Income inequality in China: Causes and Policy Responses

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Abstract: The phenomenal economic growth in China has been accompanied by a rapid increase in income inequality. This paper reviews the historical trends and patterns of income inequality in China, discusses the potential causes underlying rising income inequality, and applies the functional distribution of income approach in understanding China's income inequality. This analytical approach highlights how rising return to capital relative to wage incomes can be an important source for increasing income inequality in China. The paper provides the evidence which shows that the rapid economic growth in China has been relying on a model that pays high returns to various kinds of capital including financial capital and real estate, while the ownership of capital is very unequal. This finding prompts us to rethink about the causes of China's income inequality and to formulate appropriate policies based on the new way of understanding this pressing issue of income distribution in China.

Key words: income inequality, functional distribution of income, institutional change, China

JEL codes: H53, O15, O17, R11

INTRODUCTION

China has been one of the fastest growing economies in the world since the introduction of its reform policies in the late 1970s. Its per capita GDP has grown at an average rate of around 9 percent for almost three decades. However, this phenomenal economic growth has been accompanied by a rapid increase in income inequality. Although estimates of Gini coefficients vary substantially with respect to sources of data, geographic coverage of surveys and length of time periods, a general consensus from the existing studies is that China's income inequality has risen markedly since 1978 (as shown in Annex Table A1). As shown in Figure 1, according to one source, China's Gini coefficient increased from about 0.310 in 1981 to 0.491 in 2008 before declining marginally to 0.474 in 2012[3]. According to the China Household and Income Project (CHIP), in 1988 the share of income of Chinese households in the highest ten percent, ranked by household income, was 7.3 times the share of income of

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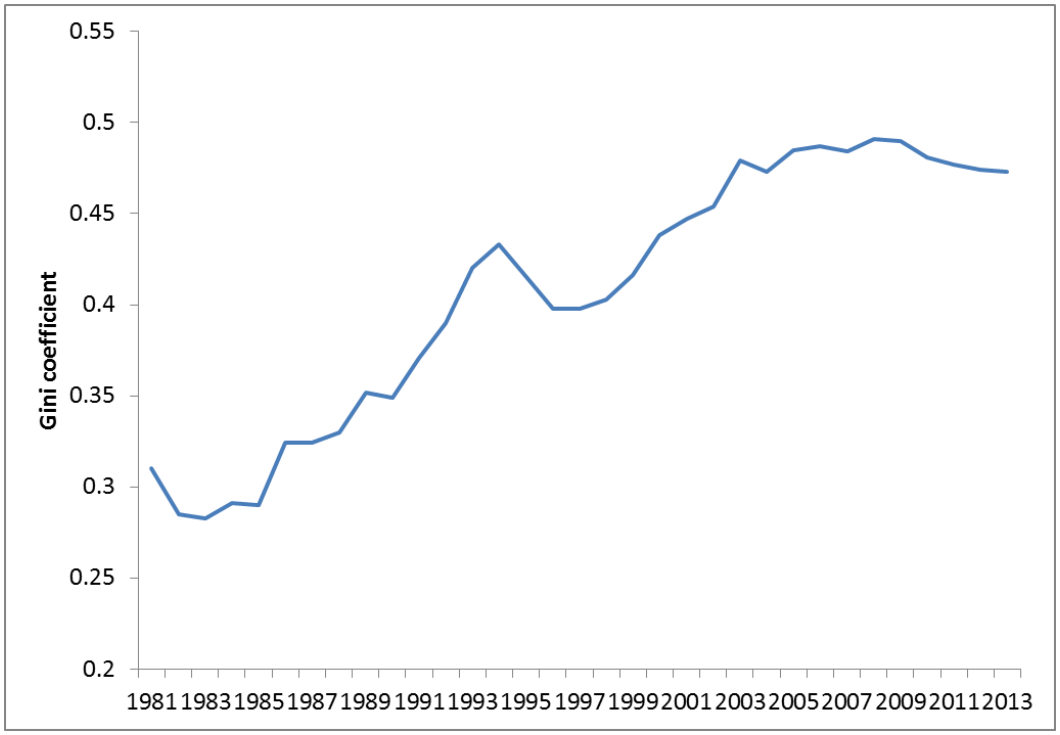
[3] The Gini coefficient is often used to measure income inequality. Its value ranges from zero (perfect equality) to one (perfect inequality).

households in the lowest 10 percent. This ratio rose to 19 in 2002, indicating a much larger income gap between the richest and the poorest over this period.

