WP 2010-03
January 2010

Working Paper

Department of Applied Economics and Management
Cornell University, Ithaca, New York 14853-7801 USA

CHINA'S REGIONAL DISPARITIES: EXPERIENCE AND POLICY

Shenggen Fan, Ravi Kanbur and Xiaobo Zhang

It is the Policy of Cornell University actively to support equality of educational and employment opportunity. No person shall be denied admission to any educational program or activity or be denied employment on the basis of any legally prohibited discrimination involving, but not limited to, such factors as race, color, creed, religion, national or ethnic origin, sex, age or handicap. The University is committed to the maintenance of affirmative action programs which will assure the continuation of such equality of opportunity.

China's Regional Disparities: Experience and Policy[1]

By

Shenggen Fan
International Food Policy Research Institute
s.fan@cgiar.org

Ravi Kanbur
Cornell University
sk145@cornell.edu

Xiaobo Zhang
International Food Policy Research Institute
x.zhang@cgiar.org

This Version: December, 2009

Contents

[1] Paper prepared for the China Economic Research and Advisory Programme, as input to the Chinese Government's Central Leading Group on Finance and Economics (Zhong Cai Ban) and National Development Reform Commission, for the process of preparing China's 12th Five Year Plan. We are grateful to Ed Lim and Ian Porter for comments on an earlier draft.

1. Introduction

Since the start of reforms in 1978, spectacular economic growth and poverty reduction in China have been accompanied by sharp rises in inequality and increasingly frequent manifestations of social tension through unrest of various types. In response to these rising inequalities, in 2005 the Chinese government has adopted an explicit objective of "harmonious development". A key dimension of harmonious development is balanced development *across regions*. Many strategies and investment plans have been developed to stimulate growth and improvement of living standards of residents in rural areas and in less developed Western China.

This paper reviews the evolution of regional disparities in China, and brings information and trends up to date with the latest data available. It relates the evolution of spatial inequality over the years to policy stances taken by the Chinese authorities during different phases since 1949. Based on this assessment, it then presents the broad outline of a strategy to harmonize growth and regional equity. We consider three elements of this strategy, under the heading of three categories of policy instruments: infrastructure, social investment and protection, and governance reform. Specific policies within this broad strategy are then discussed in light of international experience. It is suggested that although the broad strategy for China is by and large not much different to that being followed in other countries facing the problems of growing regional disparities, the successes and failures of specific policies in other countries have something to share with Chinese policy makers. We also propose that the Chinese government take an experimental approach to these interventions, as it did in the early period of agricultural reforms, by trying out different interventions and learning lessons from their outcomes before scaling up.

2. Evolution of Regional Disparities and Policy

2.1 Regional Disparities in China

Regional disparities are a feature of the world, particularly of low and middle income countries. As Kanbur and Venables (2007) document, within country disparities are high and have been growing in the past quarter century. Here are some examples:

> In the European Union, "One region in four has a GDP per inhabitant under 75% of the average of the European Union of 27." (http://ec.europa.eu/regional_policy/policy/why/index_en.htm)
>
> In Peru, the incidence of poverty in districts at sea level is 46.1%, while for districts at an altitude greater than 3,500 meters above sea level it was 63.3% (Escobal and Torero, 2005).
>
> In Indonesia, the rural poverty incidence is 46.5% in West Kalimantan, but only 10.7% in Yogyakarta (Friedman, 2005).

> Forster, Jesuit and Smeeding (2005) examine changes in the regional patterns of inequality in the Czech Republic, Hungary, Poland and Russia using data from the Luxembourg Income Study for the 1990s. They find that "capital cities and major urban areas are mainly winners, while regions which are longer distances from their rich western neighbors characterize losers."

The examples given above can be repeated dozens of time the world over. China is no exception to this global pattern. As shown in Table 1, in 2008, per capita GDP in the inland regions averaged 13,513 Yuan, or less than half of that in the coastal regions.[2] At the provincial level, the difference is even larger. Per capita GDP in Shanghai is 10 times as large as in Guizhou. If measured by per capita income, rural and urban residents in the inland earned only about two-thirds of their counterparts in the east. The rural-urban gap in per capita income is also enormous: 3 times in the coastal regions and 3.2 times in the inland regions.

Social indicators follow a similar pattern. The infant mortality rate (IMR) in the coast in 2005 was only 9‰, about half the level in the inland (18.8‰). In both coastal and inland areas, rural IMR was about twice of the urban IMR. Regarding literacy rate in 2005, coastal and urban areas also performed much better than inland and rural areas, respectively. For all three indicators, the rural-urban gap is wider in inland regions than in coastal regions.

How have regional disparities in their different dimensions evolved since the revolution? Table 2 lists major economic indicators for China from 1952 to 2008. Table 3 presents inequality measures and Figure 1 graphs the evolution of China's regional inequality, as measured by the Gini and generalized entropy (GE) indices.[3] The two indices move in close relation to each other, matching the different phases of Chinese development remarkably well.

Over the past fifty years inequality has peaked three times—during the Great Famine, at the end of the Cultural Revolution, and in the current period of global integration. Similarly, there are three major troughs in the overall evolution of inequality—in 1952, right at the beginning of the data series; in 1967, at the end of the recovery from the Great Famine and before the effects of the Cultural Revolution set in; and in 1984, at the end of the rural reform period and the start of the expansion based on global integration. Overall, inequality seems to have been low when policy was encouraging to agriculture and the rural sector generally, and high when this sector was relatively neglected.

[2] The coastal region includes Beijing, Liaoning, Tianjin, Hebei, Shandong, Jiangsu, Shanghai, Zhejiang, Fujian, Guangdong and Guangxi. All the remaining provinces are classified as inland.

[3] The figures may be slightly different from those presented in Kanbur and Zhang (2005) for two reasons. In this paper, we use 1978 as a base year when calculating real per capita consumption instead of 1952 as used in the Kanbur and Zhang paper. Second, we include Hainan and Chongqing as separate observations after they were upgraded into provincial status.

These patterns of income inequality can be disaggregated by decomposing overall inequality into sub-components and examining the evolution of these components. Because each year, we have observations at the provincial level with a rural-urban divide, the GE index can be decomposed into a "within rural-urban" and a "between rural-urban" component (we will call the latter rural-urban inequality). The overall GE and the between rural-urban component are shown in Table 3 and plotted separately in Figures 1 and 2. Another key dimension of inequality in China, especially in the post-reform period, is that between inland and coastal provinces (Chen and Fleisher, 1996; and Zhang and Kanbur, 2001). The "between inland-coastal" component (we will call it inland-coastal inequality thereafter) is reported in Table 3 and graphed in Figure 3. It is apparent that while rural-urban gap accounts for a large share of overall inequality in the whole period, it is inland-coastal disparity which has grown rapidly since the late 1970s when China started its economic reform.

For the evolution of inequality in non-income indicators, we mainly look at illiteracy rate and infant mortality rate (IMR). Table 4 presents the levels of these two indicators in 1981, 1990, 2000 and 2005, when population census and survey data are available. Both indicators have improved over this period. Similar to economic indicators, the rural-urban and coastal-inland gaps in social indicators are enormous. In 2005, both illiteracy rate and IMR in rural areas are more than twice of those in cities. The IMR in inland regions are as high as 18.8‰, more than twice of the level in coastal regions. Table 5 lists regional inequality in these two indicators. Both Gini and Theil indexes show that social inequality has increased steadily from 1981 to 2005. Overall, the regional pattern of social inequality closely mirrors that of income inequality.

2.1 Policies and Outcomes

The evolution of regional inequalities in China since the Revolution has been influenced by the policy stances taken by the authorities. Table 2 shows the evolution of three economic policy variables – the share of heavy industry in gross value of total output (a measure of the bias against agriculture and China's comparative advantage), the ratio of trade volume to total GDP and effective tariff rate (a measure of the degree of openness), and the ratio of local government expenditure to total government expenditure (a measure of fiscal decentralization). These will be discussed further in the next sub-section. We argue below that there is a close association between these policies and regional disparities.[4]

The enormous rural-urban gap largely originated from China's heavy industry-led development strategies implemented in the planned economic era. In the 1950s, influenced by the experience and ideology of the Soviet Union and threatened by trade embargos, China placed the development of heavy industry as the top priority. However,

[4] In Kanbur and Zhang (2005), an econometric analysis was conducted to establish the relationship between economic policies and observed regional inequality patterns up to 2000. The statistical analysis confirms the narrative account given in this section. Because the variables used in calculating the heavy industry development strategy is no longer published since 2000, in this paper, we could not update the regression to 2007.

this strategy clearly violated China's comparative advantage at the time which was marked with abundant labor but limited capital resources (Lin et al. 2003). To finance the capital-intensive heavy industry sector, the government had to suppress agricultural product prices so as to extract as much resources as possible. To ensure a stable labor supply in the agricultural sector, the government imposed the household registration system (*Hukou*) to confine people to work in their birth places. Meanwhile, the rationing system enabled urban residents to have access to food, housing, education, and guaranteed jobs in the state or collectively owned firms. The *Hukou* system artificially created a large rural-urban gap. The heavy industry-led development strategy climaxed at the Great Leap Forward, which eventually led to the disastrous Great Famine in 1959-1961. As attested in Figure 2, the rural-urban gap peaked at the Great Famine period and in the end of the Cultural Revolution (1966-1976).

In the 1950s after breaking its normal relationship with the former Soviet Union, amidst acrimony with both the western world and the former Soviet Union, the government targeted public investment toward interior regions, for security reasons, to protect against potential invasion from these enemies. To a large extent, the Chinese economy was closed to the outside world. In a closed economy, a region's comparative advantage is based on its agricultural production conditions. Coastal regions, in this context, did not enjoy as much of a location advantage as the interior regions did. Under these conditions, the coastal-inland divide was low and steady, much smaller than the rural-urban gap, as demonstrated in Figure 3.

The strategy led to nearly three decades of stagnation in per capita income. By the end of the Cultural Revolution (1966-1976), the Chinese economy was at the brink of an abyss. For fear of renewed famine due to the dismal performance of agricultural production under the collective farming system, in the late 1970s the central government shifted its development strategies toward more labor intensive sectors, initially agriculture, and then increasingly export-oriented rural industries. The rural reform granted farmers the user right to cultivate their land and make their production decisions. The reform greatly stimulated farmers' production incentives and boosted their income. Consequently, both the rural-urban gap and overall inequality witnessed a sharp decline in this rural reform period as shown in Figures 1 and 2.

Because of the dramatic increase in labor productivity under the rural reform, a surplus labor developed in agriculture. In addition, rising income from rural residents drove up the demand for many manufactured goods. This created a good opportunity to develop labor-intensive town-village enterprises (TVEs). Because the state-owned enterprises (SOEs) were slow to respond to the emerging market demand, TVEs naturally filled in the niches. Not surprisingly, TVEs' share of gross domestic product (GDP) increased from 14.3% in 1980 to 37.5% in 1995 (Xu and Zhang 2009). It is no exaggeration that the TVE was the major engine of China's growth and industrialization in the early stages of China's reforms and helped narrow the rural-urban gap.

