the reform in late 1970s. The time span for study is rather short which could hardly reveal any convincing dynamic relationship between social organization and the economic performance. Also, the problem of manipulated data should raise cautions. Moreover, the representative power of the measure for development of social organization in China leave space for criticism. The number of the registered social organization may

not capture the full image of the development of the whole grassroots social organization in China. The number of registered organizations would more represent the tolerance from governance on social organizations, how many should be allowed to registered in the society, rather than the demand of from the people, how many we need in the society. Thus, numerous unregistered social organizations are not reflected by the official data. Its actual prosperity would be underrepresented. However, due to the possible omission of unobserved factor that affects economic performance in the model, the coefficient of the independent variable would be overestimated. This thesis will discuss in detail about the effort to minimize the possible bias and inefficiency.

## **1.4 Disposition**

The rest of the thesis will be organized as the follows. Chapter 2 will outline the background under which Chinese social organizations operate in. It tries to explain the distinct features of social organization in the context of China. It will also describe briefly about the current states and the history of development of social organization. Chapter 3 will review the social capital theories and empirical findings on the relationship between civic society and the economic development. To be specific, under what circumstance social organization could positively contribute to economic performance will be discussed. Then, Chapter 4 will present the empirical framework, data and methodology in detail. Chapter 5 will discuss and analyze the descriptive statistics, regression results. Finally, a conclusion with suggestions on policy implications and future study will be presented in Chapter 6.

## **2. Background**

### **2.1 Social Organizations in China**

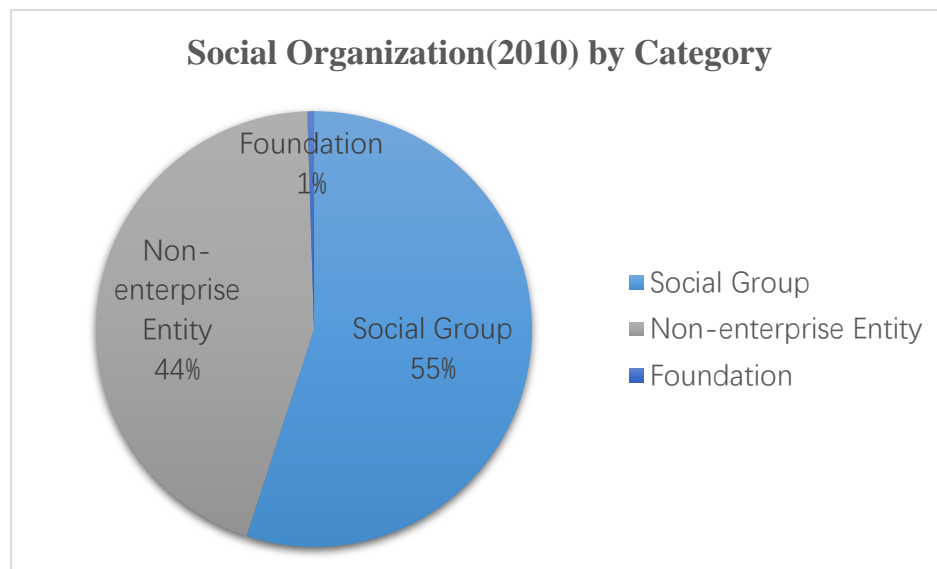
The term social organization is defined in China as “shehui zuzhi” which is equivalent to concept like “civil association” or “NGO” (Non-governmental organization). Though being under different social and political contexts, the “social organization” in China and the “NGO” by global definition share some key attributes in common (Edele, 2005). Both are non-profit, organized and governed voluntarily by citizens for common interests, social welfare or collective goals (Hu and Chan, 2012). Like in other countries, associational activities take forms in each aspect of social and economic life from sports, clubs, religious to work place.

Social organization consists of three specific types by the administration in China: Social Group (she hui tuan ti), Private Non-Enterprise Entity (min ban fei qi ye dan wei) and Foundation (ji jin hui). Among them, social group refers to the organization that organized and operated by citizen themselves instead of by the government. The private non-enterprise entity refers to the organization who provides public services that similar to services provided by the public institution, but established and run by private entity or person using non-state-owned resources. For example, hospital and school in China were once state-owned public institutions. Then in 1998, the private owned hospital and school was firstly recognized by the state as a legal identity of the Private Non-Enterprise Entity. Private-owned school and hospital since then were allowed to register under the subgroup of the Social Organization. The third type is the foundation, it is the legal non-profit organization raising and donating funds for charitable purpose (Wang and He, 2004). Figure 2-1 shows the comparison of three types of social organizations in China in year 2010. By then there are 446,000 social organizations in total running with annual growth rate 3.5%. Most of them are functioning in a local region such as county and city taking up 89% of the number. About 10% are provincial level social organizations and only 1% operate across the



country. They are reported to be active in science, sport, culture, health, labor, civil affair, education, environment, legal services, intermediary services, business and industrial services, rural development covering every aspect of economic and civil life (Civil Affairs Bureau, 2013). Figure 2-2 and Figure 2-3 show the numbers of organizations under both categories of Social Group and Private Non-Enterprise Entity by their fields of specialty. Moreover, the social organization sector absorbs over six million employments in China with annual growth of 13.5% according to the official report from Civil Affair Bureau (2011).

**Figure 2-1**

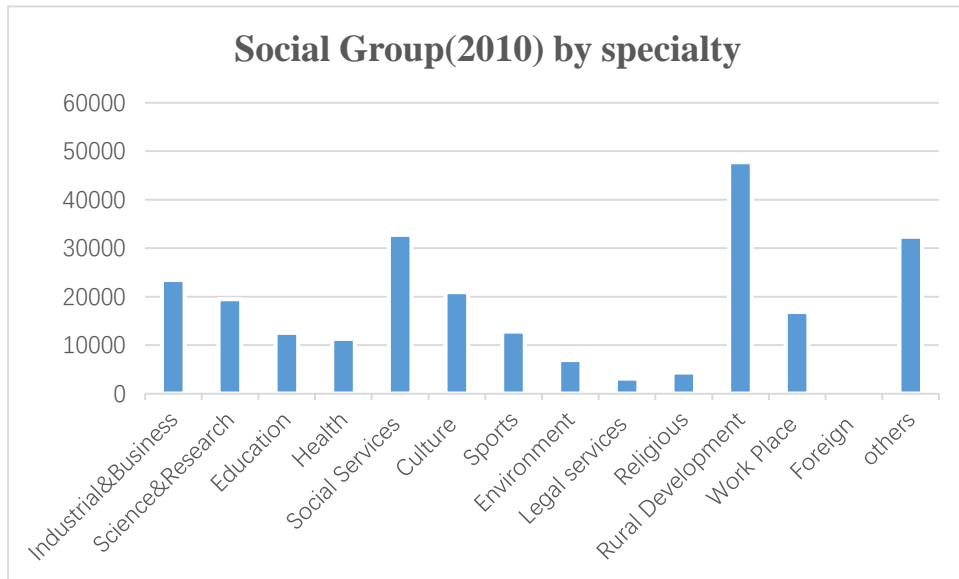


\*source: Civil Affair Bureau of China, 2011

These numbers roughly capture the current status of social organizations in China. More importantly, the observation here determined the following data selection and hypotheses development. As observed in number, the Foundation accounts for little part of the Social Organization leaving the majority to be the Social Group and the Private Non-Enterprise Entity. Though the latter two types have similar numbers of organizations, the specialty they are operating in is rather distinctive with each other. The Social Group has diverse field of specialty covering almost aspects mentioned. In the contrast, the Non-Enterprise Entity highly concentrated in education, health and social services sectors. It is convincing to argue that the Social Group can better