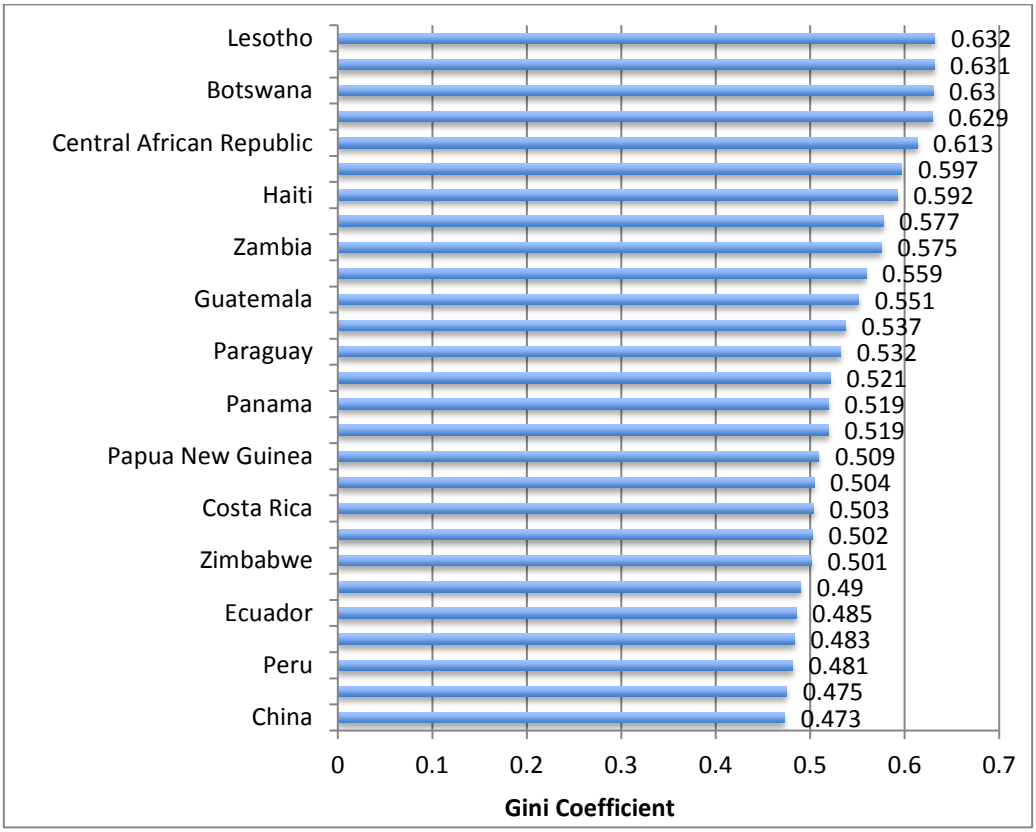
The rapid increase in income inequality has put China among the most unequal countries in Asia and indeed the world. China is now one of the least equal 25 percent of countries worldwide, a group to which very few Asian countries belong (Sicular, 2014) (Annex Tables 2 and 3). With a Gini coefficient approaching 0.5, China's level of income inequality is similar to that of several high-inequality Latin American countries (Sicular 2013) (Figure 2). This shows that income inequality does become an economic, political and social problem for China. The purposes of this paper are therefore to try to identify the fundamental causes for the rising income inequality in China in the process of economic transition through reviews of the key literature, and discuss some policy implications for confronting the challenge of narrowing income inequality for achieving more sustainable growth and social stability in China.

Figure 1: Income Inequality in China, 1981-2013



Source: Gini coefficients for the years 1981–2001 are from Ravallion and Chen (2007), 2002 from WIID, 2003–2012 from the National Bureau of Statistics. Please refer to Annex Table A1 for data.

Figure 2: Ranking of countries by Gini coefficient, 2014



Source: CIA World Factbook accessed in October 2014.

