# The View from the County: China's Regional Inequalities of Socio-Economic Development\*

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The central contribution of this paper is to provide a description and analysis of spatial inequalities in China at the county scale. Previous accounts have concentrated primarily on crude provincial level economic data. By using data from more than 2000 counties, and in focusing on socio-economic agendas, it is the aim of this paper to provide a more nuanced and sophisticated account of China's inequalities in the 2000 decade. The result shows that fiscal revenue/expenditure, financial loans, education (proxies by school enrolment rate), health care (proxies by hospital beds) and social welfare (proxies by beds in social welfare nursing centres) are the cause of major inequality when analysed from the county point of view.

Key Words: China; County; Inequality; GIS; Economic; Social. JEL Classification Numbers: I10, I20, I30, O18, R58.

## 1. INTRODUCTION

China's economy is currently growing at a rate faster than that of any other country, with annual GDP increasing by approximately 10% in the past two decades (China Statistical Yearbook, 2008). By 2009, China's GDP reached 12.5% of the world total, making it the third-largest economy after the US and Japan (China Statistical Yearbook, 2009). China's foreign currency reserve stands at \$1756 billion, making it the third largest

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recipient of foreign direct investment after the United States and Britain (Economist, 2007). Such a national growth rate is impressive. However, the pace of reform and growth has been spatially uneven, great variations having been found between regions, between urban and rural locations, and between different groups of people (Xu and Wang 1997). Although substantial inequalities in regional development are not new and are found in almost every large country such as the United States and Brazil (Williamson, 1965), the Gini coefficient has risen for the whole of China from a low of 0.33 in 1980 to 0.465 in 2008 (National Statistic Bureau of China) which is much higher than the international warning level of 0.4. As a consequence of such macro-economic development, a veritable industry has emerged that either charts China's rising superpower status or identifies possible signs of economic, environmental and political disintegration .<sup>1</sup>.

# 2. DEVELOPMENT AND INEQUALITY

Europe and North America regional development has generated all kinds of economic theories and strategies, having gradually become development economics, which includes Neoclassical Exogenous Growth Theory (Solow and Swan, 1956; Cass, 1965; Koopmans, 1965), Endogenous Theory (Borts and Stein, 1964 and Barro and Sala-i-Martin, 1999), Rostow's Stages of Growth Theory (Rostow, 1960), Simon Kuznets's inverted U hypothesis (Kuznets, 1965; 1995), Arthur Lewis's Dual Sector Model (Lewis, 1954), Growth Pole Theory (Perroux, 1950), Export Base Model (North, 1955) and New Economic Geography (Krugman, 1991). In China, Kuznets' inverted U hypothesis has been particularly debated. For example, the question as to whether or not regional convergence is likely to occur in the late stage of the development process in terms of inequality (Fan1997). Zhang (2001) uses time series techniques to examine China's regional per capita income convergence. He draws upon Barro's (1992, 1995) theory which suggests that regional disparities can be short term phenomena only, because such disparities will generate self-correcting movements in prices, wages, capital and labour, entities that restore the tendency towards regional convergence. In contrast, Yao's (2001) research supports Brown's (2001) model, suggesting that regional growth and incomes do not necessarily converge, even over a long period. Instead, regional divergence is the most likely outcome with regional incomes tending to diverge. Zhou (2004) proposes that both convergence and divergence of economic growth have appeared successively in China. Other scholars have tried to identify factors through empirical studies of regional disparity (Fleisher 1997; Lee 2000; Demurger, Sachs et al. 2002; Song, Chu and Chao 2000). Broad-

 $<sup>^{1}\</sup>mathrm{see}$  Chang (2001), Lardy (2002), Deng and Moore (2004), Hutton (2006)

ly speaking, the main explanatory factors that emerge from such analyses include the great differences between geographical zones in China (Sachs, 1997), its poor economic basis, lack of capital, the strong contrasts in the distribution of resources (both human and natural), isolated culture, and the broad spectrum of technologies and local policies in use (Bao, 2002). In sum, this paper will not consider whether or not regional convergence occurs; instead, it will examine the reasons that cause regional inequalities.