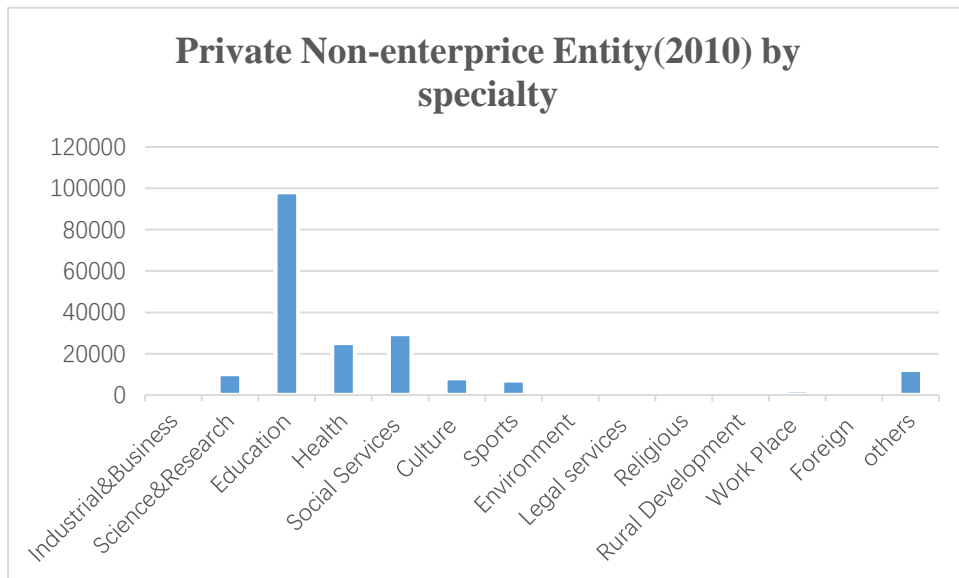
represent the level of the economic activities which positively related to economic performance. Given this, the study will use the number of Social Group as the measure of the variable of interest which is the development level of social organizations.

**Figure 2-2**



\*source: Civil Affair Bureau of China, 2011

**Figure 2-3**



\*source: Civil Affair Bureau of China, 2011

## **2.2 The Pathway of Development**

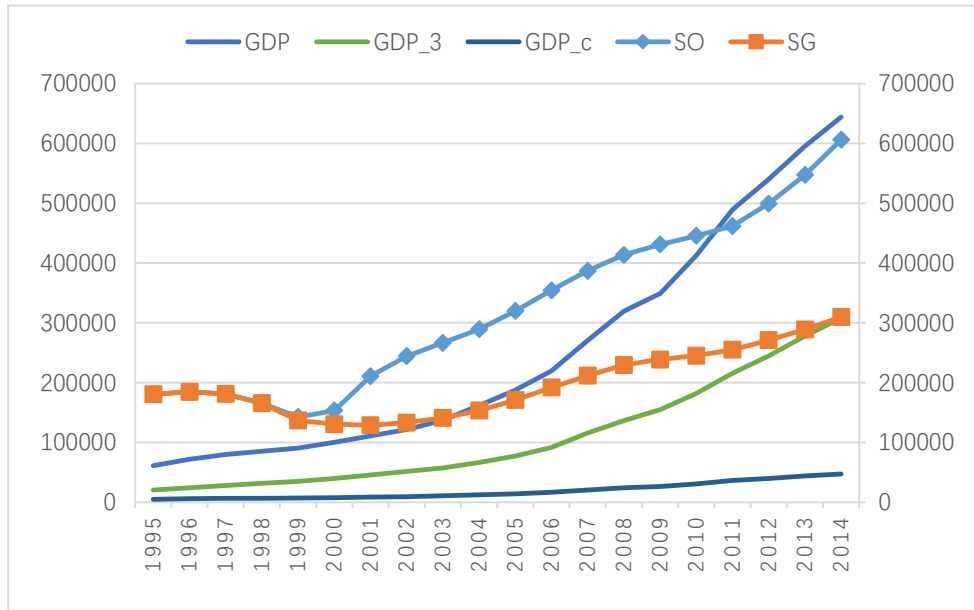
The drive to develop social organizations has been strong since their emergence in late 1970s, although the experience of their development is a chequered process (Richter,2007). The society of China has drastically changed since 1979, the dysfunctional central planed socio-eco system was urged to be replaced by a new system with higher efficiency. Since the reform, the government had yield more power to the private sector (Teets, 2015), which means government authority in market place has shifted from direct to indirect control. More autonomy has been given to the non-governmental sectors form the government. This led to a pluralization of interests in the society and a growing need for autonomy by citizens to tackle their own problems outside the government structure (Ye and Zhang, 1997). Richter (2008) in his article stated that under such context, more and more social organizations could perform functions previously left to the state, like the provision of social services, the delivery of vertical and horizontal information flows, lobbying civic demand into formal policies, or monitoring the transparency of governing authority.

Given the strong need from the change of system and possible benefits social organization could provide, the regulating at that time as well as the economic reform were labeled by the term “laissez faire”. Social organizations had experienced a period of explosive growth in the 1980s with estimated over one million civic associations running across China according to different estimations (Edele, 2005). Just before the Tiananmen Square incidence, government started to realize that the social organizations, especially student associations, had increasing ability to mobile social activities and may catalyze political instability. Therefore, the first two regulations on social organization were issued in 1988 and 1989, requiring that social organizations need to be registered and filed in the government. In order to register, they need a government-approved official sponsor to supervise their activities. Otherwise, they would be shut down or recognized as illegal social organizations. This made the number of legally registered organizations on record increased from zero leaving large part of

the existing ones unregistered. After the first shock, social organizations had experienced second phase of massive increasing which is in conjunction with the economic boom. It was illustrated by Figure 3-4, the number of social organizations which reached the second peak in 1997. Soon after that, the second shock occurred marked by the crackdown of Falungong sect. New governing regulations was introduced in 1998 posing more barriers like financial requirement before registration. Also, the three types of registration were introduced this year. Since then, a relative consistent data for social organizations had been developed. Civic Affair Department was assigned to be the core official bureau that are responsible for regulating organizational activities in civic space (Yan, 2012). Unlike the first shock, though many organizations were shut down because of the new requirement, it still had about 165,000 organizations being officially registered in China. Later on in 2004, more tight regulations were launched aiming at specifying the registration requirements and the performing boundary of the Foundation. The number of registered social organization were still reached 387,000 after the new regulation. Till recent, in 2015 and 2016, new Charity law and international NGO laws was passed in succession requiring that every registered organization should have a communist party unit embedded in the organizational structure.

The constantly tightened regulating environments was criticized that numerous social organization could not even register or survive under such repressive environment. However, the record shows social organizations survived and grow strongly along with the complaints about the over-interfering and over-regulating environment. A recent literature by Tsing Hua University (2013) estimated that in total seven million employments were in social organization sector. Meanwhile, this number does not include numerous unregistered organization who are running illegally or registered as other forms of organizations. These grassroots ones are the organizations that genuinely driven by the need from the citizens. Figure 3-4 illustrates the change in the Social Organization (SO) and the Social Group (SG) combined with the change in GDP(GDP), GDP per capita (GDP\_c) and GDP in service sector (GDP\_3).