Note: The coefficients of different countries are calculated for different years. For detailed information, see: https://www.cia.gov/library/publications/the-world-factbook/rankorder/2172rank.html

CAUSES OF RISING INCOME INEQUALITY

Income inequality rises along with the increase in national income and may fall after a country reaches a certain level of income on per capita terms. This pattern of changes in inequality in relation to changes in income is commonly referred to as the inverted Kuznets U-curve (Kuznets 1955). The Kuznets hypothesis implies that there is a causal relationship running from economic or income growth to income inequality. In other words, with the prospect of continuingly increasing national income associated with institutional and policy changes countries will eventually solve the problem of inequality. However, in reality, patterns of income inequality have been persistent for all kinds of countries both developing and developed ones. Potential causes for this phenomenon can be much complex involving factors such as differences in levels of development, the pattern of structural changes, both political and economic institutions, social norms and cultural factors and geography. It is

even more so for China as the country is not only a developing country but also a transition economy. A transition economy emphasises economic incentives but lacks of market means for allocating resources, and the redistribution function for the government. In addition, there are various kinds of loopholes in its institutions in transition which are the causes for the so-called 'grey income' and rampant corruptions (Wang and Woo 2011).

In this paper, we will discuss income inequality issues in China both by size distribution of income and by the functional distribution of income. The formal examines how the income shares of particular deciles change and whether Gini coefficients exhibit greater or lesser inequality over time; and the latter divides income according to its sources such as labour, land and capital, namely the division of national product between wages and profits (Fields, 1980). Approaching income inequality by applying the functional distribution analysis has become more popular after the publication of *Capital in the Twenty-First Century* by Piketty (2014).

As the data shows later on in this paper, the inequality of income distribution from the functional distribution has become one of the most important sources for the rising income inequality in China especially between returns to capital and wages.

A call for more equal distribution of income also raises an important question as to how equal the distribution system can be. A related conceptual issue is whether there is a trade-off between efficiency and equity. In other words, whether achieving a goal of efficiency will lead to rising inequity; or whether dealing with inequality will compromise efficiency which in turn will affect governments' capacity for income redistribution. The formal is obvious from the Chinese experience, but the latter is not that straightforward in that there are social and ethical considerations involved apart from economic ones. There is much evidence which shows that over-emphasising income equality at the expenses of incentives and efficiency could compromise growth leading to the phenomenon of 'the middle income trap'. As Piketty quoted Charles Dunoyer (1845) as saying, "Reduce everything to equality and you will bring everything to a standstill" (p. 85). Finding a right balance between efficiency and equity is one of the most challenging tasks for China's economic reform and public policy at the present.

We now summarise those main sources of income inequality in China in turn.

The urban-rural income gap

The income gap between urban and rural households in China is one of the largest in the world. The share of the urban-rural income gap in total income inequality increased by 10 percentage points over the period 1995-2007, rising from 38 percent to 48 percent (Li and Zhao, 2011). In other words, by 2007, according to official statistics, almost half of all inequality in China was due to the urban-rural income gap.

Figure 3 shows the growing gap between urban and rural residents as recorded by official statistics. In the early 1980s, the urban-rural income gap contracted. In 1978, the Chinese government introduced a number of agricultural reform policies, including lifting agricultural prices and the replacement of collective farming by the household responsibility system. These policies led to the subsequent rapid growth of rural residents' incomes. Between 1978 and 1983, the ratio of per capita net income[4] of rural households to per capita disposable income of urban households was reduced from 2.5 to 1.8, the lowest level over the past four decades. Since then the ratio has increased in most years and peaked out to 3.3 in 2006-2009, though it has fallen slightly in recent years.