Since the 1980s, openness has become a key development strategy. China's central government liberalized significantly upon WTO accession in 2001, with a 40

percent statutory tariff in 1992 down to a 7 percent one after WTO accession (Huang and Luo 2009). With openness to the outside world, the comparative advantage for coastal regions began to reshape. Geographic location replaced agricultural production conditions as the key determinant of a region's comparative advantage. The coastal regions benefited disproportionately from this openness due to their proximity to the international market and more developed economies, particularly Hong Kong and Taiwan. The coastal region also enjoyed a series of favorable government policies, such as special economic zones and preferential tax breaks. From 1999 to 2005, the central government's capital investment in the coastal region was 4,696.7 billion Yuan (52.94 percent) to the central region's 2,255.1 billion Yuan (25.42 percent) and the western region's 1,920.4 billion Yuan (21.65 percent) (Yao 2009). Coupled with location advantages, the increased investment and tax breaks made the coastal regions more attractive to both foreign and domestic companies. In less than two decades, China became the largest recipient of FDI among developing countries from a virtually closed economy in the late 1970s. As a result, the coastal regions experienced much more rapid growth, widening the coastal-inland gap in the reform period since the late 1970s (Figure 3). In terms of trends, coastal-inland inequality showed a steep climb during this period.

After opening to trade, the central government also underwent a significant transition from a planned economy to a market economy, which was highlighted by several key market reforms. Labor market development in the past several decades has been unprecedented. The success of rural reform in the early 1980s released a tremendous number of labor from agricultural production. The government has introduced various policies to ease labor migration (Cai 2010). First, during the initial stage of the rural reform, farmers were allowed to work in nonagricultural sectors even without migration. Second, more importantly, the *hukou* system was greatly loosened enabling workers to migrate towards regions with more job opportunities, i.e. the coastal regions. Both policy change and structural transformations have generated one of the most dramatic migration dynamics in human history. In 1983, the number of rural migrants numbered only two million. By 2006, it reached over 132 million (Cai 2010). The young and more educated are more likely to work off the farm (Maurier-Fazio 1999 and de Brauw et al. 2002), thereby increasing returns to education investment. Migration plays an important role in reducing rural poverty in two ways. First, many migrants send remittance back home, which have become an important income source for their families (Taylor, Rozelle, and de Brauw, 2003). Second, even without remittances, as long as migrants can live by their own means outside, the family members remaining home may still benefit because there are fewer people to feed and land-labor ratio becomes more favorable (Xing et al. 2009). This is so called "denominator" effect. Based on primary survey data in Guizhou Province, Xing et al. (2009) estimate that migration reduces poverty incidence by 23% in the poor area.

Despite the massive migration, compared to developed countries, the share of population working in the agricultural sector is still high. But this suggests opportunities for institutional reforms to further improve labor market integration. Zhang and Tan (2007) estimate that reallocating even 1 percent of the agricultural labor force could increase national GDP by 0.9 percent. So there are still potential large gains from further

labor market reform. However, "easy" reform measures may well be more difficult to find in the future as migration policies are closely intertwined with the social protection policies that we will touch upon in the next section.

Although China experienced a short period of product market segmentation in the early stages of economic reform (Young 2000), since the early 1990s China has adopted various policy measures to remove the trade barriers to product markets across regions (Zhang and Tan 2007). Prices and quantities of inputs and outputs were rigidly controlled by the state before the reform. These controls were gradually relaxed over time. By the mid-1990s, prices and quantities of most of products were regulated by the market. Furthermore, the National People's Congress passed the "Law on Unjust Competition" in 1993, and in 2001 the State Council issued order 303 "Stipulation of the State Council to Forbid Regional Blockade in Market Activities." In addition, the government has made massive investments in highway and railway construction in the past two decades to lower transportation costs across regions (Huang and Luo 2009). Both policy reforms and infrastructure development were intended to develop the markets across regions. Standard economic theory dictates that market development should facilitate the convergence of regional economies, as returns to labor and capital equalize across regions. Contrary to expectation, however, urban versus rural regional inequality remained high, while the inland-coastal disparity has been increasing until 2007, the point up to which the latest data are available.

One plausible explanation for the fact that disparities increased in the wake of market development is that the capital market may have become more fragmented over time. Boyreau-Debray and Wei (2005) and Zhang and Tan (2007) found that the gap in the marginal product of capital across sectors and regions grew during the reform period. Poncet, Steingress and Vandenbussche (2008) discovered that Chinese firms follow a "political-pecking order" in attaining formal credit. The SOEs have easy access to state bank loans, while most private firms are credit constrained. Consequently, SOEs have lower returns to capital than private and foreign firms (Claro 2005; Dollar and Wei 2007). The large inefficiency in capital allocation across sectors and regions also implies opportunities. According to the estimate of Zhang and Tan (2007), reallocating one percent of capital from urban to rural areas while holding total capital constant would lead to 0.5% of gain in national GDP. With the more efficient use of capital, China could substantially lower its high investment rate, which is unsustainable in the long run. Such an improvement in investment efficiency could lead to a faster rise in household consumption and living standards.

To provide greater incentives for local governments to develop their local economies, the central government has initiated fiscal reform by linking local expenditures more tightly to local revenues. Fiscal decentralization greatly enhanced inter-county competition and promoted economic growth (Cheung 2008; Qian and Roland 1998). However, with China's hierarchical governance structure, a region's government size is proportional to the number of registered inhabitants regardless of its local economic size. The responsibility of financing local public goods services, such as education, healthcare and government employee salaries, is the same across regions.

Large regional variation in economic development levels mean that the effective tax burden differs greatly across regions, despite the fact that the nominal tax rate is supposed to be the same everywhere. In coastal China, as there are already so many firms and a larger tax base, the local government has the leeway to loosen its tax collection effort. Consequently the effective tax burden for each individual firm is lower. This creates a lucrative investment environment, attracting more mobile capital both from overseas and from the interior regions (Zhang 2006). In contrast, inland region local governments often have to rely heavily on existing enterprises for revenue. The implicit high tax burden thwarts potential investment despite the fact that the marginal product of capital may be in fact higher there. The interaction between the decentralized fiscal system and the centralized governance structure may lead to the observed pattern of "capital flying from poor inland to the rich coastal regions" (Zhang 2006).

Overall, fiscal centralization enabled the central government more discretionary power for regional redistribution, while decentralization provided more incentives for local governments to develop their economy at some cost of redistribution. As indicated in Figure 4, the pattern of overall regional inequality largely coincides with the degree of decentralization in the past six decades.

Apart from the above three economic policies, the existing institutional arrangements on natural resource rent allocation may further contribute to the worsening disparities. In China, the majority of natural resources are located in the inland regions. As a result of rapid economic growth, mainly in the coastal regions, increased demand for natural resources has driven their prices upwards. In theory, the increase in price should benefit the interior regions and help reduce the disparity between the resource-rich inland regions and the more industrialized coastal regions. Due to the government's holding of property rights over key natural resources, however, most rents from these natural resources go toward the government budget and benefit investors at the expense of ordinary residents in the inland regions (Zhang et al. 2008). This exacerbates the inequality between the inland and coastal regions, rather than providing an opportunity to correct the imbalance.

The resource curse (or Dutch disease) is pandemic across many resource-rich countries or regions (Sachs and Warner, 2001). However, some successful international experiences may be relevant. For example, Norway has been renowned for its efficient management of its rich oil resources.[5] It set up a petroleum fund to insulate the domestic economy from large fluctuations of oil prices and revenues. Another successful story is Chile, which put aside a large portion of copper proceeds during its boom years for reserves which have been used to buffer the recent financial crisis (Davis, 2007).[6]

In congruence with the regional inequality in income and consumption presented here, social and welfare indicators have exhibited a similar pattern of disparity. Under

[5] See http://en.wikipedia.org/wiki/Petroleum_Fund_of_Norway.
[6] "Can Copper-Rich Chile Avoid Surplus-Cash Pitfalls?" (Wall Street Journal, May 14, 2007). http://online.wsj.com/public/article/SB117909372050801357-9CN_zEDzfJJ38kBXQa0viF2VBm8_20070520.html?mod=regionallinks.

central planning, the central government promoted universal basic education and called for each community to establish its own clinics for preventive healthcare. As a result, both education and health indicators improved dramatically in the period. As the collectives were dissolved in the late 1970s, so was the rural healthcare system. Under fiscal decentralization, however, funding for social programs (along with revenue generation) was delegated to the sub-national level. As a result, local governments were required to finance their own social programs. The per capita expenditure for subnational governments on education and healthcare in the coastal regions has been 1.5 times those of the inland regions (Huang and Luo 2009). Many local governments, particularly in the inland and rural areas, were forced to charge higher fees for basic and higher education to offset the shortfall of local revenues. Although the overall illiteracy and infant mortality rates have improved as a result of rapid income growth in the reform period as shown in Table 4, the regional distribution of these indicators has worsened as indicated in Table 5.

In large part as a response to the Asian Financial Crisis in the late 1990s, the central government initiated a "western development strategy (Go West)" to combat worsening inequality. Under this strategy, the government significantly increased its investment in infrastructure, particularly in highway and railroads, in western regions. In the Go West program, between 2000 and 2005, the central government started 70 main construction projects and the total amount of investment in the western regions reached one trillion Yuan (Yao 2009). More than one third of the funds raised by long-term government bonds for construction were directed to the western regions during this time period, and from 2002 to 2005 the percent of funds from these bonds directed to the region reached 40 percent (Yao 2009). From 2000-2005, new roads built in the western region reached 220,000 km, with 6,853 km of highways (Yao 2009). By 2005, the central government invested 460 billion Yuan in construction projects in the western areas. Fiscal transfers and subsidies of 500 billion Yuan were also invested in the western areas (Chen and Lu 2009).

Moreover, since January of 2006, the government has fully abolished agricultural taxation, for the first time in over two thousand years of Chinese history. The government also provided subsidies to grain producers to boost agricultural production and farmer income. Furthermore, the government has gradually waived various fees for basic education in rural areas and in the past several years, a new rural collective medical scheme has been introduced. In theory, these changes should help reduce regional inequality, through improvements in the western regions. Khan and Riskin (2005) are one of the first to argue that income inequality had begun to level off using a large scale household survey in 2002 and identified the western development strategy as the key explanation. It is interesting to note that regional inequality and the rural-urban gap based on aggregate per capita consumption at the provincial level in our calculation has also nosed down since 2005 (Table 3 and Figure 1). Based on primary survey data in two poorest provinces, Guizhou and Gansu, Zhang, Yang and Wang (2009) show that real wage has risen rapidly since 2003 in contrast to the stagnation of wage level in the early period of 1995-2002, indicating an improvement in rural income. Moreover, there is an increasing number of

media report on labor shortage in the coastal areas.[7] As the labor market develops in favor of migrant workers, it is likely that the rural-urban income gap narrows. However, it requires more rigorous analyses based on updated and comprehensive data to judge whether the shrinking rural-urban gap since 2005 is a permanent trend or just a transient phenomenon.