**Figure 3-4**



\*source: National Statistic Bureau of China, 2015

### 2.3 Government Attitude

The attitude of central government on social organization seems ambivalent and inconsistent, while it is a crucial factor that determines the effectiveness of social organization on economic performance. Woolcock (1998) addressed the nature of state-society relations is the key to understand both the prospects of economic groups and in turn their capability in shaping the willingness and ability of the state and other economic actor to act in a developmental manner. The groups can influence the policies and government performance by appealing through the social organizations. The government policy could be introduced by a social organization where people with common benefits were gathered. The observation of what happened in China seems partially meet the theoretical discussion. The state, has been in one hand promoting more involvement of civic forces, expecting them to address the externalities of the reform by taking over tasks once under state's charge. Since 1990s, the slogan of "big society, small government" by the central government recognized the strong need from the bottom for greater space that civic society can involve. Government has been

playing a proactive role in encouraging social organization to develop. Teets (2005) compared two models of social organization of China and Russian and argued that China model can actually promote and provide guidance to social organizations evidenced with the increasing number and increasing memberships in the existing organizations. The numbers can reflect the governments' will because the space for social organization can perform is determined by the governments' will to yield. This argument seems to gain more weight in China's relative top-down political system. It is beneficial to the society and the government as well by transferring functions to organizations outside the state system expecting the consequences are aligning with the goal of increasing economic performance. This is the goal that both top to local bureaucratic system wanted to achieve. Meanwhile, in the other hand, government shows less tolerance to certain groups or activities, and stronger willingness to keep a hand in the civic sphere. Reviewing the pathway of the legal framework on social organization in China, the state has constantly maintained the power to influence or even interfere social organizations. First, it controls the admission of social organizations. It never gives up the power to judge who is legal and who is illegal. For example, many of grassroots organizations were shut down because of being identified as illegal in the late 1990s. Second, by setting close supervising and even requiring party units in social organization, it applies restrictive legal requirements for the establishment and management of social organizations. The seemingly contradicting attitudes towards social organization may be answered by Teets (2004), China model in general promotes more autonomous through creating a strong legal and fundraising infrastructure for merely the groups which can resolve social problems, mostly the groups who are seeking for developmental outcomes. However, the state use strong government guidance on group formation, activities and fundraising to prevent the rise of unfavorable civil groups which may potentially threat the political regime. To sum up, China's heavily supervised model of social organization favors the development of "good" social organizations, and in the meantime prevents the rise of "bad" social organization. This specific context would make the positive effect of social

organization on economic performance stronger in this study, since the social organizations counted in the data are the surviving or favorable ones who are development-oriented.

## **3. Theory**

### **3.1 The Role of Social Organizations in the Economy**

The role of social organization drew scholars' attention for the possible benefits it may bring to the society. It has been examined in several disciplines in social science to explore its effects on, from micro-behavior level like families, youth behavior, schooling to macro-performance level like education, environment, government performance (Barro, 1996; Fidrmuc, 2003; Narayan, 2010). Most of the literatures found the positive effect on the society or the institutional environment by emphasizing its important role in nurturing social virtues like stability, civic engagement and participation, provision of social services, and monitoring government behavior, meditating state-society relationships (Knight, 1992; Broz, 1999; Schamis, 1999; Lucas, 1997; Moore and Hamalai, 1993). This part will only refer to the literatures on the economic effects of social organizations.

The intuitive behind how individual can gain economic benefit from a community, an organization or a group they are in is simple. First, people can seek the organization for help when they are in crisis. For instance, people can get personal aid from religious group, or social assistance unit. Second, people can utilize their social relationships in an organization in order to access to the opportunity for personal gains or to obtain scarce resources when they are in a need for development, such as a job opportunity from alumni, or a business contract with other members in a club. Third, people can access to critical information for economic decision via an organization. For example, manager can get updated information about the market from the industrial association.

Whether social organization can benefit the overall economic performance of a region or a country is first examined by Putnam (1993). He attributed the economic success of northern Italy in large part to its plentiful associational life (Putnam, 1993; 89-90). From other cross-country researches, they found the society endows with diverse stock of social networks and civic associations have stronger capability to overcome poverty and vulnerability (Narayan, 1995), resolve disputes (Varshney, 2000) and take advantage of new opportunities (Isham, 1999). As inspired by the work from Putnam, most of the researches on how associations affect economic performance used social capital theory to explain the mechanism behind. Social organization is, in this sense, regarded as a pool of social capital where social capital exchange, accumulate and reproduce (Streeck and Schmitter, 1999).

### **3.2 Social Capital Theory**

Scholars like Bourdieu (1986), Coleman (1988;1990) and Putnam (1993) have employ social capital concept into the study of their effects on aggregate economy. Putnam defined social capital as the features of social organization, such as networks, trust and norms. Woolcock (2000) emphasized more on the norms of reciprocity and trust which can enable people to act collectively. Put it another way, collective development outcomes can be achieved in the association where economic activities are more likely to occur because actors are more trust in each other within a group and where the cost of deviate behavior is relatively high. High levels of social capital can be positive in that it gives group members access to privileged, flexible and reliable resources while lowering transaction cost and the risks of malfeasance (Woolcock, 1998). A fundamental condition enables social relations to contribute aggregate economy is that social relationship could be regarded as one form of capital that could be invested, accumulated, reproduced and exchanged via economic activities (Coleman, 1996). There are several reasons that makes this statement valid. First, like other factor of economic growth, it could invest to resources with expectation of future flow of benefits



(Adler and Kwon, 2002). Second, social capital can be used for different purposes, and can be converted to other forms of capital despite that it is less liquid and stickier (Anheier et al, 1995). Third, it can either be a substitute for or a complement to other resources like financial capital (Lazerson, 1995). Fourth, like clean air and safe street, some internal forms of bonding social capital are the common goods rather than the private property of those who benefit from them. However, there are controversial results in the empirical findings on social capital effect. One crucial argument is that it is needed to identify different dimensions of social capital, different combinations of these dimensions and different sets of conditions that support or weaken favorable outcome (Woolcock, 2000). Therefore, the contexts in which social capital could be benefit should be carefully discussed.

### **3.3 Types of Social Capital**

In order to assess whether a community can generate economic benefits, scholars identify two types of social capital (Woolcock, 2000). One is the intra-community, or called bonding, social capital which refers to the horizontal ties with other members in one community like neighbors, colleagues. In comparison, extra-community, or called bridging, social capital which refers to the vertical ties cross various social divisions based on the religion, ethnicity, social class, gender and so on (Gittel and Avis, 1998). Different associations encompass different combinations of these dimensions of social capital. Such differences could directly lead to a range of outcomes. Community with strong bonding social capital has more sense of identity and common goals (Astone et al, 1999). People are easier to rely on each other and provide valuable information to each other. This is especially important for poverty reduction, such as the group-based credit programs, taking the well-known Grameen Bank in Bangladesh as an example. Another example is the women in poor rural area with no material collateral are granted loans on account of their membership in the group. This helps them significantly start or develop their business and thereby improve family's

economic income. Likewise, when a community has stocked strong extra-community social capital, its members could access to economic resources beyond original community they belong. For example, a nation-wide business association could connect a local entrepreneur with a national wide market if he has invested in his social relationships with other members.

However, social capital, unlike the other capitals, could be the liability as well as the asset. When a community inherent too much social capital, it is likely to illustrate familism and nepotism norms (Doner and Schneider, 2000). There are scenarios that personal connections can be exploited to discriminate, distort, and corrupt the social norms or even laws (Knack and Keefer, 1996). Excessive social capital may place strict obligation and loyalty on group members. This thereby restricts individual's expression and further advancement. It also allows free riding on community resources. All these undermine the efficiency of all forms of economic exchange by substantially increasing transaction costs. These observations were found on the study of society in South Asian, Southern Italy, and Sub-Saharan Africa where society characterized by strong integration without linkages between communities (Klaas et al, 1978). Therefore, for example, in order to proceed development in poor communities, the initial benefits of intensive intra-community integration must give way to extensive extra-community linkages over time. This is supported by empirical findings in less developed area, where poverty alleviation strategies focusing on the formation of small group such as microfinance and agricultural programs increased their popularity among communities.