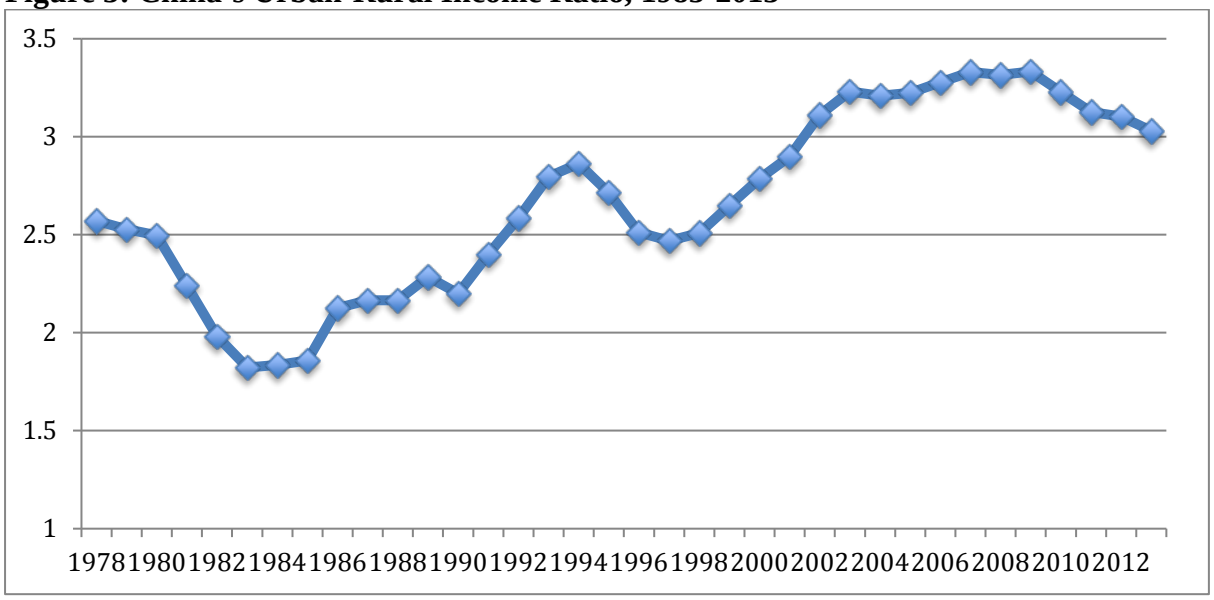
The high urban-rural income gap naturally translates into differences in the ownership of durable goods such as washing machines, fridges and computers, all considered essential household goods in developed countries (Annex Table A4). The growing gap between urban and rural income is the result of very rapid growth in urban incomes. Between 2002 and 2007, for example, rural incomes grew at an average annual rate of more than 7 percent, but urban incomes grew at 11 percent (in constant prices) (Sicular 2013).

Industrial productivity is typically much higher than rural productivity because industrial sectors are increasing return activities. This explains why urban incomes are above rural in many countries. In China, constraints on migration limit the extent to which rural residents can move to urban areas in search of higher incomes and thereby reduce or close the urban-income gap. China's household registration or *hukou* system registers every household as either rural or urban. There has been limited growth in urban *hukou* numbers. Households without urban *hukou* face low access to public services such as education and health care and, if they migrate, generally take lower-paying jobs. This restricts rural-urban migration.

[4] According to the explanation in China's statistical yearbooks, net incomes of rural households refers to the total income of rural households from all sources minus all corresponding expenses, including household operation expenses, agricultural taxes and fees, depreciation of fixed assets for production and gifts to rural relatives. It is mainly used as input for reinvestment in production and as consumption expenditure for the year, and also used for savings and non-compulsory expenses of various forms.

Despite the progress of urbanization which saw urbanization ratio, defined as the ratio of urban population to the total population, rose from about 20 percent in the late 1970s to 54 per cent in 2015, various kinds of institutional and social barriers have still hampered the process of migration from rural to urban areas. Overcoming these barriers through institutional reform will ripe further gains in productivities for both rural and urban areas because of the 'resource shift effects' which are the impact of shifting resources from low productivity area to high productivity area.

Figure 3: China's Urban-Rural Income Ratio, 1985-2013



Source: National Bureau of Statistics China.
Note: The urban-rural income ratio is calculated as the ratio between urban per capita disposable income and rural per capita net income.

The special arrangements governing Chinese land may also act as a constraint on migration. In China, farm households only have land-use rights, not the right to sell their land. Farmers, if they decide to permanently leave agriculture, must give up their land to local authorities (Yang, 1999). This increases the costs for farmers migrating to cities. Importantly, the slow progress in marketizing rural land including both arable land and rural residential land has left farmers with very thin asset base, which is in a sharp contrast to urban land which witnessed tremendous increases in values in reform period. This point will be echoed when we discuss later in the paper the functional distribution of income by which increases in return to capital are much higher than those for wages.