The recent economic crisis has created an opportunity for China to shift its focus towards the less developed rural and inland regions, complementing the western development strategy already in place. In the past three decades, China has relied heavily on exports to the international market for its economic growth. The recent financial crisis poses a significant threat to this export-oriented growth model. With shrinking external demand, the Chinese government has put forward a massive stimulus package targeted toward the rural and interior regions, in an attempt to boost domestic and rural demand. Consequently, the policy discourse in China on regional inequality and on inequality generally, is very different now than even a decade ago. Not surprisingly, in the first two quarters of 2009 the inland regions have enjoyed faster GDP growth than coastal regions. This implies that the stimulus package has been at least initially successful in promoting growth in the inland regions. The continued economic crisis serves a good opportunity for the government to increase public investment in the rural and inland regions, establish a rural social safety net, and eventually narrow the regional gap in development.

3. Policies to Address Regional Disparities

3.1 A Framework for Regional Policy in Light of Global Experience

As we have seen, China's regional disparities are high, and have been growing. This pattern is seen throughout the world, and especially in low and middle income countries. Not surprisingly, many if not most countries have regional policies to address these disparities. In the European Union, regional policy takes on a transnational character, with particular focus on lagging countries, and lagging regions within lagging countries.

The broad considerations that underlie regional policy have commonalities across the world. Here is how the European Union formulates the objectives:

> "To reduce economic and social disparities: One region in four has a GDP per inhabitant under 75% of the average of the European Union of 27…. To show solidarity and remain competitive: European regional policy is designed to bring about concrete results, furthering economic and social cohesion to reduce the gap between the development levels of the various regions." (http://ec.europa.eu/regional_policy/policy/why/index_en.htm)

[7] For example, "How Rising Wages Are Changing The Game In China" (Business Week, 2006). See http://www.businessweek.com/magazine/content/06_13/b3977049.htm; "Sharp Labor Shortage in China May Lead to World Trade Shift" (New York Times, 2006), http://query.nytimes.com/gst/fullpage.html?res=9A02E5DB1330F930A35757C0A9609C8B63.

To take another example, this is how Beaumier (1998) describes the origins of Canadian regional policy:

> "Almost from the beginning of Confederation, the federal government has implemented programs that affected some regions more profoundly than others. Such programs were never part of a federal regional development policy, however, until the 1960s, when federal politicians became aware of differences in the levels of regional prosperity and accepted the responsibility for eliminating them. The Rowell-Sirois and Gordon Royal Commissions and the advent of a serious recession in the late 1950s focused attention on the persistent regional disparities. Until that time, authorities had believed that government policies aimed at stimulating national economic growth would ensure that all regions benefited. While this was true during periods of growth, the disparities did not disappear and improvements were achieved only at the cost of severe social dislocations." (http://dsp-psd.tpsgc.gc.ca/Collection-R/LoPBdP/CIR/8813-e.htm).

The above concerns apply almost universally, and we have already alluded to how the Chinese authorities have in recent years become increasingly concerned about growing regional disparities. There is also a significant commonality in the debate internationally on how the objective of reducing regional disparities is to be achieved. A popular way of phrasing the debate is: "should we move people to the jobs, or move jobs to the people?" The answer to this question depends not only on the technical features and cost-benefit calculations of the different policy instruments debated, but also on the precise nature of the objective of reducing regional economic and social disparities. Put it simply, how far is it politically feasible to go in moving people out of a region and into another? In the extreme, is it feasible to implement policies that would completely depopulate a region which has its own regional, cultural and political identity? In federated polities, and in trans-national unions such as the European Union, even as there are strong sentiments to remove impediments to migration so that people can move to the jobs, there is nevertheless an imperative to preserve regions as viable entities, and hence to move jobs to the people.

For these reasons, government policies and expenditures to encourage development in lagging regions are universal, and they cover the gamut from infrastructure to social investment and protection, as well as a range of interventions that cover regional governance in relation to central government. The European Union, for example, has a Cohesion Fund:

> "The Cohesion Fund is aimed at Member States whose Gross National Income (GNI) per inhabitant is less than 90% of the Community average. It serves to reduce their economic and social shortfall, as well as to stabilise their economy….For the 2007-2013 period the Cohesion Fund concerns Bulgaria, Cyprus, the Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia

and Slovenia. The Cohesion Fund finances activities under the following categories:

- trans-European transport networks, notably priority projects of European interest as identified by the Union;
- environment; here, Cohesion Fund can also support projects related to energy or transport, as long as they clearly present a benefit to the environment: energy efficiency, use of renewable energy, developing rail transport, supporting intermodality, strengthening public transport, etc." (http://ec.europa.eu/regional_policy/funds/cf/index_en.htm)

Most countries with regional policies have funds of this type, targeted to different instruments but all with the objective of raising economic activity and well being in lagging regions. For the case of Brazil, its National Policy for Regional Development (NPRD) encompasses the motivations, objectives and instruments discussed so far:

> "In Brazil, the regional inequalities pose a serious hindrance to the Nation's development process. The State in the Federation boasting the highest per capita GDP, for example, outsizes nine times the state with the lowest indicator….The Ministry for National Integration works under the assumption that the path toward reducing inequalities must accommodate the country's extraordinary regional diversity. ….[T]he new National Regional Development Policy – NPRD…was formulated as a government policy, under the Ministry for National Integration, and is linked to the initiatives of establishment of the new Regional Development Agencies (Sudam, Sudene and Sudeco), the reorientation of the Constitutional Funds (FNO, FNE and FCO) and the Regional Development Funds (FDA and FDNE), the regional development plans and programs and other instruments and mechanisms for their implementation." (http://www.integracao.gov.br/desenvolvimentoregional/pndr/english/sumario.asp#summary)

In large thanks to the cash transfer program "Bolsa Familia," inequality in Brazil has dropped steadily since 1993. Coupling with improved equality, Brazil has achieved an impressive record in cutting poverty − its rate of poverty reduction per unit of growth is more than five times of China or India did (Ravallion, 2009). The above provides a background for what exactly it is that the Chinese authorities can learn from international experience in regional policy. We believe that in general terms the international understanding of the problem, and the broad instruments used to address the problem, are similar to each other, and in a sense similar to the understanding of Chinese authorities, and to the broad instruments that Chinese authorities are beginning to deploy. The lessons, if any, must come from the specificities of the instruments, but here a key feature is that the specific context of countries differs, and great care must be taken to transfer the lessons of international experience—in many ways the lessons of China's own experiences are more relevant, and China should create more lessons by experimenting with policies and interventions before scaling up.

In what follows we will illustrate these arguments for three categories of regional policy instruments with varying possibilities of learning from international or from Chinese experience. For infrastructure investments, China has its own experience to learn from, and we discuss these in formulating our policy recommendations. For social investment and particularly for social protection China does not have as much experience, and there is indeed international experience from which some lessons can be drawn, together with Chinese experiments. Finally, for governance reform as a regional policy, although there is international experience, the issue of local governance is so context and culture specific that we would hesitate to draw lessons from international experience. Rather, we feel that China should conduct its own experiments and learn from these, in the same way that it learnt from experimentation in the early stages of economic reform, including rural and price reforms. The next three sub-sections take up these categories of policies in sequence.

3.2 Infrastructure Investment and Clustering

The multicountry studies discussed in Kanbur and Venables (2007) emphasize the importance of public infrastructure as a determinant of regional disparity, over and above any natural advantages of resources or location that a region may have. For example:

> For Peru, Escobal and Torero (2005) conduct a statistical analysis in which explanatory variables are introduced in sequence to explain regional income variations in Peru. “First nature” geographic variables such as altitude, soil type and temperature are introduced and provide good statistical explanation. But when infrastructure variables are introduced the explanatory power of the geographic variables weakens and almost disappears.
>
> For India, Lall and Chakravorty (2005) show the propensity of private sector firms to locate away from “lagging and inland regions”, which are of course the regions with poor infrastructure and poor connections to the coast and the major urban clusters.

Recent studies on China have shown that investment in public infrastructure can be both an explanation for regional inequality and, therefore, part of a strategy for containing rising regional inequality. One example of such a study is the work of Ravallion (2005). Using appropriate statistical techniques, he establishes that there are indeed spatial agglomeration forces at play in explaining changes in individual level incomes, and the crucial role of local infrastructure (as well as local natural endowments) in explaining successful income growth.

Using the agricultural census data in 1998, Fan and Zhang (2004) show that rural infrastructure and education play an important role in explaining the large spatial difference in rural nonfarm productivity. Lower productivity in the Western region is explained by its lower level of rural infrastructure and education. Using detailed road data by type, Fan and Chan-Kang (2008) further confirm that rural road investment even have

higher returns than highway investment. Since the rural nonfarm economy is a major determinant of rural income, investing more in rural infrastructure in lagging region is key to increasing the overall income of the rural population and reducing regional inequality. Using a provincial level data set for the period 1978-1995 in rural China, Zhang and Fan (2004) quantify that regional variations in the impact of public investments on regional inequality are large. Increasing public investment in the less developed western region, in particular in rural road and education, will lead to a decline in regional disparity. In contrast, if the government continues to favor the coastal region in its investment strategy, regional disparities will widen further.

Fan, Zhang, and Zhang (2004) develop a comprehensive analysis of the role of different types of government expenditure on rural growth and poverty. Using a wide range of provincial data over a period of a quarter century, it builds and estimates a simultaneous equations econometric model to calculate economic returns, poverty reduction, and impact on regional inequality of different categories of public expenditure. It is shown that productivity is enhanced and poverty is reduced by increased expenditures for research and development, irrigation, education, roads, electricity and telecommunications. Moreover, while for the first decade of reforms, the reforms themselves were more important for growth and poverty reduction, since the mid 1980s onwards public investment is shown to be the dominant factor explaining both growth and reductions in poverty. What is equally interesting, however, is that different categories of investments have different payoffs, which in turn differ across regions. Education has the biggest payoff for poverty reduction and growth in rural areas. The impact of rural telecommunications, electricity and roads was also substantial, working through nonfarm employment and rural wages. Thus road investment, for example, had the second largest return to growth in the nonfarm economy and in the rural economy overall. The policy implications of this analysis are direct and strong. If the government wishes to manage growing regional inequality in China, then investing in public infrastructure in the lagging regions will have to be an important policy priority.

In the past several years under the western development strategy and the new socialism countryside movement, the government has made significant strides in investing in infrastructure, particularly through improvements of roads and railways in lagging regions. As shown in Figure 1, overall regional inequality has leveled off and even slightly declined since the mid 2000s, a few years after the western development strategy took place. This provides some tentative evidence that the western development strategy may have played a role. Certainly, more rigorous studies are needed to quantify the attribution of different policies in reversing the worsening trend of regional inequality in the future. Amid the current global financial crisis, the Chinese government has initiated a four trillion stimulus package which places improving infrastructure in lagging region as a high priority.

The dramatic increase in infrastructure investment is likely to reshape the economic geography. After rapid economic growth in the past three decades, land for industrial use has become an increasingly limiting factor in many parts of the coastal areas. The demand for labor is also overtaking supply, creating a labor shortage in the

past several years (The Economist 2008; Zhang et al. 2009). There is an increasing pressure for firms to outsource production or relocate their business to the inland regions to access more abundant land and cheaper labor. The trend of firm relocation could create a good opportunity for the inland regions. The improvement in road networks enables many previously inaccessible interior regions to receive outsourcing orders from coastal production centers.

