*Chapter 5*

A pause in the growth of inequality?

In recent years, policymaking in China has put increasing emphasis on stemming the growth in inequality, which had been fairly steep since the 1980s. Policy action has taken the form of regional development measures and of reforms of various aspects of the social safety net broadly defined. The Western Development Plan has aimed at narrowing the income gap between the sparsely populated and under- developed West and the more prosperous and faster-growing East. The bulk of the expenditure, however, has been on large capital-intensive projects rather than on education and other social spending. More emphasis on education would help reduce the income gap, since human capital is a key determinant of income. Government policies to improve conditions in rural areas nationwide have involved a substantial reduction in the burden of regressive taxes and fees. Welfare assistance has also evolved: a minimum living allowance has been introduced in urban and more recently in rural areas, but it has not reduced poverty that much, not least because of how it is administered. Moreover, the financing of this allowance ought to rely more on national solidarity and its delivery needs to be better co-ordinated with that of other social benefits. A set of new indicators of nationwide inequality, based on household survey data, suggests that overall inequality has ceased to increase in recent years, and may even have inched down. Alternative measures of income inequality across provinces show that, if migration is taken into account, disparities are markedly less, and have tended to decline somewhat in recent years. Even so, geographical inequality remains very high by international standards. It reflects intra- more than inter-provincial differences, pointing to persistent, if diminishing, labour market segmentation.

Inequality rose rapidly in China through around 2005, reaching levels similar to those observed in the United States (Figure 5.1). Against this backdrop, government policy in recent years has become more oriented towards stemming the growth of inequality. The 11th Plan reflects this new focus with continued emphasis on regional development. At the same time, a number of reforms have been launched in the social sphere to improve various aspects of the social safety net broadly defined. This chapter looks at regional development policies and their impact on spatial inequality and then at how welfare assistance has evolved, with the aim of reducing inequality across households. The chapter then develops a new set of indicators of the extent of income inequality at the national level, which suggest that in some ways inequality may have ceased to increase in recent years.

Figure 5.1. **International comparison of inequality**

Gini coefficient of inequality, using household per capita income adjusted for family size
(except for countries that are not members of the OECD, where household income is measured per capita)
Mid 2000s for OECD countries, 2007 for non-members
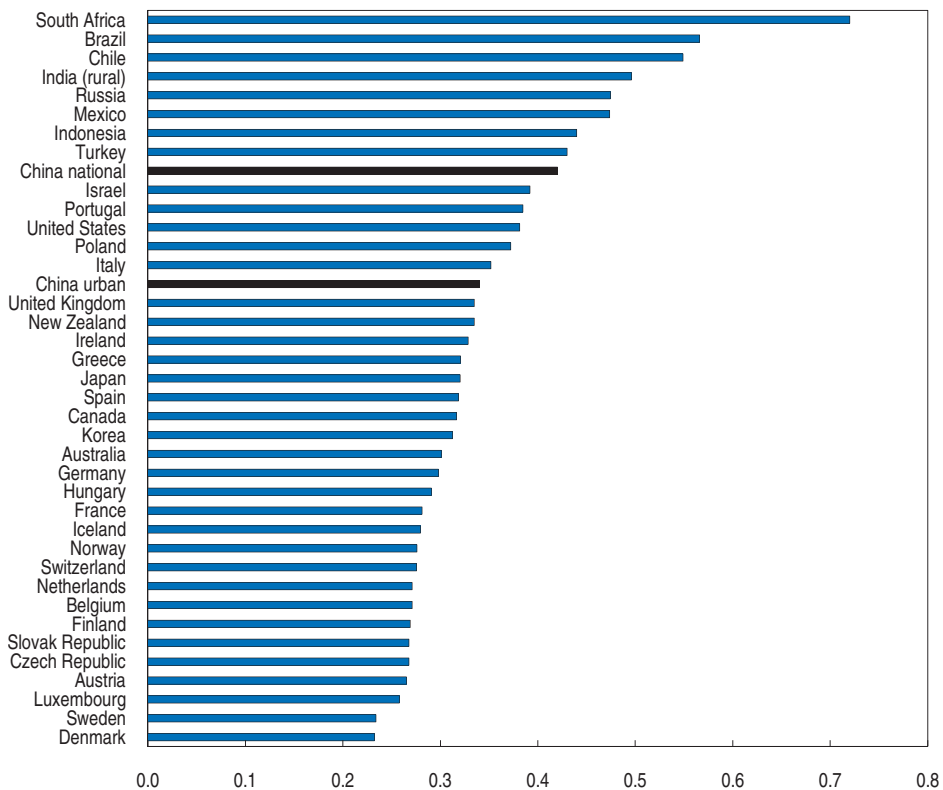
Source: OECD members: OECD Income Distribution Questionnaire; China OECD estimate; India: Azam and Shari (2009); South Africa: Bhorat *et al.* (2009); Brazil: Paes de Barros (2007); Russia: Kislitsyna (2008); Indonesia: Suryadarma *et al.* (2006); *Israel and Chile: World Development Indicators.*

StatLink 🛪🖫 *http://dx.doi.org/10.1787/778234435825*

Regional development policies

The principal initiative for regional development has been the Western Development Plan, though other plans have also been put in place for the central areas and the north-east of the country, which suffered from a concentration of state-owned heavy industries. The Western Plan was introduced at the start of the 10th Plan, with a view to narrowing income differentials between the sparsely populated and under-developed West and the more prosperous and faster-growing East. Under the 10th Plan the primary goals were: improving infrastructures for communications and water conservation; strengthening environmental protection; adjusting the industrial structure and fostering growth poles; and deepening reforms and openness by attracting funds from domestic and international companies.

While the overarching objective of the Plan has been to reduce poverty, the main thrust of the expenditure has been on large capital-intensive projects designed to lower the cost of making the resources of the West available to the East. Of the 45 types of major mineral resources, the proven reserves of more than 20 minerals in the region account for over 50% of the national total. Total investment under the Western Development Plan during the period of the 10th Plan (2001-05) amounted to 1.4% of national GDP. This money was largely spent on 70 projects. The largest ones, accounting for over one-third of total spending, were the West-East Gas Pipeline project, a similar power transmission project and the Qinhai-Tibet railway (Zhang, 2005). Despite the new railways and expressways that were opened, the share of the West in the stock of major transport infrastructure fell for both railways and expressway (excluding Tibet, for which data are not available). However, the quality of the poorest roads improved markedly which, together with the energy projects, helped lift gross fixed capital formation to over half of regional product by the end of the 10th Plan. By 2007, this share stood at 57%, ten percentage points higher than in the rest of the country, and exceeded 70% in three western provinces (Figure 5.2).

Figure 5.2. **Investment share in the West**

Gross fixed capital formation as a share of regional product, in 2007

Source: China Statistical Yearbook.

StatLink ᴤᴤᴘ *http://dx.doi.org/10.1787/778252486347*
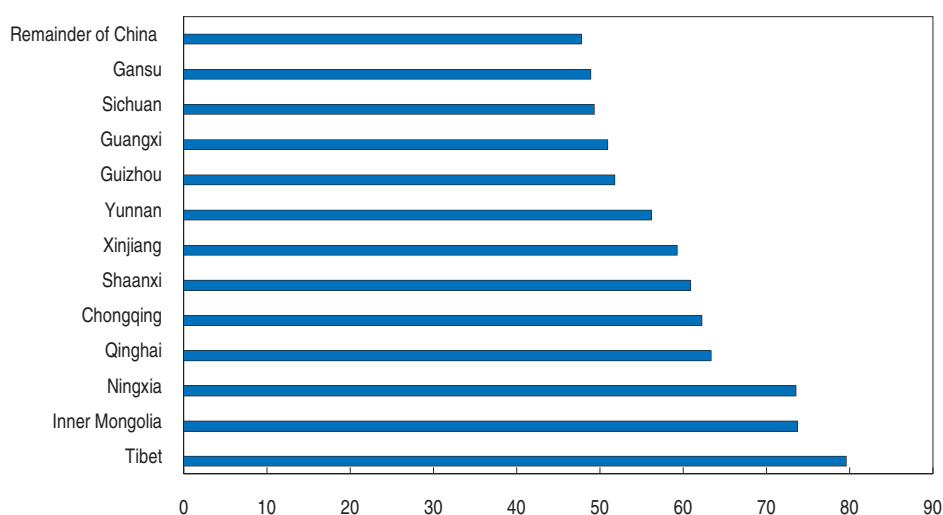
The initial impact of such high levels of investment on the local economy is limited because of the local supply capacity constraints of the western provinces. Their industrial base is weak and still reflects decisions taken in the central planning epoch. Much of the direct content of investment projects has to be imported from the rest of the country. As a result, the West has an excess of imports over exports of 11% of its regional product.[1]

The inability of the West to supply products for use in its investment boom appears to stem from the limited role of market forces in these regions. State-owned enterprises (SOEs) account for almost double the share of industrial value-added there compared with the rest of the country. Indeed in Xinjiang, they account for almost 90% of industrial value-added. The Xingjian Production and Construction Corps administers part of the region and is charged with promoting stability in a frontier area. It substitutes for the provincial government, providing education, health and general administrative services. More generally, regulation is more severe in the West, and the local administrations have not adapted to the marketisation of the economy to the same extent as elsewhere (Monash, 2003).