### **3.4 Development Phase**

However, too much intra-community social capital may imply more obligation and commitment which brings negative economic outcomes. Also, too much extra-community social capital may cause large number of emigration to other community seeking for better opportunities. Granovetter (1995) argued economic development

occurs through a mechanism which allows members to gain the benefits from their close community in the beginning, then enables them to equip with the skills and resources to participate in networks that beyond their original community. Woolcock and Narayan (2000) argued the consequences differ as the different phases of development which community is in. Bonding social capital can reach a threshold. Then if the community continues to expand, this capital could be obstacle to further advancement, especially for the members with higher ambitions. A success developmental society need to be in rich of organizations providing appropriate social capitals to their members. For example, Portes and Sensenbrenner (1993) attributed the prosperity of Asian immigrants in USA to the diverse types of social capitals according to their phase of development.

### **3.5 State-society Relations**

Besides the defining properties of social organizations, Woolcock and Narayan (2000) address the crucial role of the formal institution in determining whether associations can achieve collective interests. Without a developmental institution to secure property right, enforce legal framework, the efforts by the poor minorities acting in their collective interest would be undermined. However, in the meantime associational activities can influence institutional performance generally in societies social organizations flourished (Putnam, 1995; Tavis, 2006).

Neither government, social associations nor individuals are inherently good or bad, they grasped the power together to determine whether collective goals could be achieved. None of them alone can provide sufficient resources to facilitate broad-based development. Their coordination and partnership both within and across different societies are of great significance. Evan (1996) concluded that mutual supportive relations can lead to developmental outcomes. However, it only works where the actions of government are simultaneously developmental and overseen by organizations. As the case of Russia exemplifies, weak public institutions and division

between powerful authorities and the citizens result in political instability, corruption, increasing inequality within the state and capital flight (Rose, 1998). Meanwhile, evidence from the developing countries demonstrates why only possessing high levels of social solidarity or grassroots groups does not necessarily result in economic growth. Participatory poverty assessments in Kenya and Rwanda (World Bank 1989) found that, though enormous community groups or cooperative and farmers group are running, but these groups were unable to connect the poor to outside resources, like policies and aid (Naranyan, 1999). Case in Haiti also support the necessary role of a developmental institution, groups cannot overcome the negative effects of colonialism, corruption, geographical isolation, political exclusion, and social polarization (White and Smucker, 1998). Skocpol (1999) argued that civil society thrives to the extent that the state actively encourages it. This argument may more accordance to the reality in China. The integrated effectiveness of social organization on regional economic performance is determined significantly by the governments orientation toward social organization.

To summarize this chapter, the social transformation from traditional kinship-based community to societies organized by formal institutions has been altering the calculation of costs and benefits associated with different dimensions of social capital and the desirable combinations of these dimensions all the time (Woolcock and Naranyan, 2000). Whether social organization could lead to favorable collective outcomes depends on whether the dimension of social capital a community possess could meet the current need for the community to advance. Also, this need the institution from government to response. It can be concluded from the discussion above that whether social organization would effectively contribute to the aggregate economy is a problem of combination of contexts. It depends on what types of social capital, what development level a region is currently in, and how responsive the state is to the social organization's request. The complexity of the issue makes it worth investigating the effect of social organizations in China context.

### 3.6 Hypotheses

Theoretical approaches demonstrate how social organization could contribute to the aggregated economy. Most of the empirical findings confirm the contributory role of a thriving civic society especially in poverty alleviation. China is a developing country with significant number of population in poverty. Social organizations running in the grassroots provides an institutional tool helping the poor to access to the crucial resources for development, such as opportunities for training or jobs. Though China is not perceived to have a democratic civic society, for those social organizations who are seeking for economic advancement rather than political appeal, the institutional environments that shaped by governing regulations is argued to be supportive for the development of social organization. These social organizations fall not into the “suppressed civic organizations”, instead they are the ones government intend to support. In this sense, the interests of the two parties, social organizations and bureaucrats, actually come into one line. Moreover, like other Asian countries, China has a long kinship-based social norm where social ties are relative close within the community. If the local communities were inherently rich in bonding social capital, then social organization is likely to provide bridging social capital for connecting communities to outside resources. This is accordant to the supportive scenario discussed in the theories. Hereby, it is reasonable to develop the first hypothesis:

**H1:** *The development of social organizations has contributed to the economic performance in China.*

Given the fact that both the GDP contributed by the tertiary industry (the service sector) and the employment in the tertiary industry have kept increasing in the past decades. It is reasonable to assume that the social organization plays a more and more important role in the development of the tertiary industry, since the field in which social organization operates covers the services sector like education, business and rural development. This is argued by the previous theory that a civic virtue is more likely to develop in urban area where civic lives are more active and the networks are denser

(Putnam, 1995). Therefore, to further specify what part of economic performance social organization has contributed, one more hypothesis could test follow the hypothesis one:

**H2:** *The social organization has contributed more to the tertiary industry performance than the overall economic performance in China.*

According to Putnam (1993), the inequality of economic performance between northern and southern Italy was largely attributed to the inequality in their civic traditions. These traditions are illustrated by how active social organizations are. Society with more active associational life have stronger economic performance. China has a vast territory with provinces different in levels of economic development. The National Statistic Bureau of China suggested a division of provinces into four groups according to their level of development which are North East, East, Central and West. The division is shown in Appendix 1. This thesis will further investigate the possible difference in the effectiveness of social organizations on economic across provinces in China. Since all provinces in China are in a distinct identical political system with political factors rather the same across the sample, it makes clearer sense than the cross-country study on the effect of social organization on economic performance. To test if the effects depend on the regional difference, following hypotheses is developed.

**H3:** *The Social Organization has contributed to economic performance more in provinces with more advanced economic performance.*

## **4. Methodology and Data**

This analysis will improve the previous studies in three ways. First, a panel data model with provincial data across China on social organization is used. Second, the number of Social Group is used as the indicator of the development of social organization instead of the number of the overall Social Organization in China. The number of Social Group is argued to have stronger ability to explain the level of

economic activities. Third, four groups of provinces according to their level of development was separately analyzed. This give some insights on how the difference in level of development could affect the different degree of effects of social organization on economic performance.

#### 4.1 Method

The regression model is generated from the Cobb-Douglas production function, estimating the output elasticity of social organization  $\beta(SOCIAL ORGANIZATION)$ . An ordinary OLS estimation is used to test the linear relationship from *SOCIAL ORGANIZATION* to *ECONOMIC PERFORMANCE*. It is established as,

$$\begin{aligned}
 &ECONOMIC PERFORMANCE \\
 &= \beta_0 + \beta_1 SOCIAL\_ORGANIZATION_t + \beta_2 TRADE_t \\
 &+ \beta_3 GOVERNMENT\_EXPENDITURE_t + \beta_4 INVESTMENT_t \\
 &+ \beta_5 FDI_t + \beta_6 POULATION_t + \beta_7 EDUCATION_t + u_t
 \end{aligned}$$

Where the dependent variable is the economic performance, measured by logarithm of deflated GDP, and the independent variable is the development level of social organization, measured by the normalized number of Social Group at provincial level.