#### 3. DEVELOPMENT DIMENSIONS AND ROLE OF SCALE

Fundamentally, 'development' refers to economic development since economic development is the principal component of development, with the primary criteria being increasing quantity and quality of resources of all kinds (Szirmai, 2005). The identification of development with economic growth has suffered increasing criticism. Some critics have gone even further and challenged the unduly narrow focus on the economic dimensions of development alone. A country can grow rapidly, but still perform poorly in terms of literacy, health, life expectancy and nutrition (Sen, 1999). The environmental costs of growth are insufficiently recognised (Mishan, 1967). Economic growth does not necessarily make people happier or more satisfied (Easterlin, 1972). Criticism of growth fetishism has led to the emergence of so-called 'social indicators': life expectancy, literacy, levels of education, infant mortality, and availability of telephones, hospital beds, licensed doctors, calories, and so forth. Authors such as Seers (1979), Myrdal (1972), Streeten (1972), Chenery (1975) and Mahbub ul Haq (1998) came to the conclusion that development involves more than economic growth and changes in economic structures. Seers formulated three additional requirements for the use of the term development, namely a decrease in poverty and malnutrition, a decline in income inequality, and an improvement in the employment situation. Therefore, as Sachs (1992) and Drakakis-Smith (1993) argued, the word 'development' should not always be used as an abbreviation of 'economic development'; instead, it should relate to social, political and culture dimensions (Unwin, 1994). Many scholars have addressed the importance of the social, political and cultural dimensions in 'development'.

Scale became an important issue with development and inequality because the fomer can be considered on a number of scales. How development is defined may differ according to scale and, in addition, the approaches to development may be similarly scale-dependent (Momsen 2004). Scale ranges from the individual to the local community, and on to regional, national and global (among others). Inequalities can be revealed when analysis is applied at particular spatial scales (Willis, 2003). For example, national level development figures alone provide no indication of whether

or not differences exist between regions within the country. Spatial inequalities are a key factor in any discussion of development. Some forms of development may lead to increasing inequalities between places, while other approaches may explicitly attempt to reduce spatial inequalities. On the basis of the above arguments, this paper focuses not only on economic indices but also on social indices at the county scale.

#### 4. RESEARCH CONTRIBUTION

Three novel contributions to current research on spatial inequalities in China are presented here. First, a gap in the Chinese regional development literature is filled. In contrast to most previous studies based on provincial data, information at the county scale is employed here. There have been many previous analyses of China's economic disparities (Sun and Chai 1998; Tan 2002; Tsui 2005; Wu 2002; Wu 2003; Yang 2002; Zhang 2001). However, most of these approaches are limited because they use provincial level data that often provides an insufficiently detailed picture of China's regional development. So far, only Yin (2008) and Tsui (2005), both of whom studied fiscal disparities using pre 2003 data, have used county level data in such research. There are only 31 provinces in China, but these contain more than 2100 counties.<sup>2</sup> Thus, the present study is based on a much finer scale than most previous accounts of China's spatial inequalities. The provincial borders, for example, do not match geographical divisions, so that residential areas occupied by single ethnic groups may extend into parts of two or even three provinces. Within each province, features and conditions that vitally influence the local economy vary from one county to another. Previous regional studies in China involving unduly broad administrative divisions are frequently based on averaged information for each province, and fail to detect the real distribution pattern of economic development across China. In contrast, the smaller scale provided by the county divisions facilitates management and political control. Moreover, the county is the basic economic, social and political unit in China, having been inherited from the Planned Economy era. To the best of our knowledge, therefore, this is the first paper that systematically investigates the differences in economic and social development across China at the county level, using GIS methods.

The second novel contribution arises from the fact that most previous research has focused on economic indices, rarely mentioning the social, political and ideological factors that have had a great influence upon China's

 $<sup>^2\</sup>mathrm{Except}$  for Hong Kong Special Districts and Macao Special Districts, and Taiwan.

economic development and disparity. $^3$  Thus, this paper explores factors such as the economic circumstances, human resources and social welfare that caused such inequalities.

The third novel contribution involves the adoption of GIS as a means of analysing economic and social data for more than 2100 counties so as to reveal the detailed spatial distribution pattern of uneven economic development in China, which may offer an alternative account to that suggested by current regional development studies.

#### 5. DATA COLLECTION AND ANALYTICAL METHODS

There are 34 province-level administrative units in China, including 4 municipalities, 23 Provinces, 5 autonomous regions, 2 special districts (Hong Kong and Macao), and Taiwan, which Beijing considers a province but is not actually under the administration of the People's Republic of China. In the autonomous regions, most of the population are ethnic minority groups. In 2009 under the provincial level administration, there were 2109 counties across China; the number of counties in each province-level unit varies significantly from 5 to 148. The base map used for our GIS analysis is derived from the 1997 county administrative map, obtained from National Fundamental Geographic Information System. All County Datasets' have been obtained from the National Bureau of Statistics of China (NBS) and the Oxford University Chinese Dataset.