Despite these barriers, migration from rural to urban areas is extensive. The stock of rural-urban migrants increased rapidly from less than five million in 1978 to more than 250 million

now, accounting for 15 percent of the total population. Most of these migrants are still registered as rural households (because they are registered as such), even though they live in urban areas. As argued by Xue and Gao (2012), this means that China's urban-rural income gap, calculated using the official statistics, is overestimated. The official household surveys are based on urban and rural residence registration (*hukou*), and so exclude most rural-urban migrants (Knight, 2013). Hence, incomes of rural migrants are included in neither the official rural nor urban household surveys (except to the extent that their remittances are reported by the receiving rural household). This distorts the measurement of the urban-rural income gap. The study by Xue and Gao (2012) takes the provinces of Zhejiang and Shaanxi as examples and estimates that the urban-rural income gap is overestimated by 41 percent.

Even if the urban-rural income gap is overestimated, and whether or not it has been increasing, it would seem to be high by international standards. In any case, it is at best one part of the story of increasing inequality in China. Both rural and urban inequality show an upward trend since 1978 (Xue, 2012). Other factors that might explain these increases are examined in the sections below.

Inequality and economic reform

From one perspective, it is hardly surprising that income inequality has grown in China. As reforms introduced since 1979 shifted China from a centrally planned system towards a market economy, a series of changes inevitably caused income inequality to rise. Wages started to better reflect the market demand for labor and value of education and skills. As opportunities arose, more enterprising or simply luckier individuals became entrepreneurs and made huge earnings as the economy was liberalized.

An example of the impact of reform on inequality is that the rural Gini coefficient increased from below 0.25 in the 1980s to above 0.30 in the mid-1990s. Rising rural inequality during this period was associated with the uneven development of rural township and village enterprises (TVEs) across regions and provinces, which itself was a result of the green light being given to the creation and growth of such enterprises in the 1980s.

Urban inequality has likely also been affected by economic reforms. A state-sector restructuring program was launched after the Chinese Communist Party's Congress in 1997 to shut down loss-making state-owned enterprises (SOEs), corporatize large state-owned enterprises (SOEs), restructure small SOEs, and de-link the provision of social services from SOEs. The 1977 Congress also recognized private enterprises as an important component of

the economy. Consequently, the urban labor market has experienced unprecedented growth in unemployment (40 million workers from the state-owned sector were laid off between 1996 and 2002) and reallocation of labor from the state sector to the private sector.

Economic reform in China is still incomplete and, as in any economy, some sectors are more competitive than others. One finding from the literature is that wage income in monopolistic industries is higher than in competitive industries in China. Yue, Li and Sicular (2011) divide sectors into those that are monopolistic (e.g. electricity) and those that are competitive (e.g. textiles). They find that this division accounts for 8.2 percent of the total income gap among workers, and that only differences in education are a more important source of inequality.

Education

China's human capital has experienced remarkable growth over the period of reform. The illiteracy rate of the Chinese population fell from 33.6 percent in 1982 to 4.9 percent in 2013[5]. The number of regular senior secondary school graduates increased from 6.83 million to 7.99 million over 1978-2013, while the number of regular undergraduate and college graduates rose from 0.17 million to 6.25 million (NBS, 2014; UNESCO, 2013; Wei and Hao, 2011). Education plays an increasingly important role in determining income distribution, with widening income gaps between individuals with different educational backgrounds due to skill-biased technological change and China's deeper engagement in global markets. According to Li and Zhao (2011), the returns to education have been increasing. Compared to those with lower levels of education (junior high school and below), graduates from senior high school, technical school and college earned 4 percent, 7 percent, and 14 percent more respectively in 1998. By 2009, these premia increased to 18 percent, 32 percent, and 61 percent, respectively (Meng et al., 2013).

An interesting perspective is to examine the extent to which wage premia are growing due to increasing returns to skills or, in fact, discrimination. Knight and Song (2007) found that the increase in wage premia was partly due to new and growing forms of discrimination. Knight and Yueh (2008) identified the ongoing importance of social connections in wage determination, despite strengthening of market forces. For example, rural-urban migrants lacking urban *hukou* could be treated as second-class citizens in cities and placed on an unequal footing in the job market. (Annex Table A5 presents the wage disparity between

[5] The illiteracy rate in 1982 is reported by The Central People's Government of People's Republic of China at http://www.gov.cn/test/2011-10/31/content_29930.htm.

migrant workers and urban workers.) These migrants are less qualified, but Knight and Yueh (2008) argue that the difference in their expected wages is due not only to differences in qualifications, but also differences in connectedness.