For the past ten years, government policy has emphasised opening up the West to foreign companies and stimulating exports from the area. Various tax incentives have been introduced. In 2001-05, these may have boosted the growth of FDI in the West to a pace similar to that in the rest of the country. However, at 1.6% in 2008, the level of FDI in the West relative to regional product is only just over one third that in the rest of the country, though it is not that different from what is observed in other developing countries with similar income levels. Most investment is financed by budgetary transfers to SOEs.

The rapid increase in investment did not initially boost the West's growth rate much, even if the growth differential with the rest of the country has been reduced. During the period of the 9th Plan, both GDP and GDP per capita grew much less in the West than in the rest of the country. This gap narrowed markedly in the 10th Plan period but only because of a slowdown in the rest of the country and largely because of extremely rapid growth of mining activity in Inner Mongolia – elsewhere in the region GDP growth was about a percentage point lower than in the rest of the country. Moreover, in level terms the gap across China's four main regions remains large (Figure 5.3). However by 2009, in the wake of the downturn in world trade and the emphasis in the stimulus to improving infrastructure in inland areas, growth has been more rapid in the western areas than in coastal areas. Five of the six provinces with the highest GDP growth in the first three quarters of 2009 were in the western area. In this period, output in the manufacturing, mining and construction sectors grew by more than 15% in Chongqing, Inner Mongolia, Guangxi and Sichuan. By contrast, the growth in output in Guangdong, Shanghai and Zhejiang in these sectors was less than 7%, with secondary sector output falling in Shanghai. Such a re-orientation in growth resulted in a marked increase in the flow of migrant workers to the western area (Chapter 6).

Owing to the Western Development Plan's focus on investment, spending on social objectives has represented a small fraction of total outlays. Social spending takes place outside the Development Plan, and predominately with local funding, which reduces the scope for national policy to influence outcomes. The emphasis on physical investment does not appear to have changed markedly in recent years: in 2008, a new tranche of projects was announced, amounting to 9% of GDP in the western provinces and entirely related to railways, roads, airports and projects for moving raw materials to the East.

Figure 5.3. **GDP per capita across China's main regions**

In CNY, in 2008

Source: China Statistical Yearbook.

StatLink ᵃₛₚ http://dx.doi.org/10.1787/778315334768
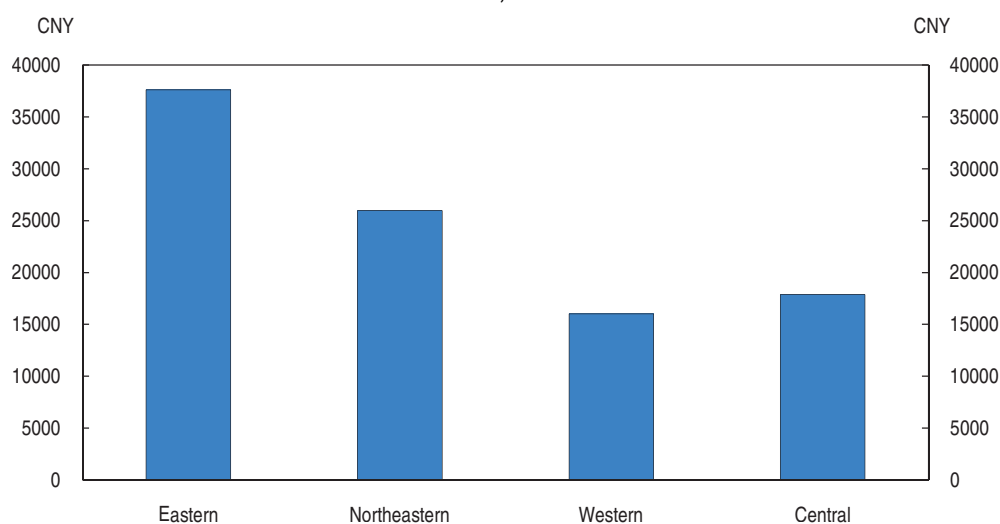
During the 10th Plan period, public outlays on education in the West rose by only 0.05% of national GDP. By 2005, government spending on education per child was only half that in the coastal regions (excluding Beijing, Shanghai and Tianjin, where much educational spending is of a national nature). In addition, as incomes are lower, private spending on education is also much lower.[2] No quantitative information is available on spending since 2005. The Government did, however, launch the abolition of elementary and junior school fees in the western rural areas in 2006 and had widened the policy to the whole country by March 2008, so that by 2009 all but 27 counties (out of 2 859) were able to provide nine years of free education (Sun, 2009). There have, though, been complaints about unauthorised and illegal charging of fees, including "choosing" fees (NDRC, 2007).

The shortfall in public spending on education in the West is such that an increase in public-sector spending on education of 0.6% of national GDP would be needed to bring outlays per pupil in line with spending in coastal areas. In addition, to cover the gap in private expenditure on education relative to coastal areas, a further 0.5% of GDP would need to be spent. Hence, the total required increase to match spending in coastal areas would need to be of the same order as the infrastructure-oriented Western Development Plan.

Despite low outlays, enrolment in primary schools in the West was almost universal by 2005, but the transitions to higher levels of education remained lower than in the rest of the country (Figure 5.4). There is more of a difference at the senior high school level but it is difficult to quantify as many 18 year olds have already migrated from poor to richer provinces.

There are also concerns about differences in the quality of education across provinces. This is clearly seen in the qualifications of teachers. In the western area, it is rare for a junior high school teacher to have attended university: only one in five have had undergraduate education, against three-quarters in Beijing. More generally, a similar pattern is found between urban and rural schools, with the share of highly-qualified junior high teachers in rural areas being half that found in cities. Public finance for education has

Figure 5.4. **Junior secondary school graduation rates by region**

Junior secondary school graduates as % of a 14-year old cohort, in 2005
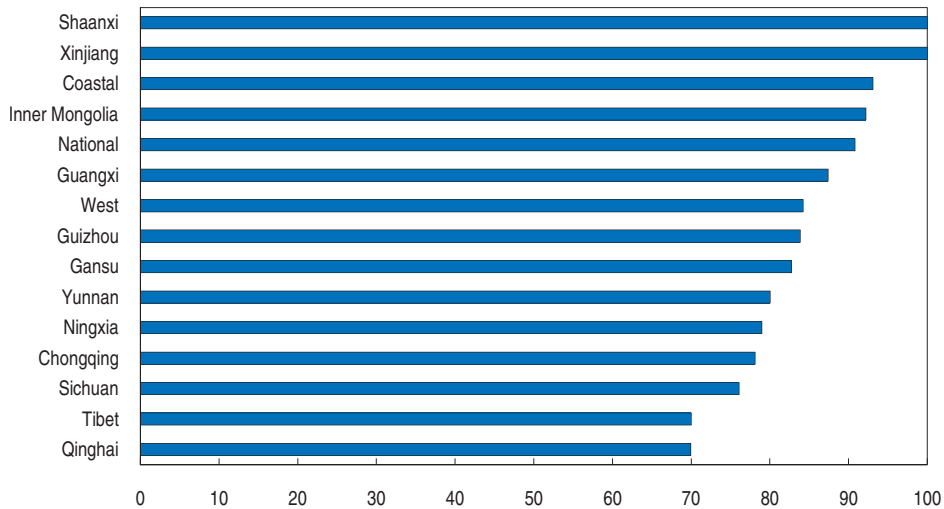
a relatively low redistributive impact. Between 1994 and 2001, four-fifths of the funding for compulsory education came from the lowest level of government. Hence, poor areas are only able to afford lower-quality schools (UNDP, 2008). Indeed, four-fifths of primary and junior high schools were indebted in 2003 (National Audit Office, 2004).

Policies in favour of rural areas

During the 10th Plan period government efforts to improve the position of rural areas centred on tax reform. Rural areas are subject to the same taxes as urban areas but as rural incomes are much lower, few residents pay income tax. Instead, until the early 2000s, rural households paid a series of taxes and fees. The largest of these was the agricultural tax, which was essentially a form of property taxation. It was levied on the imputed grain production of each parcel of land farmed by a family. A number of *de facto* taxes were also levied by township governments but the greatest levies were made by the village government, constituting 40-50% of the tax revenues of local government. On average, in 2000, these taxes and levies amounted to 13-15% of average rural income (Lin and Tao, 2002). As many of these taxes and fees were flat rate, they were regressive, accounting for 17.3% of the income of the peasants in the lowest income quintile but only 3.7% of income in the highest quintile (Tao and Qin, 2007). These agricultural taxes and fees were abolished during the 10th Plan period. By 2004, taxes had fallen substantially, to 5% of income. Moreover they had become markedly less regressive. Finally, all taxes and fees were abolished on 1 January 2006. Measures were put in place to ensure that local governments had sufficient revenue to provide unchanged service levels (Yip *et al.*, 2007).