In providing relevant economic and social data for analysis in this paper, we chose information from the year 2006, and focused specifically on the following variables because of data availability.

- 2006 Per capita GDP (provincial level)
- 2006 Per capita GDP (county level)
- 2006 Per capita Local Government Revenue
- 2006 Per capita Local Government Expenditure
- 2006 Per capita Outstanding Loan of Financial Institutes at Year-end
- 2006 Student Enrolment Number in Primary and Secondary Schools (10000 people)
- $\bullet$  2006 Number of Beds in Hospitals and Sanitation Agencies (10000 people)
  - 2006 Number of Beds in Social Welfare Nursing Centres (10000 people)

<sup>&</sup>lt;sup>3</sup>Hannum and Wang (2006) provide a recent account of educational inequality at the provincial level, and the work of Zhang and Kanbur (2005) is an account of education and health care

 $<sup>^4\</sup>mathrm{Including}$  1626 counties, 427 county-level cities, 49 Qi, 3 autonomous Qi, 4 other county-level unit.

There were five main reasons for selecting these indices. First, we wanted to provide the most up-to-date information possible and, therefore, concentrated on what was available for 2006. Second, per capita Gross Domestic Product (GDP) is one of the most widely used measures of economic production. The GDP of a country is defined as the market value of all final goods and services produced within a country in a given period of time (Eatwell, 1998). GDP has been widely used by researchers to provide a picture of a country's development status (Lu and Lo, 2006). Here, 2006 Provincial and County per capita GDP is chosen to make clear the difference between provincial and county level models. Third, fiscal revenue and expenditure and financial loan provide insights into Chinese economic development more broadly. Fourth, the level of student enrolment per 10,000 persons is an important indicator of basic education. Given the importance of education as a measure of human resources and social development, we use this to explore social aspects of China's development. Finally, the number of hospital beds and social welfare nursing centre beds per 10,000 persons can be used as a measurement of health and social welfare; through this, we explore aspects of social development dimensions.

The correlation of Per Capita GDP, Per Capita Local Government Revenue, Per Capita Local Government Expenditure, Per Capita Outstanding Loan of Financial Institutes, Student Numbers, Hospital Beds, and Number of Beds in Social Welfare Nursing Centres are listed as follows:

This table demonstrates that the per capita GDP shows a strong positive correlation with local government revenue, local government expenditure, per capita financial institution loan, hospital beds and social welfare nursing centre beds. Per capita GDP correlates moderately with student enrolment. In addition, the weak and negative correlation between student enrolment and local government expenditure is also evident in the table.

In order to deliver a broader understanding of China's spatial disparities, we have used Geographical Information Systems (GIS) to analyse and display the county level data in map format. This demonstrates clearly, using a range of colours, the variation in inequality or disparity across China. It also facilitates spatial correlation, and comparative analysis with other data sources. A few researchers have used GIS to study aspects of China's economy at a provincial level (Yang, 1999), but this approach has not yet been extended to the county level. Moreover, many previous analyses have concentrated purely on economic statistical data and lack the full incorporation of social and other vital factors that greatly influence economic development. Most statistical data obtained from National Bureau of Statistics of China (NBS) are in plain text format, which can be conveniently transformed into an ArcInfo GIS database and then linked to the digital maps of China in ArcGIS format based on the 1997 county-level admin-