Fixed-Effect panel model is used to control the difference between sections (Wooldridge, 2010). In the model of interests, no dummy variables were included leaving the other time invariant variables as unobserved variables. However, each province has its own individual characteristics that may or may not influence the dependent variable. For example, whether the province is close to coaster line or not, whether the province enjoys preferential policy. Other potential factors to influence economic performance such as culture differences and the initial development level were not included in the models. In this regard, Fixed Effect Model removes the time-invariant characteristics so it can assess the net effect of the independent variable on the dependent variable. Fixed Effect estimates should not be biased because time-invariant characteristics like religion, gender, race, culture were omitted. The use of

Fixed Effect model is supported by the result from diagnostic Hausman Test, it strongly rejects the null that Random Effect model is more preferable (Green, 2008).

Besides using the fixed effect model controlling the time-invariant differences between provinces, the first difference method was used to eliminate possible autocorrelation existing in the time series variables. Prior to the model specification, since all the variables are time series, a unit root test for stationarity is needed. Unit roots are observed in all variables which indicate that all variables chosen is non-stationary. Therefore, method that taking first difference transformation is applied to all variables. After this transformation, LLC unit root tests show there is no unit root in any of the variables included in the models. In addition to that it avoids possible autoregressive relationship within variable, this method could bring other benefits to the analysis like eliminating the co-integration problem.

Even though the first difference method as a profitable technique to address time correlation in the variables, appropriate lags of variable are included in the model in able to control possible lag effects of the dependent variable itself and the variable of interests which is the *SOCIAL ORGANIZATION*. Finally, the models are specified as follows:

**Model 1:**

$$GDP_{it} = c_{it} + \beta_1 SG_{it} + \beta_2 SG_{it-1} + \beta_3 SG_{it-2} + \beta_4 GDP_{it-1} + CONTROL + \varphi_i + u_{it};$$

**Model 2:**

$$TertiaryGDP_{it} = c_{it} + \beta_1 SG_{it} + \beta_2 SG_{it-1} + \beta_3 SG_{it-2} + \beta_4 TertiaryGDP_{it-1} + CONTROL + \varphi_i + u_{it};$$

**Model 3:**

$$GDP_{it} = c_{it} + \beta_1 SG_{it} + \beta_2 SG_{it-1} + \beta_3 SG_{it-2} + \beta_4 GDP_{it-1} + CONTROL + \varphi_i + u_{it};$$



Where all the variables are first differenced, for example  $GDP_{it}$  is the first difference of the logarithm of deflated GDP of province  $i$  at time  $t$ . SG represents SOCIAL GROUP and the  $CONTROL = \delta_1 TRA_t + \delta_2 GOV_t + \delta_3 INVESTMENT_t + \delta_4 FDI_t + \delta_5 \Delta POP_t + \delta_6 \Delta EDU_t$ . Also,  $c_t$  is the constant term,  $u_t$  is the error term and  $\varphi_i$  is the time-invariant factor in the Fixed Effect Model.

To note in the Model 3, data in the provincial level is split into four groups as North East, East, Center and West. The divisions are presented in Appendix A.

### **Independent Variable**

The level of development of social organization is the variable of interest. Putnam (1993) has used it as an indicator of civic virtue in the analysis model as an independent variable to examine its influence on economic performance. He tried to count social organizations including clubs and religious group in the society to measure social capital. Beside this, he used the size of group such as memberships in bowling leagues and literary associations as an alternative measures of social capital. Ideally, he argued the use of both average size of organizations and the number of organizations combined could capture a fuller picture of social capital. This thesis will only use the number of organizations as the measure. The first reason is that this is the only available data on social organization in China. Second as Fukuyama (1995) argued, using the size as an indicator may suffer several weaknesses. One of them is the bigger size does not mean more effective social capital since the bigger size a group is, more hierarchy and less close bonding relationships the group has. Nonetheless, the number of organizations is a reasonable measure to capture the social capital and good enough to reflect the development level of social organizations since the number could capture how active the social organization sector is in particular region.

As discussed above, under the registration label of the Social Organization, the Social Group could explain the economic performance better than the Social Organization that includes three types of social organizations. The reason is that most of the activities

taken by the Social Group are economic related. From the discussion in Chapter 2, social group has more diverse fields of specialty among which Rural Development is the most popular area of specialty. In the contrary, the overall Social Organization includes large number of organizations that focused on offering services in public health and education which have little evidence in more direct influences on economic performance. Therefore, it is reasonable to assert that the social group has closer relationship with economic development than the general social organization including the Private Non-Enterprise Entity. The development level of social organization will be measured by the number of Social Group in this thesis.

Finally, Lag of Social Organization is included to capture its possible lag effect. Fukuyama (1995) argued that factors like norms and traditions are transmitted from one generation to the next through a process of socialization that involves more patterns of behavior than reasons. The civic virtue approach argued that the civic tradition in a society is supposed not to benefit the economic performance immediately, instead, it nurtures a supporting environment for economic activities and the effect works in a lasting period of time.

### **Control variables**

Several variables are chosen as the controls for economic performance. They are the most commonly used control variables in the study of economic performance as suggested by (Chen and Feng, 1998). *TRADE*, measured by deflated volume of import and export in a year, along with *GOVERNMENT EXPENDITURE*, measured by deflated government expenditure, and *INVESTMENT*, measured by current deflated total investment in the economy, capture the endogenous contributing factor of economic growth. Meantime, *FDI* captures the openness of the host economy, *POPULATION* and *EDUCATION* indicating the demographic factor and labor factor that affecting economic performance. *EDUCATION* is measured as the number of high school enrollment. Related variables are transformed into natural logarithm form

so that a OLS model could be applied. This could also lower the correlation between the variables and avoid multicollinearity.

## **4.2 Data:**

Data for all variables except the number of Social Group in provincial level are collected from the National Bureau of Statistics of China. Data for the Social Group are collected from National Administration of Social Organization at provincial level in which foundations and non-enterprise entities are excluded. It means, only the number of the sub-category Social Group is included. Data for the panel include 31 provinces in China excluding Hong Kong, Macau and Taiwan which are in different political systems. The use of province-level data could benefit the analysis in two ways. Similar to the improvement by using panel data, one benefit of using provincial data could provide more empirical observations to enhance the power of the results. The other benefit is that such provinces are in one political system which can control other institutional factor that could explain the inequality in economic performance. Time series data are collected from Year 2002 to Year 2013. Since the data for merely the Social Group are available since 2002. The time span chosen could benefit the study by avoiding shocks in 1998. This OLS estimation model is the most efficient because this thesis is to capture the yearly contribution of social organization in different regions across China ( $T < 30$ ).

# **5. Results and analysis**

## **5.1 Descriptive Statistics**

The descriptive statistics of all the variables included in the regressions are as follows. TABLE 5-1 summarizes the provincial-level data before first difference transformation. It shows that this panel is balanced with data for all variables available for the same

time span. The standard deviations show variables like *GDP*, *TRADE*, *POPULATION* and *EDUCATION* has relative larger variation between-province and between time. This roughly indicate significant differences within the country with respect to the economic variables.

Next, the pairwise correlation between variables are shown in TABLE 5-2. All the variables show strong correlation with each other, stating that we may observe similar evolving patent in each variable. It also implies high risks of inter-dependence between variables in the statistical analysis such as problems of multicollinearity or endogeneity. These problem is significant in the analysis because the estimation may be biased and inefficient. Ideally, an instrument variable should be used to replace the endogenous variable in the model, however the First Difference Method is the technique aiming to address the problem in this analysis.