At the same time, the central government specifically identified poverty-stricken villages and counties (about 20% of the national total of both) and introduced programmes to help these areas. The most noticeable since 2000 have been to help designated poor villages on a comprehensive basis; to retrain the labour force in poor counties and help people find employment in developed regions; to develop agriculture and industry in poor regions and to improve compulsory education in poor areas. Outlays have been relatively

limited, averaging less than 0.1% of GDP per year. However, there is evidence that between 2000 and 2006, the income of designated poor villages rose 2% per year faster than incomes in all villages (Xu, 2008).

Government policies to reduce household income inequality

Welfare assistance

Historically, welfare assistance was not provided by government. In urban areas it was provided through the employer, be it a SOE, a collectively-owned unit or the government. Once hired, the person remained with this employer, who paid her pension and insured her against adverse events. In the countryside, the responsibility for supporting people lay first with the family. In the event that the person had no family capable of offering support, the village collective provided the necessary aid from its income or reserves.

The movement towards a market economy put enormous stress on these arrangements. In urban areas, companies started to lay off staff and were unable to continue to pay the workers they no longer needed. In rural areas, the end of collective production and the move to individual farming meant that the collective lost it source of income. Nonetheless the village remained responsible for guaranteeing the food, shelter, health care, clothing and burial expenses (the so-called five guarantees) of those orphans, disabled and childless elderly and other people without families capable of supporting them. The only option for the village collective was to fund these through charges on the farmers in the village.

Gradually, a new welfare assistance programme was introduced called the minimum living allowance or MLA (Table 5.1). Under this system, the local authority establishes the minimum cost of living (MCL) for purchasing the products needed for a person to survive. This cost varies across the country, depending on local prices and earnings or household incomes. The MCL serves as the threshold income to qualify for the MLA. People with an income less than this level are entitled to a top-up payment equal to the difference between their income and the MLA threshold. Beneficiaries are also entitled to a number of supplementary health and education benefits.

The system was first introduced in Shanghai in the early 1990s. Other provinces and cities followed and by 1997, with 26 cities operating programmes, the State Council allowed the creation of such programmes nationally and put forward the necessary regulations in 1999. The introduction of this system in cities enabled SOEs to transfer the cost of supporting redundant staff to the local authorities. Between 1999 and 2002, the number of beneficiaries rose from 0.5 million to 21 million and since then the number has been broadly stable, although it increased during the recent economic slowdown.[3] Some richer cities have extended the programme to cover people just above the income threshold but who experience particular difficulties. The benefit provided by this programme amounts to just 10% of local per capita income. Consequently, with the coverage rate also low, the impact on overall family incomes has been small and the total cost manageable, at 0.13% of national GDP.

Some attempts were made to establish a welfare system in rural areas but progress was slow. After a pilot study in Guangxi and Shanxi, a national programme to launch a rural MLA was put in place. By 1999, 11 provinces had established rural MLAs in all county towns, and eight provinces had a MLA in place in over half of the county towns. In 2000, 3.2 million rural residents received MLA benefits (Zhang and Guan, 2003). In 2003, the government cautioned against the extension of the programme to poor counties and introduced a special programme (Assistance for the Extremely Poor Households), to be

Table 5.1. **Aspects of the minimum living allowance system**

	2005	2006	2007	2008
	Amount as % of area disposable income			
Income threshold for benefit				
Urban	17.8	17.7	15.9	15.5
Rural	28.0	23.7	20.3	20.7
Average benefit				
Urban	8.3	8.5	8.9	10.4
Rural	14.0	11.5	10.7	12.4
Average income of beneficiaries before benefit				
Urban	9.6	9.2	7.0	5.2
Rural	14.0	12.2	9.6	8.4
	Beneficiaries as % area population			
Coverage rate of system				
Urban	4.0	3.9	3.8	3.9
Rural	0.8	3.1	3.8	6.7
	% total household income in area			
Importance of benefit payment to households				
Urban	0.33	0.33	0.34	0.40
Rural	0.19	0.21	0.53	0.99
	% of GDP			
Public expenditure on MLA				
Urban	0.11	0.11	0.10	0.13
Rural	0.02	0.03	0.06	0.11
Total	0.13	0.13	0.16	0.24

Source: Ministry of Civil Affairs (2009), He *et al.* (forthcoming).

implemented there, aimed at providing temporary relief to households impoverished by major illness or loss of family labour. Policy changed again in 2007, when the State Council directed that all rural counties introduce a MLA by end-year. Three months later, 90% of counties had done so. The central government provided an annual budget of CNY 3 billion (0.01% of GDP) to help poorer counties implement the programme.

Spending under the programme rose rapidly. In 2008, benefits amounted to 1% of average rural income – almost twice the level in urban areas. This was mainly due to the higher income threshold in rural than in urban areas, resulting in a much higher proportion of the population receiving the benefit than in urban areas. However, the absolute level of the benefit is only one-third that in urban areas, so the overall cost of the rural programme is lower than that of the urban programme.

This rapid deployment represents a success. However, studies of the effectiveness of the MLA in urban areas suggest that there may be problems with the design and implementation of the system. It is meant to provide a complete top-up to the MCL line. Hence, if all people below that line received it, none should find themselves below the line after payment of the benefit. In fact, there is only an 11% reduction in the poverty rate after the payment of benefits (Wang, 2007). The reduction is much smaller still if the poverty line is set at half the median income (Table 5.2).

Furthermore, the 2004 Urban Employment and Social Protection Survey shows that there are substantial errors in MLA allocation: 40% of the recipients are not entitled to it,

Table 5.2. **Extent of poverty reduction through the minimum living allowance programme**

	Poverty line equals minimum cost of living			Poverty line equals 50% of median income		
	Before benefit payment	After benefit payment	Reduction in poverty	Before benefit payment	After benefit payment	Reduction in poverty
	% households below poverty line			% households below poverty line		
Wuxi	6.3	5.9	6.5	15.4	15.0	2.7
Shenzhen	9.4	9.3	1.1	22.5	22.2	1.3
Zhuhai	20.3	17.9	11.9	27.8	26.8	3.6
Zigong	11.1	6.8	38.6	20.0	16.2	19.0
Daquing	15.0	15.0	0.0	25.0	25.0	0.0
Hegang	13.5	12.5	7.6	18.3	17.8	2.8
Laiaoyuan	30.1	29.3	2.5	29.6	28.5	3.4
Fushun	19.8	16.1	18.8	23.8	20.4	14.1
Benxi	6.9	5.8	16.7	12.3	10.6	14.0
Jinzhou	11.4	8.5	25.0	17.7	16.3	8.0
Tongchaun	20.5	17.2	16.4	21.6	20.5	4.7
Baoji	9.9	7.8	20.5	16.7	15.9	4.6
Xiangfang	17.4	16.9	2.9	25.8	27.5	−6.9
Yichang	13.7	12.5	9.2	21.6	20.4	5.9
Average	**13.6**	**12.1**	**11.1**	**21.1**	**20.3**	**4.0**

Source: Wang (2007).

and 61% of those who are entitled to it fail to receive it (Wang, 2007). The origins of the failure to find many recipients may be due to the intrusive methods used to administer the system, which may deter some people from applying. In towns, the state has essentially delegated the administration of the system to the neighbourhood council. Its officer is responsible for assessing each benefit claim. The house of the individual concerned is searched, and the family and neighbours are questioned (Solinger, 2009). The report of the neighbourhood council is then sent to the county or district administration for approval and payment. At each stage, the dossier is publicly displayed. This should guard against false claims but apparently does not. As mentioned, acceptance of the dossier means that the school fees of any children in the household are waived. Until this year, each school displayed the list of children who were excused from fees because their parents were destitute. This practice has now been abandoned.

Measuring household inequality

Inequalities mainly stem from intra-region differentials (OECD, 2005), which largely reflect differences between rural and urban incomes (Li and Xu, 2008). To adequately measure these differences at a national level it is necessary to use household survey data and a new methodology (Box 5.1).

Household income inequalities have increased considerably over time as the role of the market in the economy grew. Prior to the start of liberalisation, the income distribution was very compressed (Figure 5.5). The rural income distribution began to change first (Figure 5.6), following the individualisation of agricultural production in the early 1980s. In urban areas, the movement started later, in the early 1990s, as the economy opened to foreign trade and the state-owned sector shrank. Returns to education began to increase and the number of jobs in SOEs with egalitarian pay structures fell. Overall and over the longer term, inequality has clearly increased, from a very low level.[4]

Box 5.1. **Estimating continuous income distributions for China**

The published data on the distribution of household incomes in China is sparse. For urban areas, it is limited to showing average incomes in the bottom 5 and 10% of the income distribution and in the five quintile levels for urban households. For rural households, the data is presented differently, as the proportion of people with nominal incomes between different levels. The latter intervals are only changed infrequently despite a generally-increasing price level. In addition, these presentational differences make it impossible to easily add the rural and urban income distributions to obtain a national income distribution. Indeed, the National Bureau of Statistics never presents data for the national distribution of income.