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		PGDP	PLGR	PLGE	PFIL	SE	HB	SWB
PGDP	Pearson Correlation	1	.846**	.820**	.843**	.108**	.395**	.321**
	Sig.(2-tailed)		.000	.000	.000	.000	.000	.000
	N	1931	1931	1928	1928	1931	1920	1832
PLGR	Pearson Correlation	.846**	1	.793**	.8580**	.099**	.262**	.218**
	Sig.(2-tailed)	.000		.000	.000	.000	.000	.000
	N	1931	2056	2053	2046	2056	2010	1910
PLGE	Pearson Correlation	.820**	.793**	1	.748**	009**	.475**	.280**
	Sig.(2-tailed)	.000	.000		.000	.700	.000	.000
	N	1928	2053	2053	2044	2053	2007	1908
PFIL	Pearson Correlation	.843**	.8580**	.748**	1	.130**	.279**	.241**
	Sig.(2-tailed)	.000	.000	.000		.000	.000	.000
	N	1928	2046	2044	2046	2046	2003	1903
SE	Pearson Correlation	.108**	.099**	009**	.130**	1	089**	.048**
	Sig.(2-tailed)	.000	.000	.700	.000		.000	.035
	N	1931	2056	2053	2046	2068	2011	1910
HB	Pearson Correlation	.395**	.262**	.475**	.279**	089**	1	.555**
	Sig.(2-tailed)	.000	.000	.000	.000	.000		.000
	N	1920	2010	2007	2003	2011	2019	1903
SWB	Pearson Correlation	.321**	.218**	.280**	.241**	.048**	.555**	1
	Sig.(2-tailed)	.000	.000	.000	.000	.035	.000	
	N	1832	1910	1908	1903	1910	1903	1917

**TABLE 1.**Correlation of PGDP, PLGR, PLGE, PFIL, SE, HB and SWB

is tration map.  $^5$  Each data index can then be displayed visually in map form at using the different classification methods, which is an appropriate means of displaying the spread of variable values.

# 6. SPATIAL ECONOMIC DEVELOPMENT PATTERNS: THE VIEW FROM THE COUNTY

In our GIS analysis, the 2006 provincial level GDP map and the 2006 county level per capita GDP map both present data categorised according to the standard deviations of the normal distribution.  $^6$  The provincial-level

<sup>\*\*:</sup> Correlation is significant at the 0.01 level (2-tailed)

 $<sup>^5\</sup>mathrm{It}$ 's obtained from the China research, University of Michigan. We have adjusted according to the data in 2006.

 $<sup>^6</sup>$ In Geographical Information Systems, The standard deviation is defined differently. Here, standard deviation is how much a feature's attribute value varies from the mean. Negative emphasizes values below the mean and positive emphasizes values above the mean.

map shows a simple pattern, similar to other previous researchers' results; Beijing, Shanghai and Tianjin are the richest areas with per capita GDP nearly 0.5 to 2.5 higher than national average. The south-east coastal area is the second richest region, including Liaoning, Jiangsu, Zhejiang, Fujian and Guangdong Province. Towards the west, the regions become poorer, such as Gansu, Qinghai and Tibet, which are far below the national average of per capita GDP.

However, a much more complex impression of China's economic productivity is gained from the county level GDP map. Five important observations can be made:

- 1. There is a high level development zone along the coastal areas, which partly coincides with the provincial level research result. From North to South, the Beijing-Tianjin region, Shandong peninsula, Yangtze River estuary region and Zhu River estuary region are the richest areas.
- 2. Three other high level development zones can be seen that are not revealed by the provincial level research. These are located along the Jingguang Railway situated in the middle of China from Beijing to Guangzhou, which run along the Yangzi River from Sichuan to Shanghai, and along the northern borders of Inner Mongolia and Xinjiang provinces.
- 3. There are still many poor counties in the rich coastal zone, such as north Guangdong, western Fujian, and southern Zhejiang provinces, which are not revealed by maps of provincial GDP.
- 4. Most poor counties are located in the western part of China, and especially in the arid to semi-arid mountainous areas.
- 5. Nevertheless, the poor western areas contain some rich counties as in the provinces of Yunnan, Gansu, Qinghai and Xinjiang.

In order to understand unbalanced regional development patterns at county level in more detail, five important generalisations can be made about those counties which appear to have undergone the greatest growth in this period.

First, the economic development of counties is, above all, related to their commitment to local manufacturing and industry. Since the economic reforms of 1978, rural manufacturing and industrial growth have provided one of the most important growth engines in China. Associated with rapid economic growth, regional disparity in productivity has also increased over the last two decades (Zhang and Fan 2004). A significant number of counties in the eastern and south-eastern provinces, particularly in the provinces of Jiangsu, Zhejiang and Guangdong, produce varieties of products from Township and Village Enterprises (TVEs) that make the economies of their counties much more vibrant than those of their neighbours. Since 1999, almost 90% of local government-owned firms have been privatised. Much

of the privatisation has given control to new managers and many privatisations have created new firms which have been more efficient than those they replaced (Li and Rozella, 2000). Therefore, the great achievements of County industrial enterprises, TVEs, have provided extraordinary contributions to the local economy, thus bolstering inequality arising from regional economic growth.