**TABLE 5-1:** Summary of Provincial Data before the First Difference Transformation

Variable	Obs.	Mean	Std. Dev.	Min	Max
SOCIAL GROUP	372	3.7064	0.3757	2.3962	4.4177
GDP	372	3.7167	0.5229	2.2145	4.6632
TERTIARY GDP	372	3.3398	0.4954	1.9570	4.3518
TRADE	372	3.0160	0.7702	1.0379	4.6946
INVESTMENT	372	3.4813	0.4798	2.0326	4.4332
GOVERNMENT EXPENDITURE	372	3.0124	0.3797	1.9699	3.7923
FDI	372	3.3007	0.6891	1.4544	4.7453
EDUCATION	372	1.7366	0.4054	0.2648	2.3540
POPULATION	372	3.5039	0.3763	2.4281	4.0271

\*source: National Statistic Bureau of China

**TABLE 5-2:** Pairwise Correlation of Variables in Provincial Models

	GDP	SOCIAL GROUP	TERTIARY GDP	TRADE	GOVERN- MENT EXPENDI- TURE	FDI	INVESTM- ENT	POPULATI- ON	EDUCATI- ON
GDP	1.000								
SOCIAL GROUP	0.804	1.000							
TERTIARY GDP	0.981	0.749	1.000						
TRADE	0.792	0.616	0.838	1.000					
GOVERNMENT EXPENDITURE	0.830	0.755	0.823	0.724	1.000				
FDI	0.859	0.639	0.898	0.931	0.699	1.000			
INVESTMENT	0.892	0.853	0.864	0.752	0.946	0.762	1.000		
POPULATION	0.768	0.895	0.710	0.541	0.630	0.564	0.729	1.000	
EDUCATION	0.740	0.913	0.670	0.490	0.620	0.520	0.746	0.963	1.000

\*source: National Statistic Bureau of China

## 5.2 Diagnostic Tests

In order to get a convincing consistent and efficient OLS estimates, several diagnostic checks are needed. They are significant to ensure the model used is appropriate.

### Unit root test

Since all the variables are time series, unit root tests for stationarity are needed. Possible non-stationary variables may cause problem of spurious regressions. R-square could be high but estimated coefficients will be inconsistent. After the First Difference Transformation, the LLC unit root tests show there is no unit root in any of the variables included.

### Endogeneity

Endogeneity in regression model is a significant issue because it may violate the GM assumption of OLS regression (Chen and Feng, 1998). One possible source is omitted variables. A Ramsy RESET tests were conducted. The statistic show it fails to reject the null hypothesis that the model has no omitted variables with all P-values greater than 0.1. To proceed testing autocorrelation in the variables using Wooddridge tests in the panel model. The results indicate that there are serial correlations in variable *SOCIAL GROUP* and the dependent variable *GDP* even after the First Difference transformation. Specifically, the two variables are correlated with their order one lag variable, denoted as AR (1). Therefore, in order to tackle this problem, this thesis will include appropriate Lag variable into the regressions to control the autoregressive effect and lagged effect. Though suffering possible autoregressive problem across time, OLS estimation is still preferred because it is argued that there is no need to use dynamic model in a panel model with large N and small T (Wooldridge, 2010). It is unlikely to show a meaningful dynamic relationship, and the structural break and panel co-integration is less thing to worry about.

## **Heteroscedasticity**

Moreover, Breusch-Pagan LM, Pasaran CD tests rejected the null, indicating that in panel level, models suffered from heteroscedasticity. Then in the following regressions, heteroscedasticity-robust standard errors were obtained.

## **5.3 Results and Findings**

### **Model 1**

Hypothesis 1 asserts that the development of social organizations overall has contribute to the economic performance measured by the growth in real GDP. It is tested by Model 1 and the results are summarized in Table 5-3-1(See Appendix B). One issue to note is that, as discussed previously, dependent variable as first difference of log real GDP show evidence of the presence of order one autocorrelation. Therefore, one-year lag of dependent variable was included in Specification (5) (6) (7) (8) as a comparison. Also, two lags of variable *SOCIAL GROUP* were included in all the specifications to capture the possible lag effect of *SOCIAL GROUP* on economic performance.

In general, the results confirm the positive effect of the *SOCIAL GROUP* on the *GDP*. Except specification (5), all specifications including variable *SOCIAL GROUP* show significant coefficients. To be specific, in specification (2) and (6) when it excludes the 2 lags of variable *SOCIAL GROUP*, the coefficient of current social group is slightly increased but the significant level does not improve. In specification (3) and (7) when we exclude the current variable *SOCIAL GROUP* to examine the lag effect solely, the coefficient of lag 1 variable is increased and that of lag 2 variable remains the same. Nonetheless the coefficients for lags are still insignificant. These findings evidence that, the current effect of *SOCIAL GROUP* is significantly positive in explaining economic performance, while the lag effect of *SOCIAL GROUP* is insignificant. Moreover, comparing specifications with lag variable of *GDP* to the specifications without, the results imply a significant autoregressive relationship between *GDP* and its one-year

lag showing by all significant coefficients on the lag variable on *GDP*. However, at a price of including lag of dependent variable into the model, the scale of effect of *SOCIAL GROUP* is decreased for example from 0.053 to 0.039, and the significant level also decreased from 95% to 90% of confidence. The inclusion of lag dependent variable is an improvement to the model since it increased the explanatory power indicated by the increased  $R^2$  in specification with same number of observations. When omitting the lag variable of *GDP*, some of its effects were captured by the variable *SOCIAL GROUP*. This leads to the greater and more significant coefficients of *SOCIAL GROUP* when lag *GDP* is excluded.

In sum, *SOCIAL GROUP* is positively affecting the *GDP* in 10% significant level. To interpret the results, one percentage increase in the number of social group leads to 0.039 percent growth in *GDP* across China. H1 is thereby statistically supported.

## **Model 2**

Model 2 tests the H2 that social group contribute more to tertiary *GDP* than the overall *GDP*. Table 5-3-2 (See Appendix B) summarizes the results. Comparing these results to ones in the previous model, the estimates of *SOCIAL GROUP* are around the same scale and with stronger significance in the specification containing lag dependent variable. However, unlike the *GDP*, the *tertiary GDP* does not show significant autocorrelation with its one lag variable. Even though with larger coefficients of *SOCIAL GROUP* in specification (5)(6)(7)(8), the effect of *SOCIAL GROUP* could be overestimated. This is similar to the previous findings that variable *SOCIAL GROUP* may capture some effect that is not contributed by itself. Rather, these parts of effect may be from other factor that correlated to *GDP* and *SOCIAL GROUP* simultaneously. Furthermore, *tertiary GDP* is not well-explained by the model. *Tertiary GDP* may be affected by other variables that excluded in these models. This finding is supported by the insignificance of other variables in the model.

Overall, *SOCIAL GROUP* does positively contribute to the development in the tertiary sector, however there is no clear evidence showing that the Tertiary *GDP* is better



explained by *SOCIAL GROUP* than the whole-sector GDP. The activities taken by the social organization do not favor the development in the service sector. No empirical support to the Hypothesis 2.

### **Model 3**

Proceeding to the final hypothesis, model 3 is tested. H3 proposed that social organization can contribute more to the economic performances of regions with more advanced level of development. Table 5-3-3 (See Appendix B) summarized the results from this model in which four groups of provinces were examined separately. Among the four groups which are North East, East, Center and West, the East provinces have a record of the most advanced level of development while the West provinces are the least advanced with respect to their economic performances.

The only significant estimate of *SOCIAL GROUP* is in the West provinces of China. 0.047 in specification (7) is roughly the same with the ones from the previous models which include all provinces in China. However, the results from other parts of China are insignificant. Moreover, the North East group shows negative coefficient of *SOCIAL GROUP*. This vague results could not support the hypothesis that the developing social organizations contribute more to the provinces with more advanced economy. These results nonetheless imply the degree of effect of social organizations differs in different societies with various economic characteristics. Since the Fixed Effect Model has controlled the time invariant differences in provinces such as geographical and cultural differences, it is reasonable to argue that the effectiveness of social organization in facilitating economic growth is contextual and depends on the specific features of the economy such as economic structure and institution quality.