In order to overcome these problems, Chotikapanich *et al.* (2007) developed a method to transform the grouped urban and rural income distributions into a single continuous distribution. Their method estimates the parameters of a beta and Weibull distribution from the grouped data for urban and rural areas, respectively. The income levels used to estimate the distributions are deflated by the urban and rural CPIs, respectively. Chotikapanich *et al.* (2007) only present separate indices for the urban and rural populations. Here a national distribution is presented. The difference in price levels between rural and urban areas estimated by Brandt and Holz (2006) is used here to ensure that measured incomes in the two areas represent a comparable purchasing power. Finally, the two distributions have been combined by using series for the rural and urban population that take into account changes in the definitions of these sectors in the censuses of different years (Shen, 2006).

Figure 5.5. **National household income distribution**

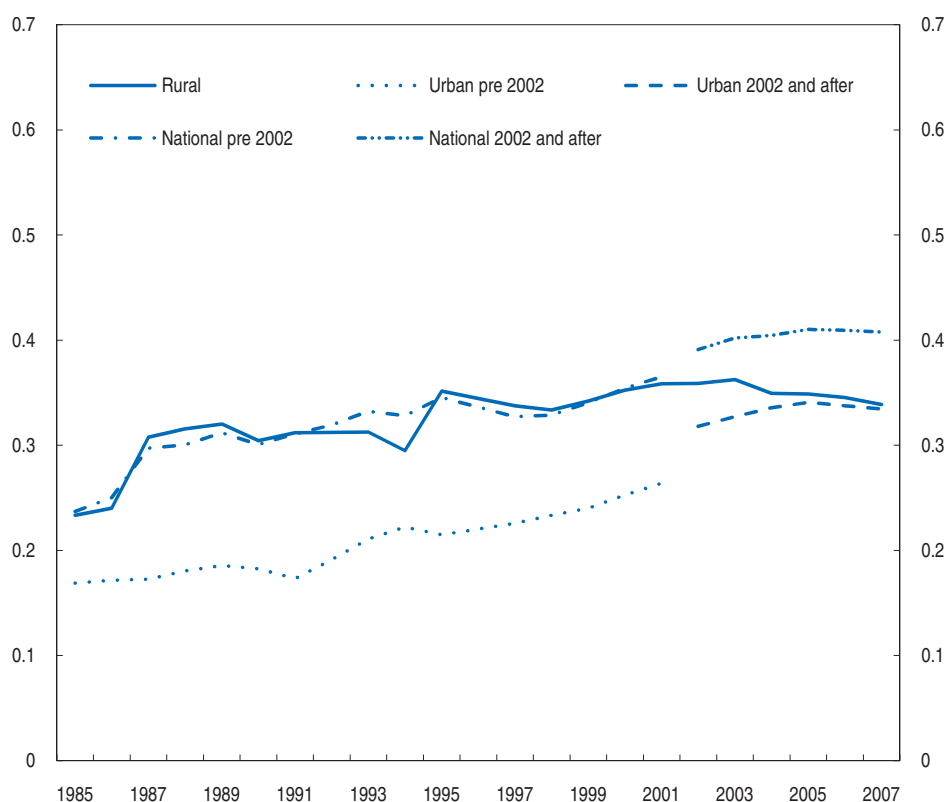Probability of household income being within a given CNY 50 interval (1990 urban prices)
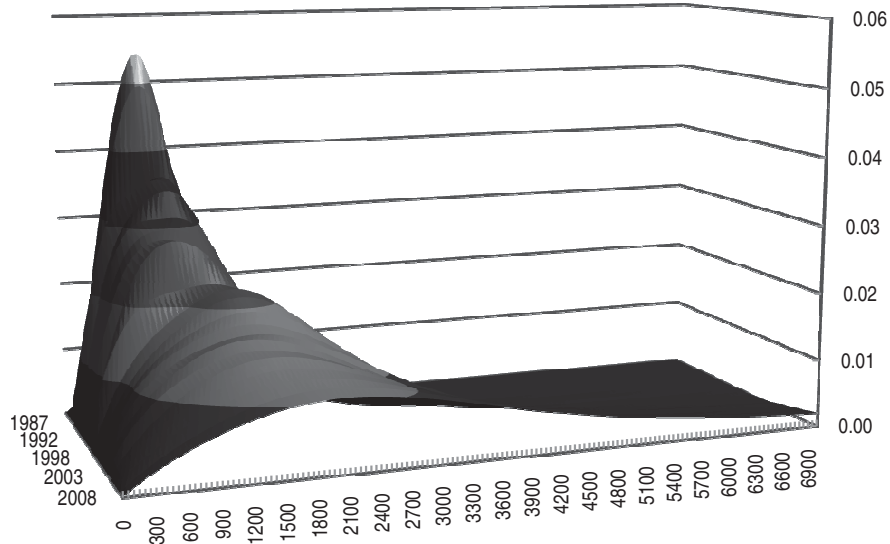
Source: OECD estimates using the Chotikapanich *et al.* (2007) method and source data from NBS.

StatLink ⟪⟫ *http://dx.doi.org/10.1787/778348646572*

Through the 1990s, the rural and even more so the urban Gini coefficients started to rise, and so did the national Gini coefficient. However, since 2000 interpretation of these indicators has been complicated by the change in the nature of the two surveys. The rural survey has always tried to capture the income of those members of rural households who

Figure 5.6. **National rural and urban Gini coefficients**

Based on a continuous estimation of a probability density function from grouped data

Source: OECD estimates using the Chotikapanich *et al.* (2007) method and source data from NBS.

StatLink 🖳🖎🔗 *http://dx.doi.org/10.1787/778384414883*

were living and working as unofficial migrants outside their village of registration. Such information was necessarily indirect. Since 2002, the urban survey has included a direct estimate of the household income of unofficial rural migrants but only a small fraction of the migrants has been captured in the survey. This has led both to an increase in measured inequality in urban areas and double-counting at the national level.[5]

Even so, these new Gini estimates are substantially lower than previous estimates of inequality in China. In particular, they are about one fifth below those produced by Ravallion and Chen (2007). These authors had access to unpublished tabulation from the National Bureau of Statistics which may or may not explain part of the difference. Another difference pertains to use of different spatial price deflators. Ravallion and Chen calculate the cost of purchasing a basket of food typically consumed by households with incomes between the 15th and 25th percentile by province. This expenditure is then scaled to allow for non-food consumption. The resulting poverty line is turned into a price deflator by using the provincial rural and urban price indices. As the authors state, this is not an ideal procedure for measuring provincial cost of living indices for the average household. In contrast, the estimates presented here use provincial urban and rural price indices based on the consumption pattern of the average consumer (Brandt and Holz, 2006).[6]

There is some evidence that the relative position of poorer people in rural areas was deteriorating faster than suggested by these measures of the Gini index. The Atkinson index of inequality, which attributes greater weight to the income of the poor (Box 5.2),

Box 5.2. **Inequality indices**

In order to measure the extent of inequality a number of indices can be calculated. The most widely used in studies on China is the Gini index, derived from cumulative density functions (Lorenz curves). It suffers from a number of drawbacks. One is that if the curves for different years cross, then no ranking is possible. Another is that it has no underlying measure of how society values the income of people at different points in the income distribution. Also, in practice, Cowell (2008) has shown that the measure is particularly sensitive to changes in the incomes of middle-income groups. Other indices have been proposed, such as the Theil index (average of the logarithms of the individuals' relative income weighted by the individuals' share in total income), the logarithmic mean deviation index or the ratio of the standard deviation of an income distribution to its mean. Another common measure is to compare the ratio of the incomes of the highest earners to those of the least well-off.

In order to overcome the absence of any underlying welfare function, Atkinson (1970) proposed a measure that explicitly takes into account the valuation that society places on incomes at different points of the income distribution. The index can be calculated on the basis that all incomes are seen as equal – in this case it is equivalent to the Theil index and is calculated with a distribution parameter set to zero. Alternatively more weight can be given to low than to high incomes. This corresponds to a generally-accepted proposition that the marginal utility of income declines as income rises, meaning that a transfer of a unit of income from a high-income to a low-income household raises welfare. Here, an inequality aversion parameter of 2 was used, though other analysts have used a value as high as 4 (United States Department of Commerce, 2000).