Second, the inequality of local government expenditure is another factor which causes regional inequalities. In our GIS analysis, County level per capita local government expenditure map illustrates the spatial distribution of local government expenditure at the county level and clearly demonstrates the positive relation between higher local government expenditure and greater area development. Thus, local governments in coastal provinces such as Shandong, Jiangsu, Zhejiang and Guangdong have greater potential to support local enterprise, local infrastructure, education, health care and social welfare. In China, local government expenditure is closely related to fiscal decentralization. China has gone through fiscal reforms to decentralize its fiscal system only from the beginning of the reform era; at that time, budgetary contracts were set up between the central and local governments which often varied from one region to another and were subject to re-negotiation when circumstances changed. The contracting system improves fiscal efficiency but, at the same time, it causes regional inequality. For example, Tsui (1991) used a graph analysis based on data up to 1985 to demonstrate that decentralization raised regional inequality. Zhang and Zou (1998) discover that decentralization led to unbalanced regional development. Kanbur and Zhang (2002) found that decentralization had a significant and positive effect on the degree of regional inequality and, in particular, it broadened rural-urban inequality. Thus, our county empirical evidence shows that local government expenditure has exacerbated regional inequality in China.

Third, the pattern of inequality in economic growth is also related to Foreign Direct Investment (FDI) and Hong Kong and Taiwan Direct Investment (HKTDI). Since the reforms, China has adopted a strategic policy to attract FDI and HKTDI to upgrade technology and boost economic growth. China has become the second largest FDI recipient in the world (UNCTAD 2002). HKTDI has attracted investment because of China's large pool of cheap labour, and Hong Kong and Taiwan's unique links with China; language, culture and geographical ocation are attractive to HK-T, especially in Guangdong, Fujian and other coastal areas (Giner 2004). In contrast, FDI from European, America and Japan is attracted mainly because of the size of China's market (Kevin Honglin Zhang 2005). It is widely believed that FDI has been one of the most important factors contributing to China's rapid economic growth (Chen et al. 1995). Therefore,

most areas in the western and central China are less developed than the coastal areas because their FDI are comparatively smaller.

The last feature, the possession of natural, mineral, historical and cultural resources, is also an important factor giving strong support to local economies. So far, 171 types of mineral have been discovered in China and there are nearly 18,000 mineral deposits (mines), more than 7,000 of which are large to medium in size, providing the supply of over 92 percent of China's primary energy, 80 percent of its industrial raw materials and more than 70 percent of its agricultural means of production (Chinese government white paper 2004). These mineral resources are distributed very unevenly across China, so that possession of such resources is one of the most important factors making some counties more developed than others in terms of their local economies. Also, counties with wealthy historical, cultural and scenic resources have been attracting large number of both domestic and overseas tourists. For instance, the famous Guilin Shi in Guangxi Province, and Xingyi Shi in Guizhou Province, have profited significantly from visitors who come to see their spectacular limestone castle landscape, caves and rivers.

#### 7. SPATIAL SOCIAL DIMENSION OF DIFFERENCE

The socio-spatial dimensions and implications of China's recent rapid economic growth have been insufficiently analysed, in large part because of the absence of reliable data. While the county level statistics do not provide much information that can specifically be interpreted as being of direct social relevance, student enrolment, hospital beds, and social welfare nursing beds do provide an impression of some dimensions of China's social inequalities.

Human capital plays an important role in economic growth, especially endogenous growth models (Barro (1995) and Lucas (1988)). Cai, Wang and Du (2002) found a positive and significant relationship between the initial human capital and the growth of GDP per capita, using data from 29 provinces over the period 1978-1998 in China. Zhang and Zou (2007) have shown that educational attainment makes an important contribution to China's economic growth. The confirmed positive effect of the initial human capital on growth implies that regional disparities in educational attainment generate variations in economic growth. The student enrolment map shows a very interesting spatial distribution. Student enrolment (primary and secondary school students) cluster in inland areas, such as

 $<sup>^7\</sup>mathrm{For}$  provincial level analysis see Dong and Ye, 2003; Hannum and Wang, 2006; Zhang and Kanbur, 2005.

<sup>&</sup>lt;sup>8</sup>Human capital is measured by log average years of school in 1982.