The insignificant results for H3 may have theoretical explanation and empirical evidence. According to previous theoretical discussion, the effectiveness of social organization varies in regions in different level of development due to the different types of social capital they possess and they need for economic advancement. In China, the East part provinces have the most advanced economy with the highest GDP per capita

compared to the rest provinces. The West part provinces have lower level of development with lowest GDP per capita. The significant result from the West provinces for the *SOCIAL GROUP* has confirmed the argument that the social organization is most effective in poverty alleviation from the existing literature. As the province advancing in the development levels, the economic performance alters the weights from other contributing factors. This is illustrated from the results, the *GDP* growths of East and Central are more rely on the growth in *TRADE*, *GOVERNMENT EXPENDITURE* and *INVESTMENT* than the West. Future research may investigate the relationship between the GDP from private sector and social organization development.

## **6. Conclusions**

To conclude, this thesis tried to examine the relationship between the development of social organization and the economic performance. Out of the three hypotheses, only the first hypothesis, that the development of social organization has positively contribution to economic performance, has been substantially supported by the result. The increase in the number of social group has improved the GDP growth in provincial level of China. This finding is aligned with some of previous researches who give credits to the civic society on the economic performance (Putnam, 1993; Knack and Keefer, 1996; Tarrow, 1996). However, there is no significant evidence exhibiting that social organization may influence the future economic performance. Put it another way, no support for the existence of lag effect from the development of social group on economic performance is observed, which is not as what is expected. The formations of new social groups are likely to affect the current aggregate economic performance rather than to nurture a supportive environment for economic development in the future. The realistic reason for the ambivalent findings might be the excess power hold by government over the administration in China. As discussed previously, the government has constantly retained the power to decide who could or should be registered and who should be rejected in the list of legal social organization according to the need. In some

degree, the number of the new registered social organization may be manipulated by the will of the government. Formation of new social organization may be affected by the current government expenditure on civic affairs, past economic performance or other political concerns like social instability.

Hypotheses 2 that expecting social organization could contribute more to the Tertiary Industry than whole-sector economic performance found no clear support. Though the SOCIAL GROUP has significantly facilitated the tertiary GDP growth, the scale of effect is no greater than that on GDP growth. In addition, the replacement of GDP with tertiary GDP as dependent variable has decreased the explanatory of the model. Two indication from the findings. First, the development of Tertiary Industry is not contributed more by the development of social organizations than other industries. Social organizations in China are active in the county and rural level where township factories, private firms flourished. No empirical evidence from this study demonstrating that the associational activities are more concentrated in service industry. Therefore, this finding did not support the statement by previous literatures that social organization are active in the urban area where civic virtues are better developed.

The last hypothesis that the effect of social organization is greater in region with higher level of development found no support as well. On the contrary, the split sample analysis found that only in the least developed provinces in China, the social organization demonstrates significant influences on economic performance. This finding supports some of the previous findings that social organizations are especially helpful in poverty alleviations. Social capital theory argued that when a community in its early phase of development, social capital plays a more effective role in connect the people with outside resources. Local community hereby can access to more economic opportunities. As the community developed, the effectiveness of social capital may become ambivalent since the tight networks within the social organization may hamper the access to networks outside the community. Nevertheless, there is strong evidence showing that the effectiveness varied in different provinces in China even under the

fixed effect model analysis. This finding also support the argument in social capital theory that the effectiveness of social capital is highly contextual. However, this is contrary to the observations in Italy where Putnam (1990) found that richer Northern Italy had more active social organization with number of social organization as the measure.

The policy implications of the results are suggested firstly that a prosperous social organization sector indeed improves the economic performance in a variety of ways. Especially in less developed or developing countries, an increasing number of social organization could motivate more economic outcomes in poorer communities. Policies should be designed as more favorable to the development of social groups in the community if the policies are development oriented. Second and more importantly, whether the development of social organizations could aggregately help the economy depends on the structure of the massive social organizations, the development phase of the economy, and the state-organization relations. If government intend to enhance the economic performance by encouraging social organizational activities, it need to play a supportive role building favorable institutional environment for social organization to grow. It also need to actively respond to the appeals from social organization and to confront the supervision from the social organizations.

For further researches who are interested in exploring the relationship between economic performance and social organization, special attention should be paid to the simultaneity problem. The causality direction could also be examined. Model 1 observed an existing relationship between the SOCIAL GROUP and the lag GDP variable. This implies that the past GDP performance could possibly linearly-affect the current growth of social organizations. As some scholars argued (Temple and Johnson, 1998; Tavis, 2006), Putnam's assertion about social organization overlooked the reverse causality between civic society and economic development. The flourishing social groups in the society may be the consequences of economic advancement. Also, a more comprehensive measure of civic society could be explored, such as the density

of social organizations. Nonetheless, following this study, future study could investigate the determinants of the developing social organizations. Do demographic variables like population structure increase the number of social organizations, or does urbanization increase the number of social organization? These questions could be done through a panel model analysis. Last, since China model is not so common, the findings could be further confirmed in other less-democratic countries such as Russia.

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## **Appendix A: the division of Provinces in China**

*NORTH EAST*: Liaoning, Jilin and Heilongjiang. (3 in total)

*EAST*: Beijing, Tianjin, Hebei, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong and Hainan. (10 in total)

*CENTER*: Shanxi, Anhui, Jiangxi, Henan, Hubei and Hunan. (6 in total)

*WEST*: Inner Mongolia, Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Tibet, Shanxi, Gansu, Qinghai, Ningxia and Xinjiang. (12 in total)

Appendix B: Tables from the results

TABLE 5-3-1: Regression Results from Model 1.

		Dependent Variable: First Difference of log real GDP							
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>SOCIAL GROUP</i>		0.051** (-0.023)	0.053*** (-0.022)		0.053*** (-0.022)	0.036 (-0.024)	0.039* (-0.020)		0.039* (-0.020)
<i>SOCIAL GROUP (Lag 1)</i>		0.016 (-0.024)		0.034 (-0.024)		0.014 (-0.027)		0.027 (-0.023)	
<i>SOCIAL GROUP (Lag 2)</i>		0.037 (-0.030)		0.037 (-0.029)		0.039 (-0.031)		0.039 (-0.029)	
<i>GDP (Lag 1)</i>						0.197** (-0.078)	0.240*** (-0.066)	0.212** (-0.078)	0.236*** (-0.065)
<i>TRADE</i>		0.081*** (-0.018)	0.079*** (-0.018)	0.085*** (-0.018)	0.079*** (-0.018)	0.083*** (-0.020)	0.0798*** (-0.018)	0.085*** (-0.019)	0.080*** (-0.019)
<i>GOVERNMENT EXPENDITURE</i>		0.187*** (-0.041)	0.175*** (-0.041)	0.185*** (-0.043)	0.176*** (-0.040)	0.158*** (-0.039)	0.145*** (-0.037)	0.154*** (-0.040)	0.142*** (-0.037)
<i>INVESTMENT</i>		0.021 (-0.031)	0.045* (-0.025)	0.025 (-0.031)	0.045* (-0.025)	0.035 (-0.034)	0.0560** (-0.025)	0.039 (-0.034)	0.056** (-0.026)
<i>FDI</i>		-0.004 (-0.009)	0.003 (-0.010)	-0.003 (-0.009)		-0.004 (-0.008)	0.003 (-0.009)	-0.004 (-0.008)	
<i>EDUCATION</i>		0.015 (-0.021)	-0.001 (-0.013)	0.014 (-0.02)		0.003 (-0.019)	-0.007 (-0.011)	0.001 (-0.018)	
<i>POPULATION</i>		-0.179*** (-0.058)	-0.160*** (-0.046)	-0.187*** (-0.057)	-0.160*** (-0.044)	-0.145*** (-0.049)	-0.115*** (-0.036)	-0.148*** (-0.049)	-0.115*** (-0.038)
<i>Constant</i>		0.630*** (-0.224)	0.592*** (-0.172)	0.661*** (-0.22)	0.594*** (-0.15)	0.525*** (-0.189)	0.436*** (-0.134)	0.538*** (-0.187)	0.425*** (-0.137)
No. of observation		279	341	279	341	279	341	279	341
No. of provinces		31	31	31	31	31	31	31	31
<i>R</i> <sup>2</sup>		0.417	0.392	0.408	0.391	0.441	0.428	0.436	0.427
<i>R</i> <sup>2</sup> Adjusted		0.398	0.379	0.391	0.382	0.42	0.414	0.417	0.416