Figure 5.7. **National rural and urban Atkinson inequality indicator**

Using a value of 2 for the distribution parameter in order to give more weight to lower incomes
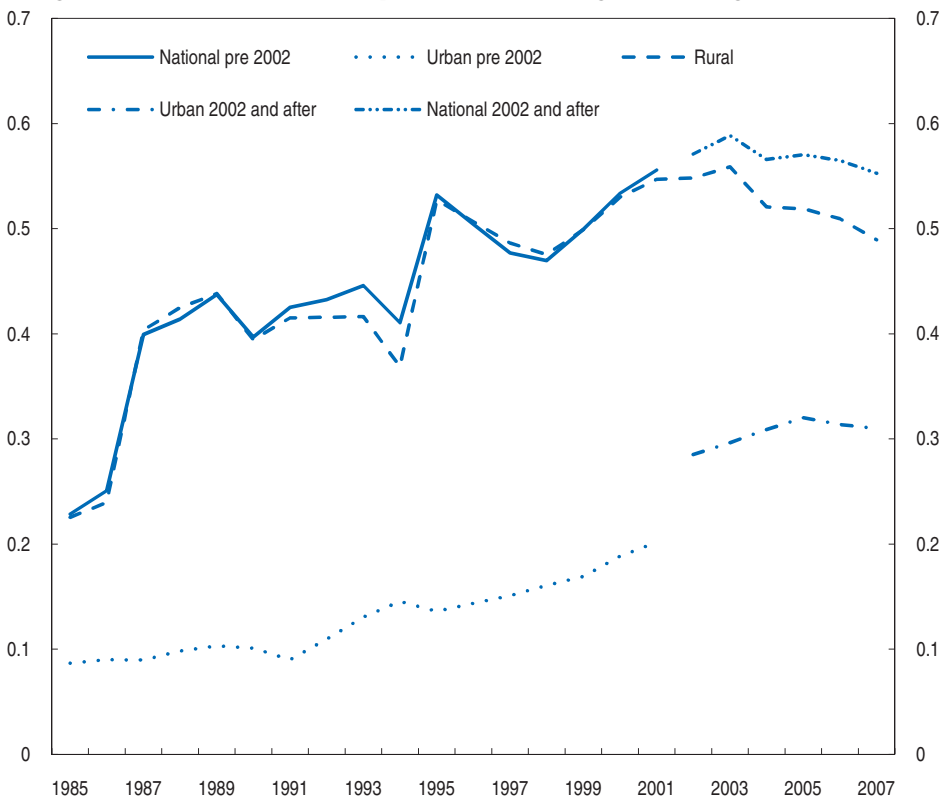
Source: OECD estimates using the Chotikapanich et al. (2007) method and source data from NBS.

StatLink ⟨⟨⟩⟩ http://dx.doi.org/10.1787/778423246667

shows a much greater rise up to 2004 than the Gini index (Figure 5.6). After that date, the various policies designed to increase low incomes in rural areas appear to have had some impact, as the Atkinson index started to decline more than the Gini index.
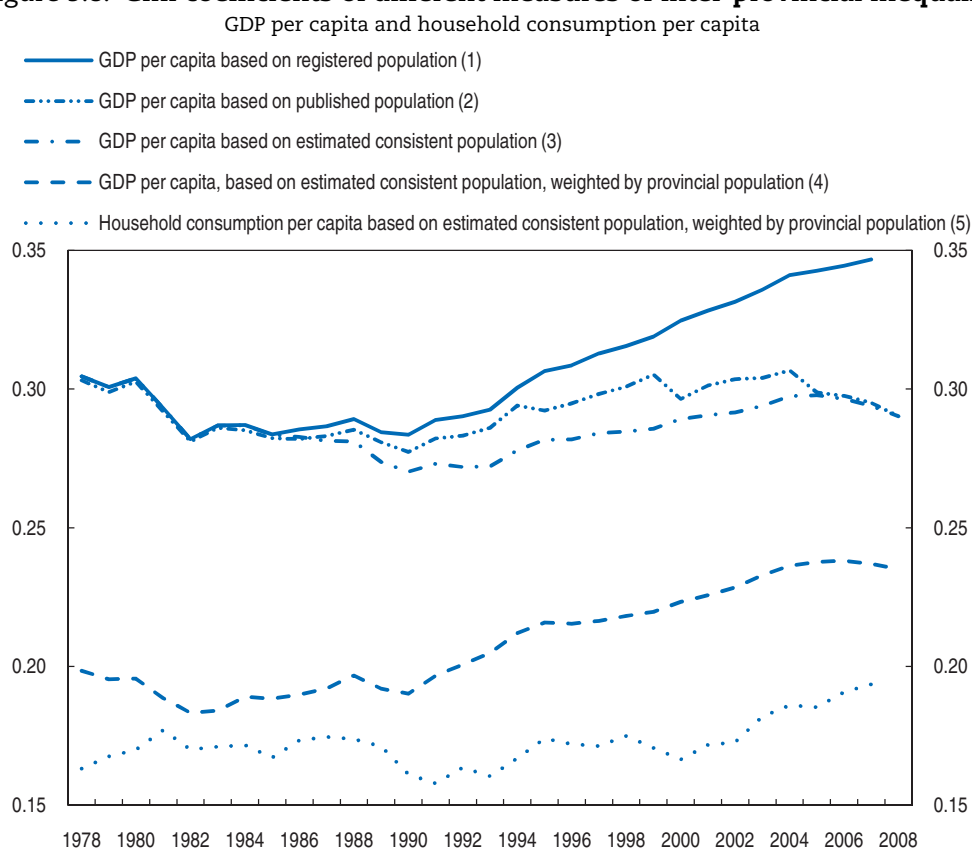
Although inequality has increased markedly during the past two decades, especially in urban areas, the Gini coefficient does not appear that high by international standards (Figure 5.1 above). Overall, China's national Gini coefficient is below that of most major emerging market countries. The urban coefficient is lower than that in a number of OECD countries, especially once allowance is made for the fact that the Chinese data is measured on a per capita basis and the OECD data on an equivalence basis.[7]

Measuring spatial inequality

Measuring inequality across provinces

The simplest method to measure regional inequality is to use registered population data. This series is consistent over time and available at the lowest administrative echelon, allowing inequality analysis down to the township level. This method has been used by Chinese researchers in the past and shows persistent and growing inter-regional and inter-provincial inequality (see for example Li and Xu, 2008 and Figure 5.8, line 1). However, it disregards intra-provincial population movement (Herd, 2010). A comparison of the provincial population from the 2005 Census and the registration data shows cross-province migration to amount to just over 30 million people, against a total of 140 million living

Figure 5.8. **Gini coefficients of different measures of inter-provincial inequality**

GDP per capita and household consumption per capita

——— GDP per capita based on registered population (1)

–·····– GDP per capita based on published population (2)

— · — GDP per capita based on estimated consistent population (3)

— — — GDP per capita, based on estimated consistent population, weighted by provincial population (4)

· · · · · Household consumption per capita based on estimated consistent population, weighted by provincial population (5)

Source: China Statistical Yearbook, CEIC and OECD calculations.

StatLink 🔗 *http://dx.doi.org/10.1787/778454437583*

outside their place of registration. This is a stock figure and implies a cumulative inter-provincial migration flow of 2.4% of the population since such movements became possible in the mid-1980s, which is not particularly large.[8]

In terms of proportionate inflows, the greatest gainers have been the three major eastern growth zones: Beijing/Tianjin, the Shanghai area and Guangdong (Figure 5.9). The relatively poor western areas have also been net absorbers of migrants rather than net exporters. The extent of the investment programmes in Inner Mongolia, Qinghai, Tibet, Yunnan and Xinjiang, together with programmes to encourage migration of ethnic Hans to these areas has resulted in significant flows thereto. Only the provinces close to the coastal areas (especially those close to Guangdong) have lost residents.

Figure 5.9. **Extent of inter-province migrant flows by province**

Difference between actual and registered population as % of registered population, 2007
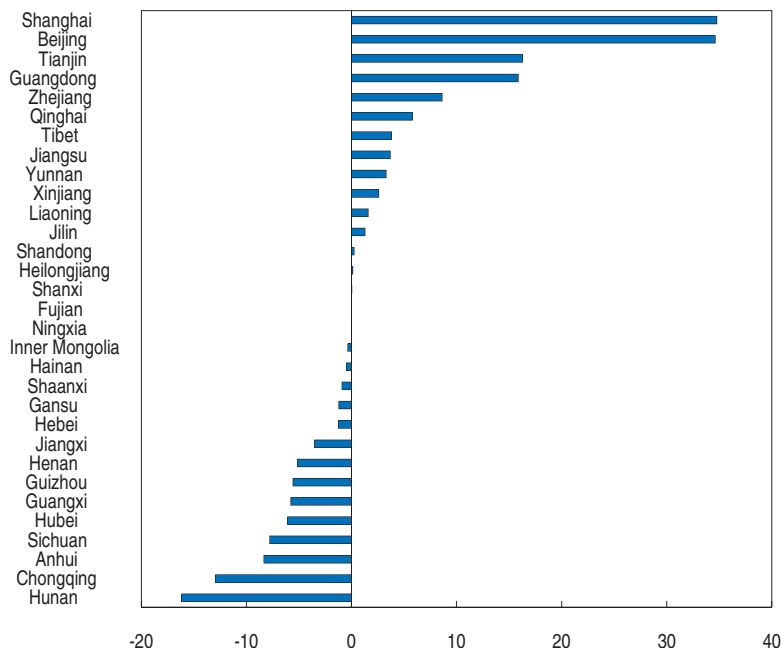
Source: NBS and OECD calculations.