There is a great disparity in the quantity and quality of education that urban and rural children receive. There is also a gap in the educational attainment of the children of migrant workers and the children of urban residents (Golley and Kong, 2013). The transmission of education from one generation of a household to another is a powerful phenomenon in reform-era China and has become stronger in recent years. It tends to reproduce educational inequality, and thus income inequality, over the generations (Knight et al. 2013).

Inequality of wealth

The empirical evidence around asset inequality is mixed. Ward (2013) constructs and compares three distinct measures of household asset wealth that complement traditional income- or expenditure-based measures of socioeconomic status. Ward finds that asset wealth inequality has actually been declining throughout China since at least 2000, in both urban and rural areas. In contrast, Sicular (2013, p. 3) argues that private property is a new source of inequality in China:

> *"During the Maoist era, private property was prohibited. In the 1980s, tentative steps were taken to allow private ownership of some forms of property such as livestock, vehicles, and equipment used for family businesses. In the 1990s, new policies opened the way for private ownership of a wider range of assets and on a larger scale. This included the private ownership of urban housing, which began in the 1990s and was basically completed by 2005. Other complementary policy measures promoted the development of urban real estate markets for both residential and commercial property. It was during this time that the government began to foster the development of domestic financial markets and stock markets, and allowed the emergence of private businesses*."

Private property generates income for households through interest earnings, dividends, rents, and capital gains. Sicular (2013) reports that, based on calculations using CHIP data, asset income contributed to 8–10 percent of national income inequality in 2002, and 13–19 percent in 2007.

Annex Table A6 presents more detail on the composition and growth of urban household income per capita from 1995 to 2007. Krever and Zhang (2011) report that, of all sources,

property income has been the main factor causing the most unequal income distribution.

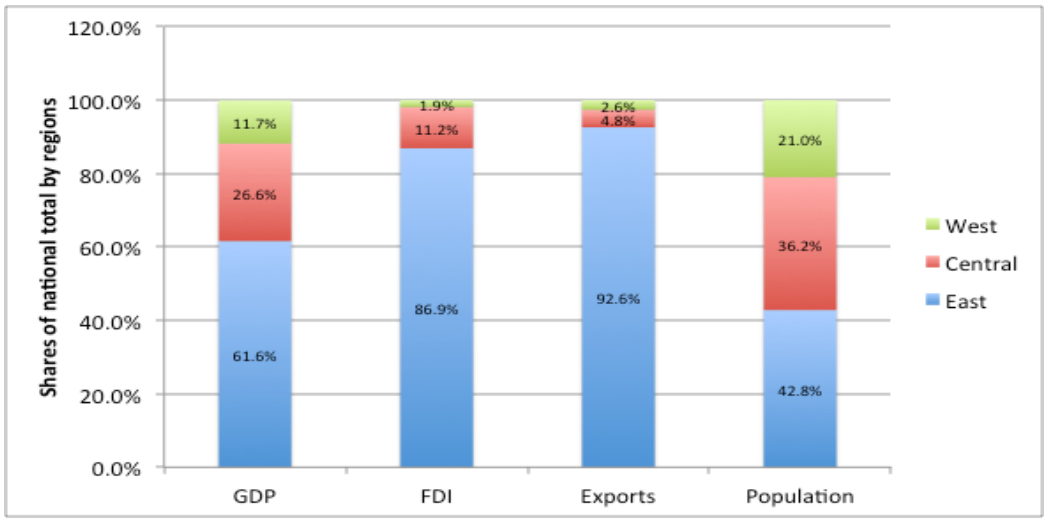
Regional inequality

The regional dimensions of inequality are significant in a country as large as China. China displays enormous spatial disparities in economic activities, natural resource endowments, local market institutions, local government policies and other determinants of income levels and economic growth (Zhang and Zou, 2012; Wei, 2007). In 2010, Shanghai's average urban disposable income of 31,383 Yuan was more than twice as high as that of Guizhou (14,142 Yuan). Similar gaps occur in social indicators, such as mortality and literacy rates. For instance, in 2010, China's most developed regions, such as Shanghai and Beijing, would rank within the top 40 nations in the world in terms of the Human Development Index (HDI, a composite measure of development involving health, education and income). By contrast, the least developed regions, such as Guizhou and Tibet, would rank at about 130 in the world (UNDP, 2013a; UNDP, 2013b).