Although inland regions have the advantage of land and labor, they often lack the necessary linkages with suppliers and markets, which are key for industrial production. The rapid industrialization of the coastal regions is largely due to a successful cluster-based production model. Within a cluster, firms have easy access to both downstream and upstream firms, markets and technologies. The proximity to suppliers and markets greatly reduces a firm's transaction cost. In addition, by dividing the production process into incremental steps, the capital barriers to entry are greatly lowered, enabling more entrepreneurs to engage in industrial production (Ruan and Zhang 2009).

A basic feature of cluster-based rural industrialization in the coastal region is the deep involvement of local governments, particularly township governments. At the initial stage when private ownership was officially recognized by the Chinese constitution, local governments provided de facto protection of private property rights (Xu and Zhang 2009). Later on, township governments took strategic responsibilities for the overall development of industrial clusters. For example, because production is dispersed among many individual producers within a cluster, quality control often becomes a problem. In many successful clusters, local governments play a key role in regulating the quality of all products within the cluster and overcoming the inherent coordination problem. Without the substantial role of the local government, the production cluster would not have evolved the scale, efficiency, and high quality of this virtual conglomerate either.

Therefore, it is also important to nurture cluster development in lagging regions. Some of the successful clustering experiences in the coastal region may be relevant to the interior regions. For example, in 2003 Aokang Group, one of the largest private shoemakers in China, set up a 2,600 acres of industrial park "Western Shoe Capital" in Chongqing to capitalize the new market opportunities (see http://www.xbxy.cn/index.htm). Initially, it brought retired experienced government officials from its hometown in Wenzhou of Zhejiang Province to manage the industrial park in Chongqing. It also convinced more than 40 shoe manufacturing and accessory enterprises and over 400 shoes materials dealers to settle in the park so as to create a new cluster of footwear production.

It is expected that a shift in development strategy from export-oriented to domestic-oriented will generate more demand in lagging regions. It is likely more firms will relocate their production to interior regions to close to the emerging market. The improvement in infrastructure between coastal and inland regions and within interior regions will facilitate this transition. The experience of clustering development widely seen in the coastal region is largely transferable when the lagging regions try to attract more private investment.

Thus, in broad strategic terms China's strategy on infrastructure build up in the lagging regions is not very different to that in other countries. Chinese authorities have responded to the growing regional gaps by increasing infrastructure investment in the lagging regions. There is sufficient experience in China to learn from on this front. Research shows that the returns to infrastructure investment in lagging regions are in general high. However, there are two specific issues on which more detailed research is needed: (i) Further analysis on what specific types of infrastructure have the highest returns in which specific regions. (ii) The problem of very remote regions. In these regions, the marginal returns to infrastructure investment may decrease quickly as it can become extremely costly to build roads and other types of infrastructure --for these regions, a more feasible option may be to move people out of the fragile land into areas with more jobs.

3.3 Social Protection Investment

Despite spectacular poverty reduction, perhaps the most impressive record of poverty reduction in history, poverty remains a major problem in China, with several hundred million people in poverty—the exact numbers depending on the precise methods and poverty lines of measurement. Addressing poverty, and the vulnerability of the poor, thus remains a major policy challenge. Social protection investment is thus key areas of debate in China. In this section we will address these concerns through the lens of regional disparity—arguing that such programs are particularly important in the lagging regions of rural areas and inland provinces.

Our analysis of the evolution of Chinese regional inequality has shown the importance of migration in mitigating these inequalities—in periods where migration was suppressed (and investment in lagging regions was low), regional inequality rose. Chinese authorities should systematically address impediments to migration, but sometimes social protection instruments can unwittingly become such impediments. For example, in the past several years, the government also has mandated workers to participate in social security. Despite the progress, some hurdles remain. One key challenge is that the social security benefit is not portable across provinces. Many employers provide a matching fund if a worker makes a contribution to their own social security account. However, if the worker returns to his hometown in another province, he will lose his portion saved. Connecting the social security systems across provinces and making the benefit portable would greatly facilitate migration, and remains an important plan in a regionally oriented social protection strategy.

Compared to the phenomenal growth in physical infrastructure investment, China's social protection investment record is less impressive since the reform. After several decades of negligence of social protection investment in lagging regions, China has made tremendous progress in reversing the trend in the past several years. First experimented with in the middle of the 1990s, the minimum support program was formally scaled up nationwide in 2007. By 2008, 42.8 million rural residents have been covered by the program (See Table 6). However, the average amount per capita is still rather low at 218 Yuan, about 28% of the official extreme poverty line (778 Yuan).

Considering China's poverty line is lower than the one-dollar-per day poverty line commonly used in other countries (which equals to about 1,300 Yuan), there is still plenty of room to expand the coverage and augment the amount of the minimum support program.

Another major achievement is the establishment of the new rural collective medical service network (CMS). The aim is to ensure that rural residents have easy access to primary health care services. In 2003, China began to experiment with the new rural collective medical service network. Within just five years, 815 million rural residents, 91.5% of the total rural population, have enrolled in the network by 2008. The contribution is shared by various levels of government (80%) and individuals (20%). It has doubled from 50 Yuan in 2006 to 100 Yuan in 2008. The government has committed to significantly increase its contribution in the next few years. Since catastrophic illness is one of the most important forces driving a household into poverty, the effort of establishing a basic health insurance is greatly lauded. Certainly, the current contribution and coverage are much lower than actual medial cost incurred. The reimbursement rate is extremely low, only at 30% in many cases. It is extremely difficult to establish a well functioning healthcare insurance system as witnessed by the current healthcare reform in the US. Amore pragmatic approach is needed, focusing on the most deprived areas to begin with.

One key dimension of social investment is rural education. Rural education in China faces serious challenges. Among the most critical is that the current education system does not address the needs of vast number of children of migrant workers. The cost for migrants' children to attend local public schools is prohibitive. Although some migrant schools have been licensed and officially recognized in recent years, migrant students still cannot take college entrance exams in the province of their parents' working place (Yao 2009). As a result, a majority of migrants leave their children behind with grandparents. Under this arrangement, local governments in lagging regions bear a large share of burden to educate the children of migrant workers while their parents work and pay taxes in developed regions.

Because of more limited fiscal revenue, local governments in lagging regions generally invest less on education on a per student basis compared to their coastal counterparts. In many remote rural villages and townships the cost of education is still too high for poor families to afford, even though tuition has been waived for basic nine-year education in the past several years. In remote areas, schools are often located quite far from children's homes. As a result, children from the poorer regions often have to stay in boarding schools. Meeting the cost of meals and boarding remains a great challenge for many poor families. The high boarding cost has been ranked as a key reason for secondary school students' dropping out. To combat the high cost of boarding schools, a conditional cash transfer program in poorer regions, similar to the Progresa-Oportunidades program in Mexico, or a school feeding program similar to the "Food For Education" (FFE) program in Bangladesh, could simultaneously help alleviate the farmers' burden and improve children's nutritional status and educational attainment.

The Progresa-Oportunidades program is an example of a category of programs known as Conditional Cash Transfer (CCT) programs, which entail direct cash transfers to poor families, typically associated with parents' commitment to participating in various social service programs, including enrolling their children in schools. This program is one of the most well-documented examples of CCT. Research shows that participating students of both genders experience improved enrollment and decreased incidence of dropouts (Adato and Hoddinott 2007; Behrman et al. 2005; de Janvry and Sadoulet 2006; Schultz 2004).

One of the main criticisms of CCT programs is that they often have high administrative costs. In the case of Progresa, in its first year of operation it required an investment of $1.34 per dollar transferred to participants. Part of this investment, however, was focused on one-time costs, such as improving education technology (buying computers) and identifying families (Adato and Hoddinott 2007). By the third year, Progresa had decreased administrative costs to 5 cents per dollar transferred (Adato and Hoddinott 2007). This implies that CCT programs are capable of reducing administrative costs to a manageable level. Some types of CCT program may be modified and applied in rural China to help reduce the dropout rate of primary and secondary school. For example, the popular minimum support program may be tied with the condition that children must attend the nine-year basic education.

A second type of program for improving attendance in rural schools is school feeding programs. These programs provide a meal for students, either through breakfast or lunch at the school, or through take-home rations. One well-documented school feeding program is FFE program which was initiated in Bangladesh in 1993. In this program, the Government of Bangladesh provides a monthly ration to poor Bangladeshi families whose children attend primary school. Ahmed and del Ninno (2002) found that for an average transfer of 70 kg of grain over five months, the probability of a child's going to school increased by 7.9 percent. For the first year, 1993-1994, the investment in the FFE program was 683.18 million taka ($US16.97 million), reaching 549,881 families. In 2000, the final year of the government's control of the program, the cost had increased to 3.94 billion taka ($US77 million) and the number of families benefiting to 2,020,660. In its final year, the program costs equate to 5.2 taka ($US0.10) per student, per day (Ahmed and del Ninno 2002). China may consider experimenting school feeding program in boarding schools in remote rural areas.[8]

For many rural students graduating from secondary schools, the decision not to pursue high school comes from the slim chance of being admitted to college and the related prohibitive cost. The government may also consider waiving the tuition fees for high school students in rural areas and providing more scholarships for children from poorer backgrounds.

Apart from the burden of education cost, another major challenge for rural education is teacher absence. Teacher salaries are currently paid by county governments

[8] In many urban areas, over nutrition and child obesity have become a more serious problem. Therefore, it is better to target the program only towards remote rural areas.

and therefore not subject to the accountability of local residents. Teachers therefore have limited financial incentive to perform their duties, leaving rural schools without effective educators. One way to combat the lack of dedicated teachers could be to initiate a government-program similar to the "Teach For America" program in the US.[9] Given the recent dramatic surge of college graduates in China who were unable to find employment, this could prove an excellent opportunity to both employ these graduates and provide high quality educators to less-developed regions. An important facet of this program would be tying student performance to the teachers' salaries, further incentivizing effective teaching techniques. The international experience in aligning incentives with teachers' performance may be also helpful for China (Michael Kremer et al. 2005;Chaudhury et al. 2006).

Investing in rural education may have high pay offs in not only narrowing rural-urban income gap but also sustaining China's long-term economic growth. The massive migration in the past three decades in China benefited from the large pool of educated rural labor force which in turn was a result of the universal basic education policy implemented in the planning economic era. Given the emerging signs of labor shortage, China will likely move from labor-intensive to skill-intensive economy in the next several decades. So is the rising demand for more educated workers down the road. Therefore, it is critically important to ensure that rural kids in poor areas receive adequate education so that they can find a better-paid skilled job in the future, most likely in the more developed regions. As the young generation moves out from marginal areas, the rural-urban and regional income gap will narrow down.

3.4. Governance Reform

Large regional disparities may require, and may also hold out opportunities for, governance reform. Because China's unique governance structure and intricate institutional texture, measures related to governance reform can be more heterodox and context specific. Therefore, the lessons learned in other countries are less transferable to China than infrastructure development and social programs. More local trial and error and experimentation are needed in carrying out governance reform.