StatLink ⬛⬛ *http://dx.doi.org/10.1787/778455174040*

The use of the published population data based on place of actual residence markedly reduces the extent of the increase in inequality (Figure 5.8, line 2). However, there are breaks in this index in 1995, 2000 and 2005, when definitions of residence were changed in the census. A straightforward, if somewhat artificial way, to adjust for these changes is to assume that inter-provincial migration has proceeded linearly and that there were no inter-provincial migrants in the mid-1980s when population movement first became possible. Such an extrapolation has been performed at the provincial level to construct a revised population series. Once again, the scale of the increase in inequality of inter-provincial GDP per capita is reduced (Figure 5.8, line 3). Moreover, inter-provincial inequality appears to have peaked around 2004, and to have declined during the past four years. This result appears to be driven by slower per capita income growth in Beijing and Shanghai rather than faster growth in the poorer provinces. However, an inequality measure that treats small provinces as equivalent to large ones biases the results, since we

are concerned about the individual and not the province. A measure of inequality that weights each province by its *de facto* population and also allows for differences in price levels between provinces clearly reduces the extent of inequality, and lowers the extent to which regional inequality fell during the 1980s after the 1978 agricultural reforms (Figure 5.8, line 4). Inequality still increases during the opening-up period from 1990 and falls slightly from 2004 onwards. Most studies show that inter-provincial inequality is more the result of intra-provincial inequalities, not just between rural and urban areas but also between urban areas (Box 5.3).

Box 5.3. **Inequalities in Guangdong province**

The economy of Guangdong is the largest amongst the provinces of China. In 2007, its GDP, measured at market prices, exceeded that of all but 13 OECD member countries. There has been substantial migration into the province, notably around the Pearl River Delta. For the province as a whole, there are about 13 million migrants from other areas of the country – accounting for slightly more than 40% of all inter-provincial migration. In addition, almost one-quarter of the employed with rural status work outside their registered township and are therefore internal migrants. By 2006, half of the population in the Pearl River Delta area were migrants, with three-quarters thereof in Shenzhen and Dongguan. The labour market was exceptionally strong in 2005-06 with employment in the Pearl River Delta area rising by nearly 25%.

Despite this strong labour market, characterised by significant real wage gains, the extent of intra-provincial inequalities remained as high as in China as a whole. In the non-agricultural sector, average compensation of employees across prefectures registered a coefficient of variation of 45% in 2006, while the ratio between the highest and lowest average earnings by prefecture was well over four (Table 5.3). Amongst people with urban registration, inequalities across prefectures were greater for publicly-owned units than for privately-controlled firms. The largest differences in average incomes were found in agriculture, with the highest incomes being in the areas with the highest urbanisation rates.

In high-income market economies, the extent of income inequality between different geographical areas is much less. For example in the United Kingdom, the coefficient of variation of average earnings across major regions was only 16% in 2007.

The incidence of income inequality within Guangdong suggests that the inequalities seen across China do not just reflect different economic and locational factors but also the segmentation of labour markets throughout China (Chapter 6). The degree of segmentation appears greatest in SOEs, which generally only hire people with local urban registration. In private enterprises, which hire mobile migrant workers, the coefficient of variation of earnings is lower. The greatest dispersion of earnings is in agriculture, where workers are tied to their registered land areas.

The Guangdong government has slightly changed the way in which the registration (*hukou*) system operated in the province. In many cities, the distinction between agricultural and non-agricultural *hukous* has been abolished but only for those who possessed a local *hukou*. This still leaves in place the distinction between *hukous* issued in different localities and prevents easy permanent resettlement from one town to another. Moreover, regulations are now set city by city, rather being the result of a national quota as was the case in the 1990s. In Guangdong, for example, Shenzhen has only allowed three groups of people to obtain local *hukou* status: professionals or those with university degrees; major investors and people eligible under certain national policies (Chan and Buckingham, 2008).

Box 5.3. **Inequalities in Guangdong province** (*cont.*)

Table 5.3. **Average earnings across Guangdong prefectures**

	Average non agricultural compensation employees	Average urban unit public sector	Average urban unit private sector	Average agricultural compensation employees	Urbanisation rate	Non agricultural employees
	USD per month				%	Millions
Provincial total	**245**	**324**	**249**	**103**	**63**	**34.1**
Guangzhou	411	521	307	180	82	4.9
Zhuhai	331	448	209	225	85	0.8
Shenzhen	324	516	327	424	100	5.7
Foshan	267	361	206	269	91	3.2
Zhongshan	238	411	199	193	84	1.7
Dongguan	235	433	241	128	85	3.7
Huizhou	234	254	166	118	61	1.5
Jiangmen	225	230	142	94	49	1.3
Shantou	214	240	178	65	70	1.1
Shaoguan	181	235	196	92	46	0.7
Zhanjiang	177	184	218	83	39	1.0
Heyuan	156	213	154	63	40	0.5
Yunfu	136	209	111	123	50	0.5
Chaozhou	130	135	126	67	63	0.8
Maoming	127	236	140	130	37	1.2
Zhaoqing	125	261	165	144	45	1.1
Shanwei	123	161	161	93	52	0.5
Yangjiang	118	191	121	119	44	0.7
Qingyuan	118	175	124	77	34	1.0
Jieyang	93	190	154	67	45	1.3
Meizhou	89	175	154	77	47	1.0
Mean (simple)	193	275	181	135	60	1.6
Standard deviation	87	120	57	86	20	1.5
Coefficient of variation (%)	45	44	32	64	34	91
High/low ratio	4.6	3.8	3.0	6.7	2.9	12.7

Source: Guangdong Statistical Yearbook (2007).

The extent of inequality across regions is also lower if consumption rather than GDP per head is used as the metric. GDP per head is more closely related to productivity and labour market participation than to income or consumption. For small open economies such as China's provinces, factor income flows and transfer payments can create a large wedge between output and income. Indeed, in China, cross-border migrants tend to remit a significant portion of their income to their home province. As a result, the geographical inequality in consumption per head is considerably lower than that of production per head. It does, however, exhibit the same movement over time. Of all the measures of inequality across provinces, consumption per head (weighted by the population in each province and adjusted for differences in provincial price levels) shows the lowest dispersion across regions but does not exhibit the same stabilisation from 2004 as do the other measures (Figure 5.8, line 5).

While there is some evidence that geographical inequality has stabilised or even fallen slightly from 2004, it still remains extremely high by international standards. Within the

OECD area, the median regional Gini coefficient for GDP per capita was 0.14, much lower than in China. Most OECD countries are physically small and so are more readily compared to Chinese provinces than to China as a whole. Therefore, comparisons of regional inequality cannot be made with most OECD countries. However, the United States is about the same size as China, and the US economy is far more integrated than China's, with the Gini coefficient for per capita GDP across states being half of that across Chinese provinces.

There is evidence that most of the inter-provincial inequality is the result of intra-provincial inequality. Specifically, if the Theil index of inequality is broken down into the part of inequality that results from differences in GDP per capita between counties within provinces and between provinces, then within-province inequalities dominate (OECD, 2005). This is despite the barriers of distance and language being much smaller at the province level than country-wide. Such results point to labour markets being segmented even when only short distances apart (Box 5.3). This can be attributed to the household registration system that inhibits permanent migration not only between rural and urban areas but also between different urban areas (Chapter 6).

Urban-rural inequality

Income inequalities

The extent and causes of the large gap between urban and rural incomes has been a source of concern to policy makers. The ratio between urban and rural incomes has been estimated at over three by official statistics and has been rising over time. The official statistics, however, overstate the difference between rural and urban incomes because they ignore the sizeable difference in price levels between urban and rural areas and because they do not fully capture the number of migrant workers in urban areas. The official statistics underestimate the prevalence of migrants by a factor of eight. This leads to an overestimation of the rural-urban gap as migrants earn less than rural residents. Furthermore, the exclusion of imputed housing incomes also tends to raise the gap between rural and urban incomes. Overall in 2002, correcting for these two sources of bias brings down the urban/rural ratio of income from 3.18 to 2.27 (Sicular *et al.*, 2007; Herd, 2010). If, in addition, the weight of migrants in the urban population is increased to reflect their true weight, the gap between rural and urban real incomes falls to 2.12.

Until 2005, most research suggested that the overall extent of inequality in China was driven by differences between rather than within provinces. Similarly, overall inequality was mainly determined by differences between rural and urban households, rather than within rural and urban communities. But once adjustment is made for the price differences between rural and urban areas and the urban incomes are measured including unofficial rural migrants the extent to which differences between provinces are responsible for overall inequality falls markedly. Without any correction to the official data, 45% of inequality is due to location, using the Theil T decomposition of inequality. Once prices differences are accounted for, the influence of location falls to 32%. It falls further to 26% once the weight of unofficial migrants in total urban households is correctly measured (Sicular *et al.*, 2007). Moreover, in the less marketised part of the country (the West), location is more important than in the eastern areas.