According to Hao and Wei (2010), income inequality between inland and coastal regions grew rapidly throughout the 1980s. They find that inland-coastal inequality accounted for more than 60 percent of income inequality across Chinese provinces in 2000, making it the largest contributor to China's intra-provincial inequality.

Studies suggest that the rise in regional inequality can be attributed to trade liberalization and fiscal decentralization (Kanbur and Zhang, 2005; Fan et al. 2011). Trade liberalization in China was initiated in the 1980s via the Coastal Development Strategy and was reinforced after Deng Xiaoping's Southern Tour in 1992. This strategy was guided by Deng's famous quote – "*let some people get rich first*" – which in turn conveyed the implicit understanding that others will get rich later. Opening to trade enabled the coastal provinces to exploit their geographic advantages as well as preferential treatment from the central government (e.g. creation of export processing zones). Coastal provinces thereby attracted disproportionately high shares of foreign direct investment (FDI) and trade as shown in Figure 4. In particular, Guangdong province alone accounted for 35.1 percent of China's total trade and 37.5 percent of total FDI in 1979-1990, while the share of all inland provinces was only 14.1 percent and 18.0 percent respectively. In 1991-2004, 91.2 percent of trade and 84.7 percent of FDI were accommodated in coastal provinces (Wei and Hao, 2010; Fujita and Hu, 2001).

Figure 4: Regional inequality in GDP, FDI and exports in China (2006)



Source: Sutherland and Yao (2011)

Fiscal decentralization may have also increased regional inequality because, with reforms, provinces were forced to be more reliant on their own revenue sources. Coastal provinces tend to have a broader non-agricultural tax base, whereas governments in inland provinces have to tax their few industrial enterprises heavily to generate revenues. This leads inland regions to a vicious cycle of insufficient revenue and a heavier fiscal burden (Zhang, 2006; Hao and Wei, 2010).

While many studies have found a considerable increase in China's regional income inequality since the beginning of the country's economic reforms, Li and Gibson (2013) point out that studies of regional income inequality have commonly ignored the fact that China's provincial GDP per capita data has been based on household registration (*hukou*) rather than residence. If this issue is not properly taken into account, calculating provincial GDP per capita will be understated in migrant-sender provinces and overstated in migrant-receiver provinces, and this in turn will artificially inflate inter-province income inequality. With, as noted earlier, nearly 200 million rural migrants in urban areas without urban *hukou*, the accuracy of inter-provincial income inequality computed from provincial GDP per capita is significantly reduced.

After carefully addressing this issue, Li and Gibson (2013) conclude that Chinese economic reform does *not* appear to have been associated with rising regional income inequality after all. Li and Gibson (2012) conclude that regional inequality in terms of GDP declined almost continuously during 1978 and 1990. About one-third of this decline was reversed over the

next three years in the early 1990s. Regional inequality fluctuated thereafter and by 2010, the measure was back at the low levels previously seen in 1990 (Li and Gibson 2013).

Thus the extent of any rise in regional inequality, and indeed whether there has been a significant increase at all, remains an open issue.