As discussed in the last section, fiscal decentralization plays a strong role in promoting inter-county and inter-province competition, which has been argued to be a key engine behind China's rapid economic growth. However, fiscal decentralization has had severe distributional consequence as a result of inherent imbalance between the decentralized fiscal system and centralized governance structure. Local government size and structure are not tailored to reflect the revenue and population base they represent. This inflexibility in structure means that when capital and labor flow from the inland regions to the coastal regions, the remaining inland governments are forced to raise tax rates simply to cover the costs of running the government due to shrinking revenue base. This can set in motion a downward spiral.

[9] In this program, college graduates are recruited to serve two year commitments as teachers in some of the least developed schools in the US.

The conventional approaches to resolve this problem are to cut government size in the lagging regions and increase central fiscal transfers to these regions. For example, the World Bank (2002) has proposed to cut the prefectural level government. In fact, Zhejiang Province has put all the counties under direct administration of the provincial government from the very beginning of fiscal reform. As the most dynamic region in China, Zhejiang's experience provides a demonstration effect for other province. In the past several years, Hubei Province has followed similar reforms. Under direct administration, the county government has more discretionary power and fewer levels of government to deal with. Moreover, any governance innovations at the county level are more likely to spillover to other counties in the same province instead of limiting only at the prefecture level. Recently after agricultural taxation was abolished, the central government has used the opportunity to freeze hiring in local governments and promoting early retirement to cut local government size in the poor rural areas. These strategies of first cutting budget and then reducing government size are rather standard practice in many countries.

Since the implementation of western development strategy, the central government has increased its fiscal transfers to the inland and rural regions. However, large transfers may also create aid dependency. For example, the counties with nationally designated poverty status enjoy much more transfers. As a result, they do not have strong incentive to improve local investment environment to attract more private investment as other counties. Instead they turn their attention to seek more transfers from the upper level government (Zhang, 2006).

Apart from the above traditional policies, China has also tried many more heterodox policy measures. For example, the latest innovations in land development rights transfers in the coastal provinces and the use of police officers from the same regions as local migrants to fight crime in the coastal provinces show the feasibility of overcoming the rigidity of governance structure through social entitlement exchanges (Luo and Zhang 2009).[10] Another example is the pair-wise province-to-county aid strategy created by the central government after the Sichuan earthquake in 2008. Each county in the earthquake region is paired with an unaffected province, usually in the more developed coastal region. The province took full responsibility for the recovery and reconstruction in the designated county. One high level official from each province was sent to their respective disaster county to help coordinate the aid effort. This institutional innovation introduced yardstick competition into the process of disaster relief and recovery. The province government in the coastal region was evaluated based on their performance in terms of recovery and reconstruction in their assigned corresponding county. It is possible that the government could apply this pair-wise development strategy to helping inland regions meet the same growth potential as the coastal regions.

[10] The conversion of land from agricultural to non-agricultural use is regulated by the central government through a permit system. Because of large regional difference in economic development, the shadow price of land for nonfarm use varies greatly across regions. This creates a space for exchanging permit --- the more developed regions purchase the land use permit from the less development regions. These exchanges have occurred in China, in particular within provinces in the coastal region. For example, in 2002, the capital city of Zhejiang Province, Hangzhou, purchased the development rights of 3,000 mu of lands, at a price of 60,000 RMB Yuan per mu, from Haining City, a less developed region in Zhejiang Province.

China's governance has been largely merit based (Li and Zhou 2005). An official's promotion and demotion is largely linked to his/her political and economic performance compared to peers. In the planning economy era, the evaluation of cadres was based primarily on political performance. Since the economic reform started in the late 1970s, political conformity has been replaced by yardstick competition in key economic indicators and central mandates, such as GDP growth rate, fiscal revenue growth rates, and family planning (Li and Zhou 2005). Since these indicators have been written into local leaders' contracts, the contents of the contract influence the behavior of local offices. Under a growth-oriented incentive structure, local governments favor investment in growth-enhancing projects over social programs. The impact of physical infrastructure can be easily observed right after it is built while it takes a much longer time, often beyond the four-year term of a county director or province governor, to witness the lasting impact of social investment. Thereby, local officials, in particular those in lagging regions which face more stringent budget, do not have strong incentives to implement social programs mandated by the central government.

The central government has adopted a reform to improve the evaluation indicators for local officials. In some areas, the social indicators have been included in cadres' contracts in a bid to encourage them to care more about social development. However, simply including more social indicators may not work because of challenges in monitoring and evaluating social indicators. Recently, some regions have tried to reward a county governor to stay in his post for more than two terms at a higher pay scale. The purpose of longer tenure is to align local cadres' incentives with a more balanced long-term development goal. In the meantime, some intermediate outcome or process variables can also be introduced, for example, citizen report cards, spending on education and health, enrollment rates, etc. to evaluate the annual performance of government officials.

Reforming the arrangement of natural resource property rights is another option to reducing the coastal-inland gap. The inland regions contain a high quantity of natural resources. As resource price goes up, the inland region should benefit accordingly. Currently, however, the central government and investors retains most of the rents from these natural resource endowments, leaving the inland regions with fewer resources without adequate compensation to ordinary residents. If the Chinese central government was to institute property rights over these natural resources, enabling the inland regions to capitalize on rents from them, this would enable the inland regions to develop and would diminish the gap between the inland and coastal regions.

Overall, institutional reform and innovation is identified as a key policy response to regional inequality. However, the particular reform measures can be heterodox and context specific. Some experiments are already under way. We have suggested some more in this section. Such an experimental approach, and learning the lessons of Chinese experience, appears to us a more fruitful route in this area than looking to other countries; experiences with governance.

4. Conclusion: Strategies, Experience and Experiments

China's rapid economic growth in the past three decades has been much discussed and celebrated. But this has not stopped the concern on the growing regional inequality. Rising inequality may lead to tensions within a country and comprise the prospect of long-term sustainable growth through a variety of social, political and economic mechanism (Kanbur and Lustig 2000).

This study tries to unfold the driving forces behind the change in regional inequality over the past six decades. The evolution of inequality coincides with different phases of China's economic development strategies. In particular, the heavy industry-led development strategy played a key role in forming the enormous rural-urban gap in the planned economic era while openness and decentralization have contributed to the rapid increase in inland-coastal disparity in the recent period.

The global financial crisis dried out the demand for China's exports and resulted in millions of workers losing their jobs. However, as recent Chinese history attests, crises often beget reforms. The crisis provides a unique opportunity for the government to rebalance its growth strategies, which it has already begun to do. Previously, the central government has failed to put more investment to the rural and inland regions under its export-oriented and urban-biased development strategy. But the recent stimulus package is largely geared towards improving the inland economy by building long over-due infrastructure and set up a basic social safety net in the previously neglected rural and inland regions. Looking forward, the current crisis may prove to be a turning point in rebalancing China's regional disparities.

It is important to emphasize that, like many features of China today, regional disparities pose both challenges as well as opportunities. Just like for the successful rural reforms of the early 1980s, inappropriate policies of the past create challenges, but also enormous opportunities for enormous efficiency gains and growth. We have illustrated this general point with a number of policy instruments. We want to stress that continuing factor market reforms is needed. The gains from further factor market reform may be enormous. Despite massive labor migration in the past several decades, there are still a large number of people residing in rural areas. Policies that facilitate the relocation of labor from low-productive sectors and regions to higher-productive counterparts would have a large payoff. The allocation inefficiency in capital markets also implies opportunity for further reform. A shift of capital investment from SOEs and cities to private firms and rural areas would help balance China's investment-driven growth model and boost citizens' living standard. Strengthening financing mechanism for private investment in inland China also offers high pay off to overall economic growth and reducing regional inequality.

Apart from factor market reform, we have considered three categories of instruments: infrastructure, social protection and investment, and governance. On infrastructure, China has indeed been engaged in significant activity over the past three decades and especially in recent years. We would argue that the lessons to be learnt are

from Chinese experience itself. Investment in infrastructure to link coastal and interior regions and within lagging regions has a high payoff in promoting economic growth in lagging regions and reducing regional gap. However, lessons are to be learned from Chinese experience on which types of infrastructure have the highest rates of return in which specific regions. Moreover, one has to be aware of diminish marginal returns in some areas. In these very remote areas, a more viable option is to increase human capital and enable the younger generation to migrate out eventually.

The second category of instruments we consider fall broadly under the heading of social protection investment. There is a lively debate on these issues in China, but a perspective of regional inequality shed new light on it. For example, the regional perspective highlights the importance of portability of social security, to ease migration and thus mitigate the buildup of regional inequalities. The importance of building up human capital in the lagging regions also turns attention to some important international experience. In addition, providing education and health services for rural migrants in urban centers is also essential to facilitate more migration. Over the past two decades, in many countries social protection and social investment have converged in the shape of Conditional Cash Transfers targeted to building up the human capital of the poorest. This is an area in which China does not have much experience in recent history, and it is an area in which Chinese policy makers could indeed learn from international experience in countries such as Brazil, Mexico and India. The regional dimensions of these programs, their targeting to poorer regions, are of particular interest. China can also learn from the rich international experience in specific social programs, such as school feeding programs. However, because of large differences in context from other countries, China must adopt an experimental approach when introducing these programs and redesign as lessons are learnt.

Regarding governance reform, there is varied international experience, ranging from India's experiments with village level democracy, or the constitutional powers given to the regions in Brazil, etc. However, we would argue that political, locational and cultural specificities make such experiences almost unusable for China. Rather, we would argue that China should continue to conduct its own experiments in governance reform, especially in light of the finding that provincial level decentralization has contributed to growing regional inequalities. Improvements in governance at county level and below in the lagging regions hold out greater promise. We have suggested a number of policy options, such as twinning of advanced and lagging counties to advance learning, and changing the contract of cadres in advanced and lagging regions to better reflect social objectives in lagging regions. But once again, experimentation should be the mind set as these options are introduced.

Pragmatism, trial and error, evidence-based policymaking, and experimentation with small scale policy reforms that are later scaled up, are all key features of China's reforms. Most successful reforms in China have experienced pilot experiments and impact evaluations before being scaled up. Learning by experimentation is a key strategy when reformers face huge economic and political uncertainty. When facing choices never seen before, it is extremely risky for agents to make radical choices. For any reform goal,

there are potentially many different paths to take. Due to uncertainty, it is hard to judge which option is more feasible from the *ex ante* point of view. In such circumstances, experimentation can be a useful tool to search for more information and for testing and updating prior hypotheses. Experiments yield information to help understand what works and what does not. In particular, experimentation can help control the possible disastrous consequence of wrong choices. A wrong choice, at large scale, may be irreversible, and therefore may undermine the credibility and stability of the political leadership, and weaken overall learning capacity.

An important point to note here, in the context of emergence of randomized microeconomic experiments within development economics (Duflo, 2005), is that most of China's experiments were not random. Specifically, experiments were often initiated in isolated poor areas. As shown in Du (2010), the Chinese leaders purposively initiated the household responsibility system as a pilot reform in several remote provinces in order to avoid minimize the potential costs of failure and reduce the political resistances. Although such experiments were not so rigorously conducted as to include control groups, the pilots enabled researchers and policy makers to observe what worked and what did not on the ground.