An analysis of household incomes in rural and urban areas suggests that three factors can account for almost three-quarters of the difference between rural and urban households (Figure 5.10). The average education level of urban households is much higher

Figure 5.10. **Sources of the rural-urban income differential**

Income is corrected for spatial price difference and includes migrant earnings in urban areas
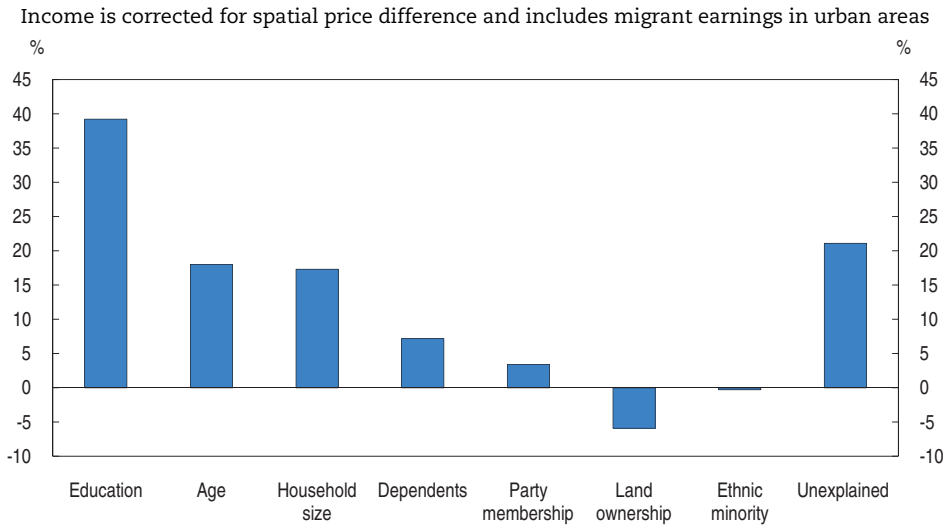
and, moreover, higher education provides higher returns in urban areas. In addition, in urban areas the premium associated with experience grows as age increases, but in rural areas the premium declines after age 45, reflecting greater emphasis on purely manual labour. Finally, a significant part of the rural-urban differential is accounted for by the higher number of dependents in rural households, as the Chinese data does not use equivalence factors to reduce the weight of children, and additional adults, in determining household average income. Overall, once the differences in endowments and the returns to these endowments have been allowed for, only about one-quarter of the differential between rural and urban areas remains and can be attributed to locational factors.

Urban-rural inequality can also be seen in the types of income received by urban and rural households. The gap between labour income per household is relatively small, but that for pension income and the imputed income from house ownership are much greater (Table 5.4). This reflects the unequal coverage of urban and rural households for social security purposes, both for pensions and for social assistance. The inequality in pension coverage means that rural residents have a working life some nine years longer than urban dwellers. The need for pension reform is explored in Chapter 7.

Table 5.4. **Urban-rural income differences by income source**

2002, uncorrected for spatial price differences

	Urban	Rural	Ratio
	CYN per year		
Mean income	10 004	3 145	3.2
Labour income	6 421	2 524	2.5
Non-labour income	3 583	621	5.8
Asset income	49	18	2.7
Pension income	1 265	13	97.3
Government transfers minus taxes	237	−81	−2.9
Housing income	1 765	426	4.1
Private transfers and remittances	267	245	1.1

Inequality within urban areas is aggravated by the different social coverage of varying occupational groups. Those working for SOEs have good coverage while those working in private companies and especially self-employed persons have much lower coverage.

A substantial part of the difference between urban and rural wages cannot be explained by the attributes of individuals and presumably reflects barriers to migration. In the early 2000s, hourly earnings in urban areas were CNY 3.43 per hour against CNY 1.25 in rural employment (Hertel and Zhai, 2006). After taking into account price differentials and the differences in personal attributes of rural and urban workers, the differential falls from 145% to between 70% and 40%, depending on the estimation methodology. Some of this difference can be attributed to the costs of migration, as not all wage differentials between locations are removed even in countries with completely free movement of labour. However, a substantial part of this unexplained differential is likely due to restrictions linked to the birthplace of the individual in the context of the *hukou* system. Over 1995-2002, migration has tended to lower overall national inequality – mainly because it slightly reduced the urban-rural income differential. On the other hand, it has tended to heighten urban inequality (Khan and Riskin, 2005). Given that the laws concerning migration were liberalised to a certain extent after 2003, the increase in migration over 2003-06 may have contributed to reducing national income inequality since 2003. The consequences of this system for the functioning of the labour market are examined in Chapter 6.
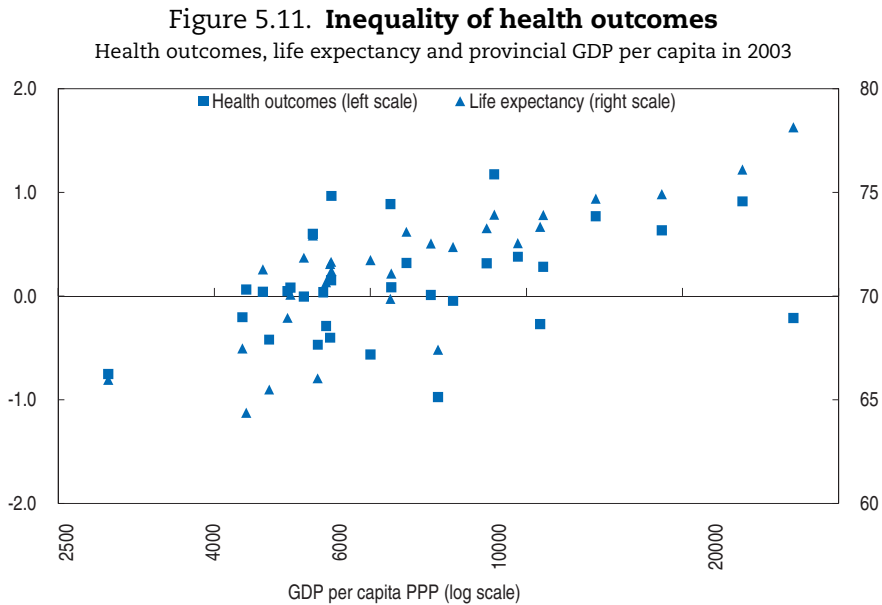
Inequality in other dimensions

Alongside differentials in income and wealth, there are also inequalities related to the supply of a number of public services both across provinces and between urban and rural areas. The differences in education are a case in point. Another important area of discrimination is the provision of health services and the consequences for health and life expectancy. A synthetic health condition indicator for each province can be calculated from a number of basic indicators that deal with the incidence and treatment of a number of diseases. Such an indicator correlates closely with life expectancy and varies systematically across provinces, in line with provincial income (Figure 5.11). Health policy issues are discussed in detail in Chapter 8.

There are a number of composite indicators that bring together both monetary and non-monetary aspects of development, notably the Human Development Index (HDI), which is available for China's 31 regions and combines information on education, life expectancy and GDP per capita. Consistent with the evidence set out above, the HDI for the western provinces is lower than that in the East. It is even lower in the central regions, reflecting the limited fiscal transfers to these areas (OECD, 2005). Moreover, between 2001 and 2006, the HDI indicator grew faster in the eastern areas than in the West.

Conclusions

Inequality is relatively high in China by international standards, despite signs that it has lessened recently across provinces and nationwide for rural households. Even within urban areas, it may have receded a bit. This points to the success of a number of policies, notably those related to the easing of restrictions on movements of people introduced in 2003 and the progressive introduction of the minimum subsistence allowance in rural areas. On the other hand, high capital investment in the western provinces appears to have had limited impact on growth in its target areas. This failure to catch up may reflect slower movement towards market-based economic mechanisms on the part of local

Figure 5.11. **Inequality of health outcomes**

Health outcomes, life expectancy and provincial GDP per capita in 2003

Source: OECD calculations, *China Statistical Yearbook* and CEIC for economic indicators, Liu *et al.* (2008) for health indicators.

StatLink http://dx.doi.org/10.1787/778481706062

administrations. It may also be related to the low level of educational qualifications, both of the population as a whole and of the younger cohorts. While there has been a surge in the numbers attending primary school, this has not translated into more numerous graduations from upper secondary schools, in part because of much lower educational spending. More can be done in this respect since it appears that differences between earnings in urban and rural areas are driven by the human capital of the individuals concerned as well as by barriers to mobility.

There will always be those who, for one reason or another, are unable to compete in the labour market and need some form of social assistance. The government has expanded the social welfare programme to include rural areas, in the form of the MLA. The major problem with this programme comes from the lack of national solidarity built into the system. Financing mainly comes from the county and village collective even though it is difficult, and inequitable, for the authorities in the poorest counties and villages to finance the payment to their poorest inhabitants.

A further problem comes from the MLA's overlap with other programmes, notably the new rural pension programme (Chapter 7). That programme will likely pay a benefit of around 40% of local average earnings in exchange for lifetime payments of 8% of average local income while working. But contributions to the system are voluntary, so some people may choose not to contribute, relying instead on the MLA. This is especially the case since the medical benefits for an MLA recipient may exceed those for a person in the new rural medical scheme (Chapter 8).