Huanggang in Hubei Province where, by tradition, education is greatly valued. In contrast, In China's west and northwest student enrolment is low to moderate only. The reason for such differences is largely because poverty has an effect on educational facilities which, in turn, affects student enrolment numbers, as in the west and northwest. A particularly surprising fact is that student enrolment in most coastal provinces is not as high as inland China. This distribution pattern supports our statistical analysis indicating that student enrolment has only a moderate correlation with per capita GDP.

The social Welfare Nursing Beds map shows the spatial distribution of social welfare nursing beds which was particularly emphasized in the last Five Year Plan concerning the differential effects that China's economic growth has had on its people. The financial benefits of China's economic growth have been distributed very unevenly. The wealth to be encountered, especially in China's major cities, is in the hands of a very few. This has given rise to numerous charges of corruption (DeWoskin and Stones 2006, Wedeman 2005), but those cases that hit the headlines are merely the tip of an iceberg. What is clear is that people who have the means and ability to access the raw material, land and human resources that enable them to accrue profit, have been able to become extremely rich. The visibility of this opulence has given rise not only to increasing tensions within the major urban centres of China but, also, to increasing freedom of movement within the country; people from rural areas are now more than ever before able to see the great inequalities that exist in China because of the dramatic shift in population from rural to urban areas. In addition, China's population is ageing significantly as a result of the one child policy (Du, 1992). This has a very significant differential effect in rural compared to urban parts of the country. While cities are expanding through an increased inflow of young people seeking jobs, rural areas are ageing much more rapidly. This accentuates the social inequality between rural and urban parts of China. All these processes are creating significant difficulties in the provision of social welfare support, especially in rural areas (see Dong and Ye, 2003; Zhang and Kanbur, 2005). Since the mid-1980s, China has been struggling to reform its social welfare system in order to keep pace with the economic changes that have occurred. Pensions, medical insurance and unemployment insurance schemes have all had to be introduced to replace practices under the centrally planned system. When unemployment was unknown in China, medical care was free, and unit-based pensions were pooled. Most of these changes, however, have affected urban areas only. Dong and Ye (2003, p.423), for example, estimate that 'the coverage of social welfare system is only 2% in countryside and expenditures on social security of farmers who account for 70% of total population only accounts for 11% of total expenditure'.

The social development dimension can also be examined through an interpretation of the provision of health services across China. Traditionally in the 1960s and 1970s, urban centres dominated the provision of health care, in terms of indicators such as provision of doctors and hospitals. In rural areas, the population generally had to rely on preventative medicine and the training of rural health workers. As Zhang and Kanbur (2005, p.191) note, 'By the late 1970s, "bare-foot doctors" and clinics were set up in almost all the villages'. Nevertheless, this situation meant that, at that time, China's life expectancy rates were very much higher than those of most developing countries. Although there have been dramatic changes since then, the provision of health services in the richer parts of the country, mainly the eastern cities, is very good, while western areas have suffered greatly from a lack of resources. Overall, the dominant impression from our per capita hospital beds map is that China has a comparatively even provision of hospital beds although some areas in the coastal zone do have better provision of health services than is found in the western areas. Indeed, as the social welfare nursing beds map indicates, some areas in the west of China have very low levels of provision of hospital beds. However, relatively high densities are found in parts of northern and north-western China. In explaining this fact, it is important to note that the Chinese government has sought to provide better healthcare in the border regions, especially where there is a major presence of minority groups, so as to try to reduce potential social tension and related tendencies.

#### 8. CONCLUSION

Behind China's progressively booming national economy in the last two decades, regional disparity remains a pressing concern. A majority of its regions are lagging behind the national average of per capita GDP, where about 76% of a population of over a total population of 1.3 billion live. The highly developed areas are very unevenly distributed and, as this analysis has shown, they have only week linkage to provincial divisions. Instead, they are closely associated with county level fiscal revenue and expenditure, county level financial loans, foreign direct investment, manufactures/industries, possession of natural, historical and cultural resources, education, health care and social welfare. All of these play critically different roles at a local level.

In the longer term, China's uneven development (and even more complex if viewed at a county level, as shown here) will provoke profound questions as to whether central government can manage a series of social-economic issues such as inequality between different regions and different groups of people. In order to address this problem, Chinese authorities have been trying to counteract regional disparities in the west and the remote regions

occupied predominantly by minority ethnic groups by providing financial aid, national average education and health services. Our analysis shows, that such provisions have little direct effect on local economic development. Remedial strategies designed to tackle the problem of uneven economic development need to concentrate on exploring local potential resources and injecting external investment into the agricultural, industrial or market development of these areas.

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