Such experimentation has been particularly important in overcoming several major obstacles to effective reform in China, related to the country's size, its diversity, and the history and structure of its hierarchical political system. For a large and diverse economy like China, it is very difficult to derive a single one-size-fits-all blueprint for reform simply by applying textbook economic theories. Instead, trial and error processes can help discover local best practice. At the same time, the large regional differences imply opportunities for institutional and policy experimentation. The particular reform measures can be heterodox and context specific. Most of the reform measures which have turned out to so successful in the past several decades originated from within provinces and townships and followed the spirit of experimentation before being scaled up.

Table 1: Regional Economic Development

	Per capita GDP or income in 2007 (yuan)				IMR (‰)				Illiteracy rate (%)			
Province	GDP	Urban income	Rural income	Urban/Rural	Overall	Urban	Rural	Rural/Urban	Overall	Urban	Rural	Rural/Urban
Beijing	57431	24725	10662	2.3	0.8	0.0	4.5	n.a.	3.9	3.7	8.7	2.4
Tianjin	47972	19423	7911	2.5	2.3	1.7	3.4	2.0	4.8	4.5	8.2	1.8
Hebei	19363	13341	4796	2.8	8.4	4.4	10.0	2.3	7.2	4.6	8.7	1.9
Shanxi	16143	13119	4097	3.2	11.9	10.7	12.6	1.2	5.6	3.6	7.2	2.0
Inner Mongolia	25558	14433	4656	3.1	13.7	8.8	19.3	2.2	11.3	7.0	17.5	2.5
Liaoning	24645	14393	5577	2.6	5.0	4.8	5.3	1.1	4.8	3.7	7.1	1.9
Jilin	17211	12830	4933	2.6	5.7	7.6	4.4	0.6	5.9	4.3	8.0	1.9
Heilongjiang	18463	11581	4856	2.4	4.4	2.6	5.7	2.2	6.2	4.8	8.2	1.7
Shanghai	65473	26675	11440	2.3	2.8	3.2	0.0	0.0	5.2	5.8	13.0	2.2
Jiangsu	32985	18680	7357	2.5	11.1	12.5	9.3	0.7	10.0	7.4	14.1	1.9
Zhejiang	35730	22727	9258	2.5	9.3	5.2	14.6	2.8	12.0	8.5	16.9	2.0
Anhui	11180	12990	4203	3.1	18.2	14.2	20.3	1.4	19.2	11.8	24.1	2.0
Fujian	23663	17962	6196	2.9	10.5	6.4	14.4	2.2	12.9	8.5	18.3	2.1
Jiangxi	12204	12866	4697	2.7	17.8	9.4	22.8	2.4	10.5	5.8	13.5	2.4
Shandong	27148	16305	5641	2.9	8.5	7.0	9.8	1.4	12.4	8.8	16.0	1.8
Henan	15056	13231	4454	3.0	7.9	3.0	10.0	3.3	9.8	5.9	11.9	2.0
Hubei	14733	13153	4656	2.8	9.3	6.5	11.4	1.8	12.1	7.8	16.0	2.1
Hunan	13123	13821	4513	3.1	12.9	9.2	14.9	1.6	8.6	4.1	11.3	2.7
Guangdong	32142	19733	6400	3.1	11.3	7.2	17.9	2.5	6.0	4.4	9.8	2.2
Guangxi	11417	14146	3690	3.8	15.2	7.3	18.8	2.6	8.6	4.4	10.9	2.5
Hainan	13361	12608	4390	2.9	11.7	6.3	16.6	2.7	9.8	7.0	13.6	1.9
Chongqing	14011	14368	4126	3.5	9.8	12.3	7.9	0.6	11.7	6.5	16.6	2.5
Sichuan	11708	12633	4121	3.1	14.4	10.1	16.2	1.6	16.6	7.8	21.0	2.7
Guizhou	6742	11759	2797	4.2	52.3	25.4	61.4	2.4	21.4	9.6	26.1	2.7
Yunnan	9459	13250	3103	4.3	36.9	22.3	43.3	1.9	20.1	12.4	24.0	1.9
Tibet	11567	12482	3176	3.9	68.8	48.8	72.6	1.5	44.8	37.3	47.9	1.3
Shaanxi	12843	12858	3137	4.1	16.0	11.8	18.7	1.6	10.3	6.6	13.5	2.1
Gansu	9527	10969	2724	4.0	37.6	16.2	45.5	2.8	20.8	9.6	26.0	2.7
Qinghai	12809	11640	3061	3.8	43.1	8.5	57.2	6.7	24.1	10.1	33.7	3.4
Ningxia	12695	12932	3681	3.5	25.9	21.6	27.8	1.3	18.7	8.9	26.9	3.0
Xinjiang	16164	11432	3503	3.3	24.2	11.2	29.3	2.6	8.3	6.1	9.9	1.6
National average	22698	15781	4761	3.3	15.0	8.8	19.2	2.2	11.0	6.3	15.2	2.4
Coast	29183	18430	6046	3.0	9.0	6.7	11.5	1.7	8.8	5.7	12.8	2.2
Inland	13513	12932	4055	3.2	18.8	10.9	22.9	2.1	12.6	6.8	16.4	2.4

Note: per capita GDP and income in current prices in 2007 are from China Statistical Yearbook (China National Statistical Bureau, 2008). The infant mortality rate (IMR) and illiteracy rate in 2005 are obtained from 1% Population Survey (China National Bureau of Statistics, see http://www.stats.gov.cn/tjsj/ndsj/renkou/2005/renkou.htm). The coastal and inland averages are calculated by authors.

Table 2: China: Economic Indicators, 1952-2008

Year	GDP (Billion)	Total expenditure (Billion)	Tariff rate (%)	Trade ratio (%)	Decentralization (%)	HID (%)
1952	67.9	17.2	12.8	9.5	25.9	15.3
1955	91.0	26.3	7.6	12.1	23.5	19.7
1960	145.7	64.4	9.2	8.8	56.7	52.1
1965	171.6	46.0	10.3	6.9	38.2	30.4
1970	225.3	64.9	12.5	5.0	41.1	36.4
1975	299.7	82.1	10.2	9.7	50.1	40.2
1980	454.6	122.9	11.2	12.5	45.7	38.5
1985	901.6	200.4	16.3	22.9	60.3	38.6
1990	1866.8	308.4	6.2	29.8	67.4	38.3
1995	6079.4	682.4	2.6	38.7	70.8	33.1
2000	9921.5	1588.7	4.0	39.6	65.3	n.a.
2005	18321.7	3393.0	2.0	63.8	74.1	n.a.
2008	30067.0	6242.7	2.0	65.3	78.6	n.a.

Note: The data are from *Comprehensive Statistical Data and Materials on 50 Years of New* China (China National Bureau of Statistics, 2000) and various issues of the China Statistical Yearbook (China National Bureau of Statistics, various issues). GDP and total expenditures are in current prices. GOV and HID stand for gross output value and the percentage of gross output value of heavy industry in total GOV (a measure of heavy industry development strategy). Since 1999, China has stopped publishing gross output value figures.

Table 3: Regional Inequality and Decomposition: 1952-2007

Year	Gini	Theil	Rural-urban	Inland-coast
1952	25.9	12.7	8.3	0.4
1955	23.5	10.1	6.6	0.2
1960	32.6	17.9	13.7	0.4
1965	28.2	14.0	11.1	0.1
1970	28.4	14.7	11.9	0.1
1975	29.0	15.9	13.6	0.3
1980	26.8	13.6	11.6	0.4
1985	23.3	9.6	7.2	0.6
1990	27.0	13.0	8.4	0.9
1995	30.7	16.2	10.4	1.3
2000	33.3	19.4	11.8	2.1
2005	35.0	22.0	13.7	3.0
2007	34.1	19.4	12.0	3.3

Note: The regional inequality measures are the Gini Coefficient and Theil measure (GE index with c=1), calculated by authors based on population weighted real per capita consumption at the provincial level in rural and urban areas. The data are from *Comprehensive Statistical Data and Materials on 50 Years of New* China (China National Bureau of Statistics, 2000) and various issues of the China Statistical Yearbook (China National Bureau of Statistics, various issues). Rural-urban and inland-coastal inequalities are defined as the between rural-urban and between inland-coastal components of the GE index.

Table 4: Illiteracy Rate and Infant Mortality Rate (IMR)

Year	National	Rural			Urban			Rural/ Urban	Inland	Coast	Inland/ Coast	Female	Male	Female/ Male
		Total	Female	Male	Total	Female	Male							
Illiteracy rate														
1981	31.9	34.8	49.1	21.1	16.4	24.6	8.9	2.1	33.7	29.1	1.2	45.3	19.2	2.4
1990	22.2	26.2	37.1	15.7	12.0	18.4	6.1	2.2	23.8	19.6	1.2	31.9	13.0	2.5
2000	15.2	18.7	26.5	11.2	8.7	13.1	4.1	2.2	16.0	13.9	1.2	21.8	8.7	2.5
2005	11.0	15.2	21.8	8.5	6.3	9.7	2.8	2.4	12.6	8.8	1.4	16.1	5.9	2.8
IMR														
1981	36.6	39.1	38.1	40.0	23.6	22.4	24.8	1.7	44.5	24.4	1.8	35.7	37.6	1.0
1990	30.5	32.4	34.9	30.0	19.1	19.5	18.8	1.7	35.8	17.2	2.1	30.6	26.8	1.1
2000	24.1	30.8	36.7	25.8	11.0	13.5	10.3	2.8	26.8	13.6	2.0	28.4	20.5	1.4
2005	15.0	19.2	22.2	16.7	8.9	9.1	8.6	2.2	18.8	9.0	2.1	16.9	13.5	1.2

Note: The data in 1981, 1990 and 2000 are from the China Population Census in the corresponding years. The data in 2005 are obtained from 1% Population Survey (China National Bureau of Statistics, see http://www.stats.gov.cn/tjsj/ndsj/renkou/2005/ renkou.htm). The 1981 census defines the illiteracy rate using age 12 as a benchmark, while the 1990 and 2000 censuses and the 2005 1% population survey refer to the people 15 years old and above. Therefore, they may not be totally comparable.

Table 5: Regional Inequality in Illiteracy Rate and Infant Mortality Rate (IMR)

Year		Gini	Theil	Rural-urban	Inland-coast	Female-male
Illiteracy rate						
	1981	30.3	14.5	17.8	0.2	59.0
	1990	33.5	18.1	26.0	2.4	51.4
	2000	36.3	21.4	25.8	1.1	44.6
	2005	41.8	28.4	29.7	5.0	39.7
IMR						
	1981	27.0	11.9	11.1	31.6	0.3
	1990	29.6	14.1	16.7	38.1	1.6
	2000	36.7	22.5	35.9	20.6	5.1
	2005	40.0	28.4	18.5	18.2	2.8

Note: See Table 2 for data sources. The GE measure is parameterized so as to make it the Theil measure of inequality. National inequality in illiteracy rate and infant mortality rate (IMR) are calculated using population at the provincial level with a rural-urban and gender divide. Rural-urban, inland-coastal, and female-male polarization indexes are defined as the ratio of between-group GE to total GE.