For people who are neither orphans, disabled nor elderly, the MLA needs to be accompanied by advice and help to return them to the labour market. This needs to be backed up by a greatly improved administration system capable of verifying individuals' income and identity in order to avoid fraud.

There is also the problem that people are entitled to the MLA in their village of registration and not in the city in which they live. Over the longer term such distinctions should be abolished. In the short run, the benefit of such a measure might have to be limited to people who have been resident in an area for more than, say, five years in order to avoid overly rapid migration to higher-benefit areas. Benefit levels will need to be set in relation to local incomes. Last but not least, the central government needs to devote more resources to transfers to the poorest counties for equity reasons.

Notes

1. The difference between imports and exports also includes the statistical error.

2. In 2005, total private spending on education was almost 40% of total outlays.

3. Reflecting the sharp slowdown in economic activity in the fourth quarter of 2008, the number of claimants rose by 0.6 million (an increase of 2.7% or 0.2 percentage points of the urban labour force). With migrants affected more than official rural residents and forced to return to their village of registration, the number of rural people drawing the MLA jumped by 4¼ million in the fourth quarter of 2008.

4. As no official estimate of the national Gini is available from the National Bureau of Statistics (NBS), it is not possible to directly compare the OECD estimates with a national source. Official estimates for urban and rural areas are only available separately (NDRC, 2008). Their profile over the past two decades to 2005 is broadly similar to the one depicted here, insofar as they too point to a steep rise in inequality both in the urban and in the rural areas, with some stabilisation in recent years. They also show inequality to be much higher in rural than in urban areas. Other estimates, such as the ones by Li and Luo (2007), which adjust for local price levels, suggest that the national Gini coefficient was 0.40 in 2005, close to the OECD estimate.

5. Another problem in these as in most household surveys is that high-income households are almost certainly under sampled. Moreover, a number of subsidy and transfer payments that may end up increasing inequality are not fully captured in the household surveys.

6. The disadvantage of these series is they are based on a fixed 1990 basket of goods.

7. The Gini coefficient presented here for China makes no attempt to allow for the economies of scale in household consumption as the number of people in households increase. Calculations for OECD countries do make such a correction, which tends to reduce the extent of inequality. Within the OECD, this adjustment lowers the Gini coefficient by 7.2% based on a population weighted sample of 13 countries (Burniaux *et al.*, 1998).

8. In the United States, states are somewhat smaller geographic entities than Chinese provinces and so a somewhat greater level of migration might be expected than in China, but the stock of inter-state migrants is actually an order of magnitude greater at over 30% (Rosenbloom and Sundstrom, 2004).

Bibliography

Atkinson, A. (1970), "On the Measurement of Inequality", *Journal of Economic Theory*, Vol. 2, No. 3.

Azam, M. and A. Shari (2009), "Changes in Income Inequality in Rural India: Decomposing the Gini by Income Sources", IZA and International Food Policy Research Institute, April.

Bhorat, H., C. van der Westhuizen and T. Jacobs (2009), "Income and Non-Income Inequality in Post-Apartheid South Africa: What are the Drivers and Possible Policy Interventions?", University of Cape Town, *DPRU Working Papers*, No. 09/138.

Brandt, L. and C. Holz (2006), "Spatial Price Differences in China: Estimates and Implications", *Economic Development and Cultural Change*, Vol. 55, No. 1.

Burniaux, J.-M., T.-T. Dang, D. Fore, M. Förster, M. Mira d'Ercole and H. Oxley (1998), "Income Distribution and Poverty in Selected OECD Countries: Annex 2", *OECD Economics Department Working Papers*, No. 189.

Chan, K. and W. Buckingham (2008), "Is China Abolishing the Hukou System?", *The China Quarterly*, No. 195.

Chotikapanich, D., D.S. Prasada Rao and K. Tang (2007), "Estimating Income Inequality in China Using Grouped Data and the Generalized Beta Distribution", *Review of Income and Wealth*, Vol. 53, No. 1.

Cowell, F. (2008), "Inequality: Measurement", *in* Durlauf, S. and L. Blume (ed.), *The New Palgrave Dictionary of Economics*, Palgrave Macmillan, Basingstoke.

He, P., Y. Wang and S. Li (forthcoming), "China's Minimum Living Allowance System", in China Development Foundation (forthcoming).

Herd, R. (2010), "A Pause in the Growth of Inequality in China?", *OECD Economics Department Working Papers*, forthcoming.

Hertel, T. and F. Zhai (2006), "Labor Market Distortions, Rural-Urban Inequality and the Opening of China's Economy", *Economic Modelling*, Vol. 23, No. 1.

Khan, A. and C. Riskin (2005), "China's Household Income and Its Distribution, 1995 and 2002", *The China Quarterly*, No. 182.

Kislitsyna, O. (2008), "Income Inequality in Russia during Transition: How Can It Be Explained?", *Economics Education and Research Consortium Working Paper Series,* No. 03/08.

Li, S. and C. Luo (2007), "Re-estimating the Income Gap Between Urban and Rural Residents in China", *Journal of Peking University*, No. 2 (in Chinese).

Li, S. and Z. Xu (2008), "The Development Trend of Regional Disparity in China", *China Development Review*, Vol. 10, No. 1.

Lin, J. and R. Tao (2002), "Urban and Rural Household Taxation in China: Measurement and Stylized Facts", China Centre for Economic Research, Peking University, Beijing.

Liu, Y., K. Rao, J. Wu and E. Gakidou (2008), "China's Health System Performance", *Lancet*, Vol. 372, No. 9653.

Ministry of Civil Affairs (2009), "Quarterly Statistics of the Civil Affairs in China", *www.mca.gov.cn/article/zwgk/mzyw/200902/20090200026278.shtml*, Beijing.

Monash (2003), *Attracting FDI to Western China*, Monash International Consulting, Monash University, Australia.

National Audit Office (2004), *Execution of the Central Government Budget and other Financial Revenue and Expenditure,* Beijing (in Chinese).

NDRC (2008), *Annual Report on the Distribution of Income of Chinese Residents,* in Chinese, Department of Income Distribution and Employment, National Development and Reform Commission, Beijing.

NDRC (2007), *Report on Pricing Complaints,* Beijing (in Chinese).

OECD (2005), *Economic Survey of China*, OECD, Paris.

Paes de Barros, R. (2007), "The Recent Decline in Income Inequality in Brazil: Magnitude, Determinants and Consequences", IPEA, Presentation Cuidadde Guatemala, July.

Ravallion, M. and S. Chen (2007), "China's (Uneven) Progress Against Poverty", *Journal of Development Economics*, Vol. 82, No. 1.

Rosenbloom, J. and W. Sundstrom (2004), "The Decline and Rise of Interstate Migration in the United States: Evidence from the IPUMS, 1850-1990", *in* A. Field (ed), *Research in Economic History*, Vol. 22, Elsevier.

Shen, J. (2006), "Estimating Urbanization Levels in Chinese Provinces: 1982-2000", *International Statistical Review*, Vol. 74, No. 1.

Sicular T., X. Yue, B. Gustafsson and S. Li (2007), "The Urban-Rural Income Gap and Inequality in China", *Review of Income and Wealth*, Vol. 53, No. 1.

Solinger, D. (2008), "The Urban Dibao: A Minimum Livelihood Guarantee to Guarantee Minimal Commotion", *in* Wu, F. and C. Webster (forthcoming).

Sun Y. (2009), Interview with the vice-director China Youth and Children's Research Centre, Xinhuanet *http://news.xinhuanet.com/english/2009-04/02/content_11117062.htm*.

Suryadarma, D., W. Widyanti, A. Suryahadi and S. Sumarto (2006), "From Access to Income: Regional and Ethnic Inequality in Indonesia", *SMERU Research Institute*, May.

Tao, R. and P. Qin (2007), "How Has Rural Tax Reform Affected Farmers and Local Governance in China?", *China and World Economy,* Vol. 15, No. 3.

UNDP (2008), "Access for All: Basic Public Services for 1.3 Billion People", *China Human Development Report*, 2007/8.

United States Department of Commerce (2000), *The Changing Shape of the Nation's Income Distribution*, Economics and Statistics Administration.

Wang, M. (2007), "Emerging Urban Poverty and Effects of the Dibao Program on Alleviating Poverty in China", *China and World Economy,* Vol. 15, No. 2.

Xu, J. (2008), "Poverty Reduction in China", *mimeo*, China Development Foundation.

Yip, R., J. Chan and N. Chow (2007), "Recent Reforms and Progress in Rural Development in Mainland China", *China Economic Issues, No.* 5/07.

Zhang, W. (2005), "Can the Strategy of Western Development Narrow down China's Regional Disparity", *Asian Economic Papers*, Vol. 3, No. 3.

Zhang, X. and X. Guan (2003), "The State of Welfare", *China Development Brief*, Beijing.