\*\*\*, \*\*, \* represent significance level at the 1%, 5%, 10% level. White's heteroskedasticity standard error estimates in the parenthesis. Source: China Statistic Year Book and National Administration of Social Organization.

**TABLE 5-3-2: Regression Results from Model 2**

	Dependent Variable: First Difference of log real Tertiary GDP							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>SOCIAL GROUP</i>	0.051** (-0.021)	0.042** (-0.018)		0.046** (-0.017)	0.054** (-0.021)	0.043** (-0.017)		0.046** (-0.017)
<i>SOCIAL GROUP (Lag 1)</i>	0.015 (-0.023)		0.033 (-0.026)		0.011 (-0.021)		0.03 (-0.024)	
<i>SOCIAL GROUP (Lag 2)</i>	0.007 (-0.045)		0.008 (-0.043)		0.006 (-0.043)		0.007 (-0.041)	
<i>Tertiary GDP (Lag 1)</i>						0.053 (-0.101)	0.057 (-0.092)	0.061 (-0.106)
<i>TRADE</i>	0.025** (-0.011)	0.013 (-0.009)	0.028** (-0.010)	0.012 (-0.009)	0.023** (-0.011)	0.013 (-0.009)	0.027** (-0.011)	0.011 (-0.008)
<i>GOVERNMENT</i>	0.059 (-0.045)	0.054 (-0.046)	0.056 (-0.045)	0.074* (-0.041)	0.058 (-0.044)	0.052 (-0.044)	0.055 (-0.044)	0.072* (-0.039)
<i>EXPENDITURE</i>	0.041* (-0.023)	0.038 (-0.026)	0.045* (-0.023)	0.037 (-0.026)	0.042* (-0.023)	0.038 (-0.026)	0.046* (-0.023)	0.037 (-0.025)
<i>INVESTMENT</i>	-0.016* (-0.008)	-0.011 (-0.009)	-0.016* (-0.008)	-0.016* (-0.008)	-0.016* (-0.008)	-0.011 (-0.009)	-0.016* (-0.008)	
<i>FDI</i>	0.039 (-0.032)	0.034* (-0.018)	0.038 (-0.032)	0.036 (-0.031)	0.036 (-0.031)	0.034* (-0.017)	0.035 (-0.030)	
<i>EDUCATION</i>	-0.083 (-0.065)	-0.045 (-0.046)	-0.091 (-0.063)	-0.049 (-0.048)	-0.076 (-0.064)	-0.039 (-0.048)	-0.085 (-0.063)	-0.042 (-0.049)
<i>POPULATION</i>	0.268 (-0.258)	0.145 (-0.175)	0.298 (-0.249)	0.216 (-0.168)	0.244 (-0.255)	0.123 (-0.185)	0.279 (-0.247)	0.188 (-0.177)
<i>Constant</i>								
No. of observation	279	341	279	341	279	341	279	341
No. of provinces	31	31	31	31	31	31	31	31
<i>R</i> <sup>2</sup>	0.141	0.094	0.128	0.069	0.145	0.097	0.131	0.072
<i>R</i> <sup>2</sup> Adjusted	0.113	0.075	0.102	0.055	0.113	0.075	0.102	0.056

\*\*\*, \*\*, \* represent significance level at the 1%, 5%, 10% level. White's heteroskedasticity standard error estimates in the parenthesis. Source: China Statistic Year Book and National Administration of Social Organization.

**TABLE 5-3-3: Regression Results from Model 3.**

	Dependent Variable: First Difference of log real GDP							
	NORTH EAST		EAST		CENTRER		WEST	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>SOCIAL GROUP</i>	-0.065 (-0.057)	0.075 (-0.112)	0.054 (-0.067)	0.079 (-0.084)	0.043 (-0.148)	0.102 (-0.143)	0.041* (-0.021)	0.047* (-0.024)
<i>GDP (Lag 1)</i>	0.149** (-0.017)	0.205** (-0.076)	0.129 (-0.076)	0.129 (-0.124)	0.129 (-0.124)	0.108** (-0.032)	0.041* (-0.022)	0.037* (-0.020)
<i>TRADE</i>	0.152** (-0.017)	0.140*** (-0.009)	0.126*** (-0.022)	0.119*** (-0.019)	0.116** (-0.031)	0.108** (-0.032)	0.041* (-0.022)	0.037* (-0.020)
<i>GOVERNMENT EXPENDITURE</i>	0.396 (-0.141)	0.328 (-0.162)	0.183* (-0.096)	0.239** (-0.091)	0.244** (-0.083)	0.307*** (-0.047)	0.082 (-0.051)	0.108* (-0.051)
<i>INVESTMENT</i>	0.017 (-0.023)	0.017 (-0.020)	0.128** (-0.051)	0.070* (-0.037)	0.049 (-0.094)	0.006 (-0.069)	0.006 (-0.052)	0.019 (-0.053)
<i>FDI</i>	0.052 (-0.031)	0.039 (-0.035)	-0.006* (-0.003)	-0.007 (-0.004)	0.069 (-0.046)	0.056 (-0.049)	0.015 (-0.011)	0.018 (-0.010)
<i>EDUCATION</i>	0.227 (-0.193)	0.119 (-0.076)	-0.028 (-0.019)	-0.003 (-0.031)	-0.034 (-0.039)	-0.028 (-0.017)	-0.018 (-0.015)	0.003 (-0.014)
<i>POPULATION</i>	0.37 (-0.229)	0.740* (-0.238)	-0.104** (-0.034)	-0.094* (-0.050)	-0.095 (-0.219)	-0.182 (-0.220)	-0.194* (-0.104)	-0.231* (-0.112)
<i>Constant</i>	-1.709 (-1.059)	-2.823* (-0.711)	0.433*** (-0.124)	0.36 (-0.217)	0.439 (-0.853)	0.758 (-0.823)	0.708* (-0.329)	0.808** (-0.356)
No. of observation	30	33	100	110	60	66	120	132
No. of provinces	3	3	10	10	6	6	12	12
<i>R</i> <sup>2</sup>	0.768	0.662	0.722	0.651	0.541	0.544	0.248	0.214
<i>R</i> <sup>2</sup> Adjusted	0.68	0.567	0.697	0.627	0.468	0.489	0.193	0.17

\*\*\*, \*\*, \* represent significance level at the 1%, 5%, 10% level. White's heteroskedasticity standard error estimates in the parenthesis. Source: China  
Statistic Year Book and National Administration of Social Organization.