Table 6: Progress in Establishing Rural Social Security

	2006	2008
Extreme poverty line (yuan)	683	785
Total number of people below the line (million)	23.65	21.48
Total central spending on minimum support (hundred million)	42	94
No. of people covered (million)	15.09	42.84
Average amount per capita (yuan)	276	218
Minimum support transfer as a percentage of poverty line	40	28
CMS enrollment rate (%)	79	92
Per capita total contribution (yuan)	50	100
Percentage of government contribution (%)	80	80

Note: Compiled by authors based on official documents posted on the Chinese webpage (http://cn.chinagate.cn/society/2009-04/22/content_17653543.htm.

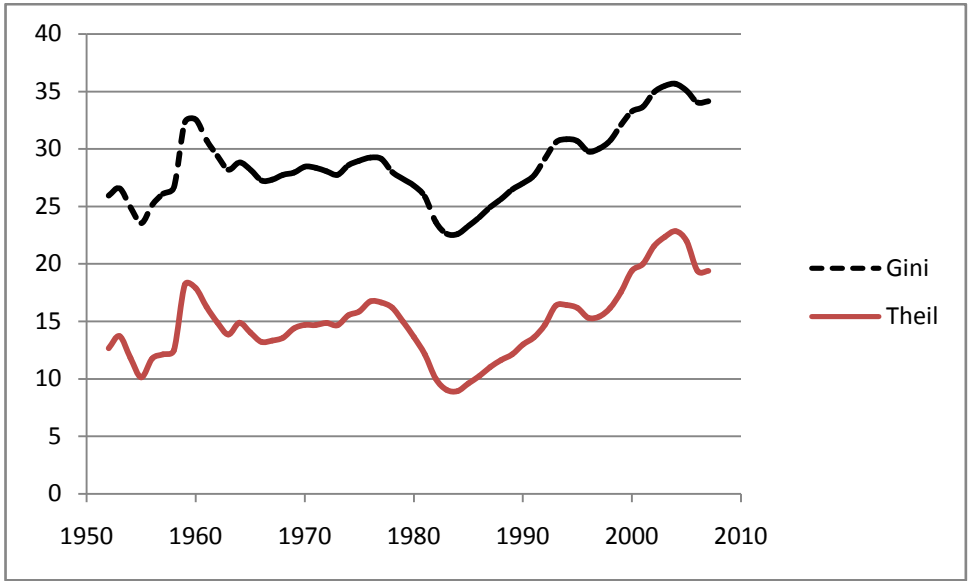

Figure 1: Regional Inequality in Per Capita Consumption

Note: The regional inequality measures are the Gini Coefficient and Theil Index (with c=1), calculated by authors based on population weighted real per capita consumption at the provincial level in rural and urban areas. The data are from Comprehensive Statistical Data and Materials on 50 Years of New China (China National Bureau of Statistics, 2000) and various issues of *China Statistical Yearbook* (China National Bureau of Statistics, various issues).

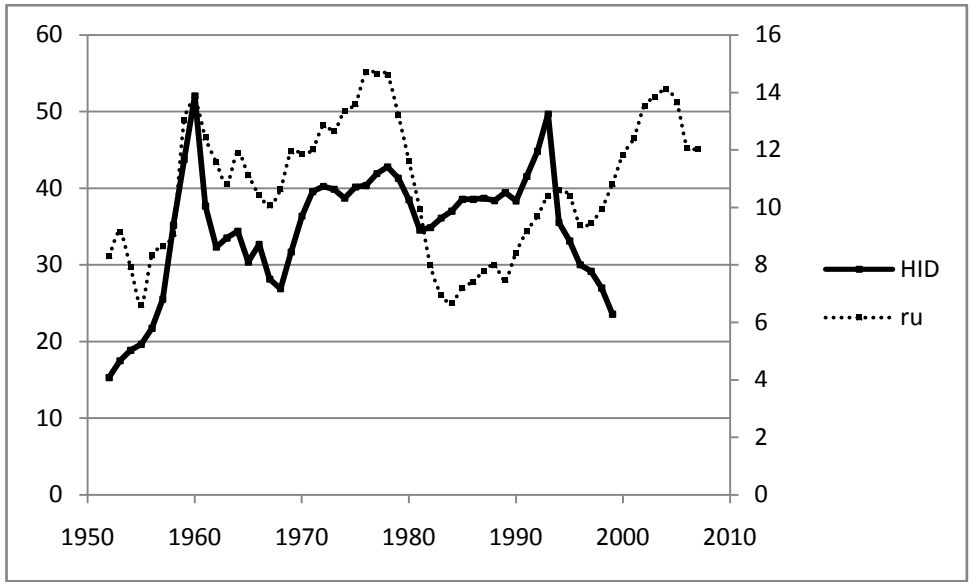

Figure 2: Heavy Industry Development Strategy and Rural-Urban Divides

Note: The left vertical axis stands for heavy industry development strategy (HID), while the right one represents rural-urban disparity. The data are from Comprehensive Statistical Data and Materials on 50 Years of New China (China National Bureau of Statistics, 2000) and various issues of *China Statistical Yearbook* (China National Bureau of Statistics, various issues).

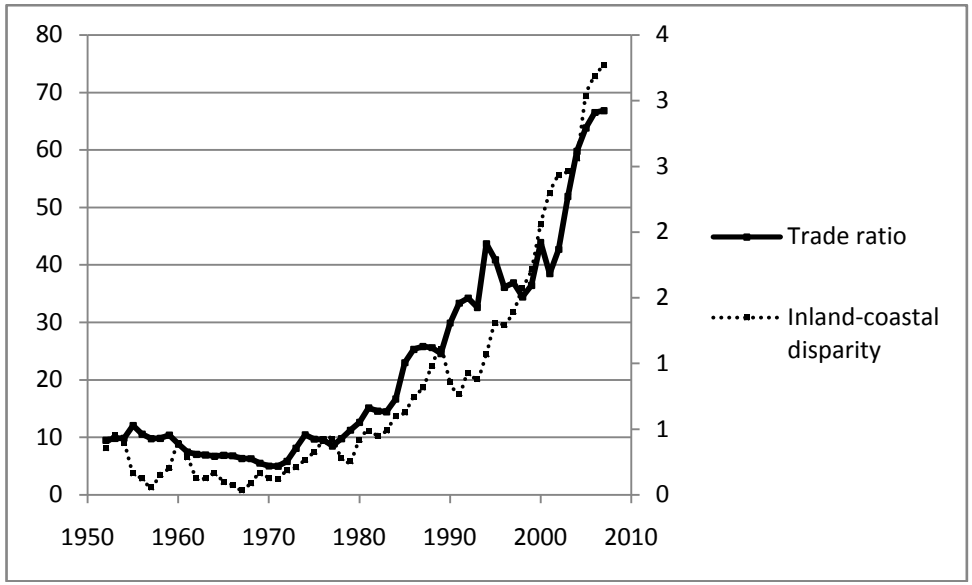

Figure 3: Openness and Inland-Coastal Disparity

Note: The left vertical axis stands for trade ratio, while the right one represents inland-coastal disparity. The data are from Comprehensive Statistical Data and Materials on 50 Years of New China (China National Bureau of Statistics, 2000) and various issues of *China Statistical Yearbook* (China National Bureau of Statistics, various issues).

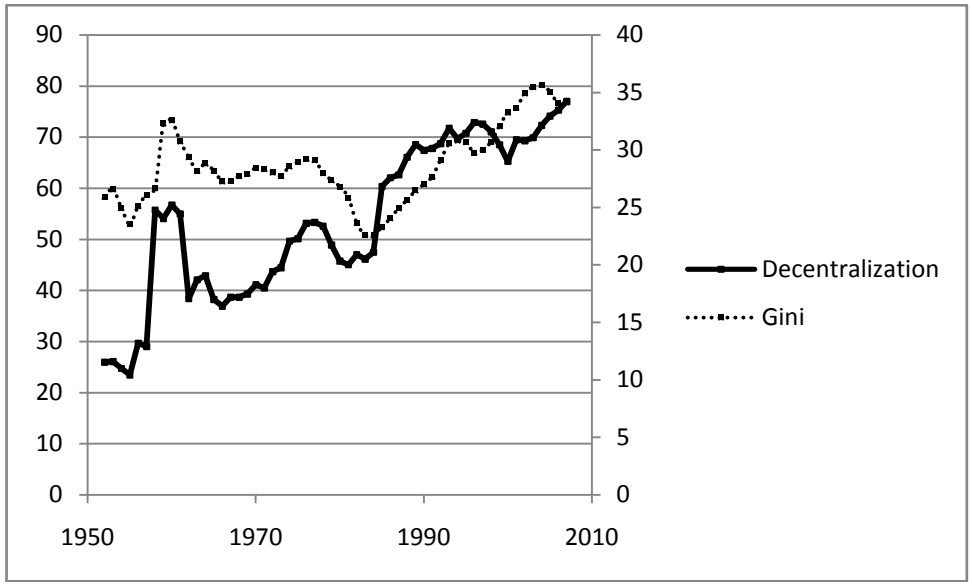

Figure 4: Decentralization and Overall Inequality (Gini coefficient)

Note: The left vertical axis stands for the degree of decentralization, while the right one represents the Gini coefficient. The data are from Comprehensive Statistical Data and Materials on 50 Years of New China (China National Bureau of Statistics, 2000) and various issues of *China Statistical Yearbook* (China National Bureau of Statistics, various issues).

References

Adato, Michelle, and John Hoddinott. 2007. Conditional Cash Transfer Programs: A "Magic Bullet" for Reducing Poverty? 2020 Focus Brief on the World's Poor and Hungry People. Washington, DC: International Food Policy Research Institute (IFPRI).

Ahmed, Akhter U., and Carlo del Ninno. 2002. The Food for Education Program in Bangladesh: An Evaluation of its Impact on Educational Attainment and Food Security. FCND Discussion Paper 138, International Food Policy Research Institute (IFPRI).

Bai, Chong-En, Yingjuan Duan, Zhigang Tao, and Sarah T. Tong. 2004. Local Protectionism and Regional Specialization: Evidence from China's Industries. *Journal of International Economics* 63 (2): 397-417.

Beaumier, Guy. 1998. Regional Development in Canada. http://dsp-psd.tpsgc.gc.ca/Collection-R/LoPBdP/CIR/8813-e.htm.

Behrman, Jere R., Piyali Sengupta, and Petra Todd. 2005. Progressing through PROGRESA: An Impact Assessment of a School Subsidy Experiment in Rural Mexico. *Economic Development and Cultural Change* 54 (1): 237-275.

Boyreau-Debray, Genevieve, and Shang-Jin Wei. 2005. Pitfalls of a State-Dominated Financial System: The Case of China. NBER Working Paper No.W11214.

Cai, Fang. 2010. The Formation and Evolution of China's Migrant Labor Policy. In *Narratives of Chinese Reforms: How Does China Cross the River?*, eds. Xiaobo Zhang, Shenggen Fan, and Arjan de Haan.World Scientific Publishing (forthcoming).

Chaudhury, Nazmul, Jeffrey Hammer, Michael Kremer, Karthik Muralidharan, and F. H. Rogers. 2006. Missing in action: Teacher and health worker absence in developing countries. *Journal of Economic Perspectives* 20 (1): 91-116.

Chen, Jian, and Belton M. Fleisher. 1996. Regional Income Inequality and Economic Growth in China. *Journal of Comparative Economics* 22: 141-164.

Chen, Zhao, and Ming Lu. 2009. Is China sacrificing growth when balancing interregional and urban-rural development? In *Reshaping Economic Geography in East Asia*, eds. Yukon Huang, and Alessandro M. Bocchi, pp. 241-257. Washington, DC: The World Bank.

Cheung, Steven N. S. 2008. The Economic System of China. Paper presented at the 2008 Chicago Conference on China's Economic Transition, July 14-18, Chicago.

Claro, Sebastián. 2005. How Uncompetitive is the State-Owned Industrial Sector in China. Instituto de Economía. Pontificia Universidad Católica de Chile.

de Brauw, Allan, Jikun Huang, Scott Rozelle, Linxiu Zhang, and Yigang Zhang. 2002. The Evolution of China's Rural Labor Markets During the Reforms. *Journal of Comparative Economics* 30: 329-353.

de Janvry, Alain, and Elisabeth Sadoulet. 2006. Making Conditional Cash Transfer Programs More Efficient: Designing for Maximum Effect of the Conditionality. *The World Bank Economic Review* 20 (1): 1-29.

Dollar, David, and Shang-Jin Wei. 2007. Das (Wasted) Kapital: Firm Ownership and Investment Efficiency in China. NBER Working Paper No. 13103.

Du, Runsheng. 2010. The Course of China's Rural Reform. In *Narratives of Chinese Reforms: How Does China Cross the River?*, eds. Xiaobo Zhang, Shenggen Fan, and Arjan de Haan.World Scientific Publishing (forthcoming).

Duflo, Esther. 2005. Field Experiments in Development Economics. Bureau for Research in Economic Analysis of Development Policy Paper No. 12, Washington, DC.

Economist. 2008. When will China run out of workers? September 6.

Escobal, Javier, and Maximo Torero. 2005. Adverse Geography and Differences in Welfare in Peru. In *Spatial Inequality and Development*, eds. Ravi Kanbur, and Anthony J. Venables, pp. 77-122. Oxford, UK: Oxford University Press.

Fan, Shenggen and Connie Chan-Kang. 2008. Regional Road Development, Rural and Urban Poverty: Evidence from China. *Transport Policy* 15(5): 305-314.

Fan, Shenggen, Linxiu Zhang, and Xiaobo Zhang. 2004. Reforms, Investment, and Poverty in Rural China. *Economic Development and Cultural Change* 52 (2): 395-421.

Fan, Shenggen, and Xiaobo Zhang. 2004. Infrastructure and regional economic development in rural China. *China Economic Review* 15 (2): 203-214.

Förster, Michael, David Jesuit, and Timothy Smeeding. 2005. Regional Poverty and Income Inequality in Central and Eastern Europe: Evidence form the Luxembourg Income Study. In *Spatial Inequality and Development*, eds. Ravi Kanbur, and Anthony J. Venables, pp. 311-347. Oxford, UK: Oxford University Press.

Friedman, Jed. 2005. How Responsive is Poverty to Growth? A Regional Analysis of Poverty, Inequality and Growth in Indonesia, 1984-99. In *Spatial Inequality and Development*, eds. Ravi Kanbur, and Anthony J. Venables, pp. 163-208. Oxford, UK: Oxford University Press.

Huang, Yukon, and Xubei Luo. 2009. Reshaping economic geography in China. In *Reshaping Economic Geography in East Asia*, eds. Yukon Huang, and Alessandro M. Bocchi, pp. 196-217. Washington, DC: The World Bank.

Kanbur, Ravi, and N. Lustig. 2000. Why is inequality back on the agenda? In *Proceedings of the Annual World Bank Conference in Development Economics 1999*, eds. Boris Pleskovic, and Joseph E. Stiglitz, pp. 285-306. Washington, DC: The World Bank.

Kanbur, Ravi, and Anthony J. Venables. 2007. Spatial Disparities and Economic Development. In *Global Inequality*, eds. David Held, and Ayse Kaya, pp. 204-215. Cambridge: Polity Press.

Khan, Azizur R., and Carl Riskin. 2005. China's Household Income and Its Distribution, 1995 and 2002. *The China Quarterly* 182: 356-384.

Kremer, Michael, Nazmul Chaudhury, F. H. Rogers, Karthik Muralidharan, and Jeffrey Hammer. 2005. Teacher Absence in India: A Snapshot. *Journal of the European Economic Association* 3 (2-3): 658-667.

Lall, Somik V., and Sanjoy Chakravorty. 2005. Industrial Location and Spatial Inequality: Theory and Evidence from India. *Review of Development Economics* 9 (1): 47-68.

Li, Hongbin, and Li-An Zhou. 2005. Political turnover and economic performance: the incentive role of personnel control in China. *Journal of Public Economics* 89: 1743-1762.

Lin, Justin Y., Fang Cai, and Zhou Li. 2003. *The China Miracle: Development Strategy and Economic Reform.* Hong Kong: The Chinese University Press.

Luo, Xiaopeng, and Xiaobo Zhang. 2009. Social entitlement exchange and balanced economic growth. In *Regional Inequality in China: Trends, explanations and policy responses*, eds. Shenggen Fan, Ravi Kanbur, and Xiaobo Zhang, pp. 244-255. Abingdon: Routledge Studies in the Modern World Economy.

Maurer-Fazio, Margaret. 1999. Earnings and Education in China's Transition to aMarket Economy—Survey: Evidence from 1989 and 1992." *China Economic Review* 10 (1):7–40.

Poncet, Sandra, Walter Steingress, and Hylke Vandenbussche. 2008. Financial constraints in China: firm-level evidence. LICOS Discussion Paper 22608: LICOS - Centre for Institutions and Economic Performance, K.U. Leuven.

Qian, Yingyi, and Gérard Roland. 1998. Federalism and the Soft Budget Constraint. *The American Economic Review* 88 (5): 1143-1162.

Ravallion, Martin. 2005. Externalities in Rural Development: Evidence for China. In *Spatial Inequality and Development*, eds. Ravi Kanbur, and Anthony J. Venables, pp. 137-162. Oxford, UK: Oxford University Press.

Ravallion, Martin. 2009. A comparative perspective on poverty reduction in Brazil, China and India. Policy Research Working Paper Series 5080, The World Bank.

Ruan, Jianqing, and Xiaobo Zhang. 2009. Finance and Cluster-Based Industrial Development in China. *Economic Development and Cultural Change*, 58 (1): 143-164.

Sachs, Jeffrey D. and Andrew M.Warner. 2001. The Curse of Natural Resources. *European Economic Review* 45(4-6): 827-838.

Schultz, T. P. 2004. School subsidies for the poor: evaluating the Mexican Progresa poverty program. *Journal of Development Economics* 74: 199-250.

Taylor, J Edward, Scott Rozelle, and Alan de Brauw. 2003. Migration and Incomes in Source Communities: A New Economics of Migration Perspective from China. *Economic Development and Cultural Chang* 52(1): 75-101.

World Bank. 2002. China National Development and Sub-National Finance: A Review of Provincial Expenditures. Poverty Reduction and Economic Management Unit, East Asia and Pacific Region. Washington, DC: The World Bank.

Xing, Li, Shenggen Fan, Xiaopeng Luo, and Xiaobo Zhang. 2009. Community Poverty and Inequality in Western China: A Tale of Three Villages in Guizhou Province. *China Economic Review* 20(2): 338-349.

Xu, Chenggang, and Xiaobo Zhang. 2009. The evolution of Chinese entrepreneurial firms: Township-village enterprises revisited. IFPRI Discussion Paper #854. Washington, DC: International Food Policy Research Institute (IFPRI).

Yao, Yang. 2009. The political economy of government policies toward regional inequality in China. In *Reshaping Economic Geography in East Asia*, eds. Yukon Huang, and Alessandro M. Bocchi, pp. 218-240. Washington, DC: The World Bank.

Young, Alwyn. 2000. The Razor's Edge: Distortions and Incremental Reform in the People's Republic of China. *Quarterly Journal of Economics* 115 (4): 1091-1135.

Zhang, Xiaobo. 2006. Fiscal Decentralization and Political Centralization in China: Implications for Growth and Regional Inequality. *Journal of Comparative Economics* 34 (4): 713-726.

Zhang, Xiaobo, and Ravi Kanbur. 2001. What Difference Do Polarisation Measures Make? *Journal of Development Studies* 37 (3): 85-98.

Zhang, Xiaobo, and Kongyam Tan. 2007. Incremental Reform and Distortions in China's Product and Factor Markets. *World Bank Economic Review* 21 (2): 279-299.

Zhang, Xiaobo, Li Xing, Shenggen Fan, and Xiaopeng Luo. 2008. Resource Abundance and Regional Development in China. *Economics of Transition* 16 (1): 7-29.

Zhang, Xiaobo, Jin Yang, and Shenglin Wang. 2009. Has China Reached the Lewis Turning Point? *Zhejiang University Journal (Humanities and Social Sciences)* 6: 1-18.

OTHER A.E.M. WORKING PAPERS

WP No	Title	Fee (if applicable)	Author(s)
2010-02	Ethnic Diversity and Ethnic Strife an Interdisciplinary Perspective		Kanbur, R., Rajaram, P.K., and A. Varshney
2010-01	Inclusive Development: Two Papers on Conceptualization, Application, and the ADB Perspective		Kanbur, R. and G. Rauniyar
2009-34	Does Participation in the Conservation Reserve Program and/or Off-Farm Work Affect the Level and Distribution of Farm Household Income?		Chang, H. and R. Boisvert
2009-33	The Conservation Reserve Program, Off-Farm Work, and Farm Household Technical Efficiencies		Chang, H. and R. Boisvert
2009-32	Understanding the Entrepreneur: An Index of Entrepreneurial Success		Fried, H. and L. Tauer
2009-31	Equity Within and Between Nations		Kanbur, R. and A. Spence
2009-30	Middlemen, Non-Profits, and Poverty		Chau, N., Goto. H. and R. Kanbur
2009-29	Do retail coffee prices increase faster than they fall? Asymmetric price transmission in France, Germany and the United States		Gomez, M. and J. Koerner
2009-28	A Market Experiment on Trade Promotion Budget and Allocation		Gomez, M., Rao., V. and H. Yuan
2009-27	Transport, Electricity and Communications Priorities in Guinea Bissau		Kyle, S.
2009-26	The Macroeconomic Context for Trade in Guinea Bissau		Kyle, S.
2009-25	Cashew Production in Guinea Bissau		Kyle, S.
2009-24	When No Law is Better Than a Good Law		Bhattacharya, U. and H. Daouk
2009-23	Is Unlevered Firm Volatility Asymmetric?		Daouk, H. and D. Ng
2009-22	Conditional Skewness of Aggregate Market Returns		Charoenrook, A. and H. Daouk

Paper copies are being replaced by electronic Portable Document Files (PDFs). To request PDFs of AEM publications, write to (be sure to include your e-mail address): Publications, Department of Applied Economics and Management, Warren Hall, Cornell University, Ithaca, NY 14853-7801. If a fee is indicated, please include a check or money order made payable to Cornell University for the amount of your purchase. Visit our Web site (*http://aem.cornell.edu/research/wp.htm)* for a more complete list of recent bulletins.