Corruption and grey income

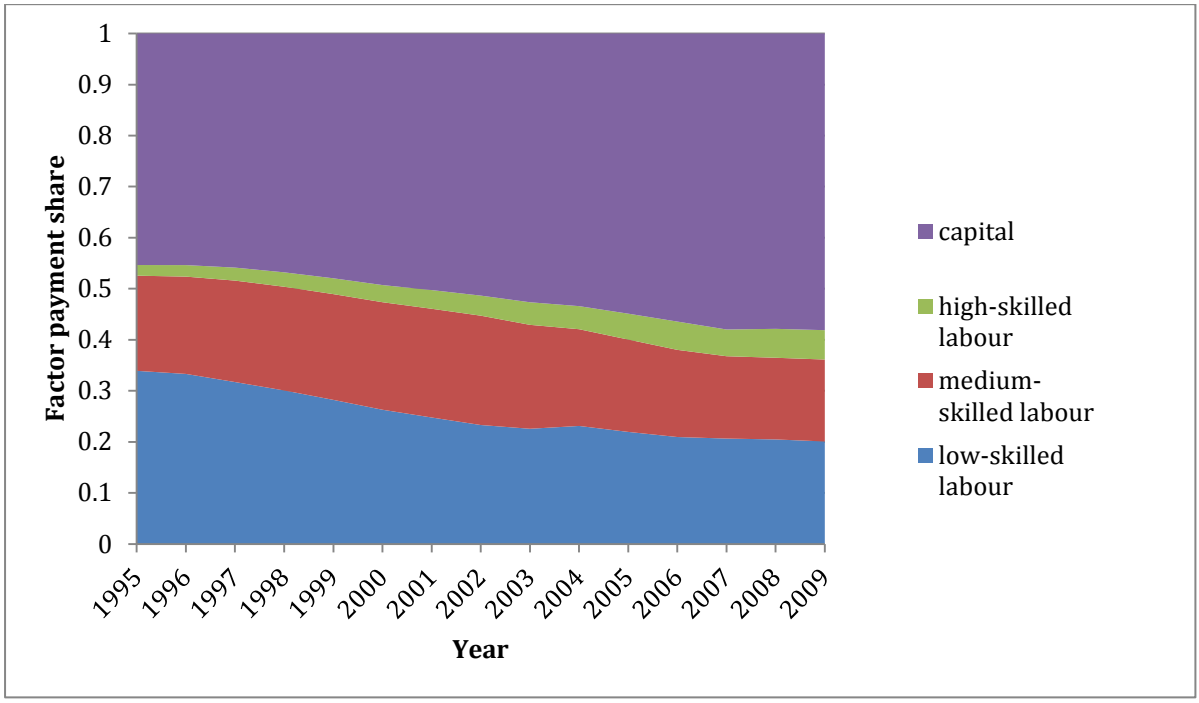
Corruption is clearly a problem in China. The World Bank's Worldwide Governance Indicators ranked China 148th on "control of corruption" and 220th on "voice and accountability" out of 235 countries in 2009 (Knight, 2013). The prevalence of corruption likely influences both underlying inequality and measured inequality, since "grey income" (for example, the collection by some officials of huge amounts of money at the weddings of their children and relatives) is likely to be both unequally distributed and underreported. Based on the urban household income and expenditure data collected by their own surveys, Wang and Woo (2011) use an ingenious method (the relationship between the share of expenditure sent on food and income level) to estimate the "grey income" of the Chinese households. Wang and Woo find that the ratio of the estimated income to official income increased from 1.12 for the lowest income group to 3.19 for the highest income group. Total household disposable income in 2008 is 14.0 trillion Yuan according to the official data but 23.2 trillion Yuan according to their estimates. 63 percent of the unreported income belonged to the wealthiest 10 percent of urban households. Using this measure, the income of the wealthiest 10 percent of Chinese households is 65 times that of the poorest 10 percent, instead of the 23 times reported in the official data (Wang and Woo 2011).

Functional distribution of income: Evidence from China and the United States

The fundamental cause for the rising income inequality globally according to Piketty is that the return to capital has been persistently higher than the growth rate of the economy leading to an increasing share of capital and decreasing share of wages in national income. The functional distribution of income can also be found in China over the transition period. Figure 5 shows the factor payment shares for capital, high-skilled, medium-skilled and low-skilled labor in total national income in China. The data are drawn from the World Input-Output Database (WIOD), which contains the socio-economic accounts for 40 major countries taking up around 80 percent of the global output value. In these accounts, data on hours worked by and compensation for three types of labour (high-skill, medium-skill and low-skill) and compensation for capital inputs and capital stock are reported. Since capital compensation is

derived from gross value added minus labour compensation, capital compensation is thus the remuneration for all kinds of capital (such as R&D, software, database development, branding and organizational capital), mineral resources, land and financial capital (Timmer, ed., 2012).

Figure 5: Factor payment shares in China, 1995-2009



Source: Authors' calculation based on the data from the World Input-Output Database (WIOD).

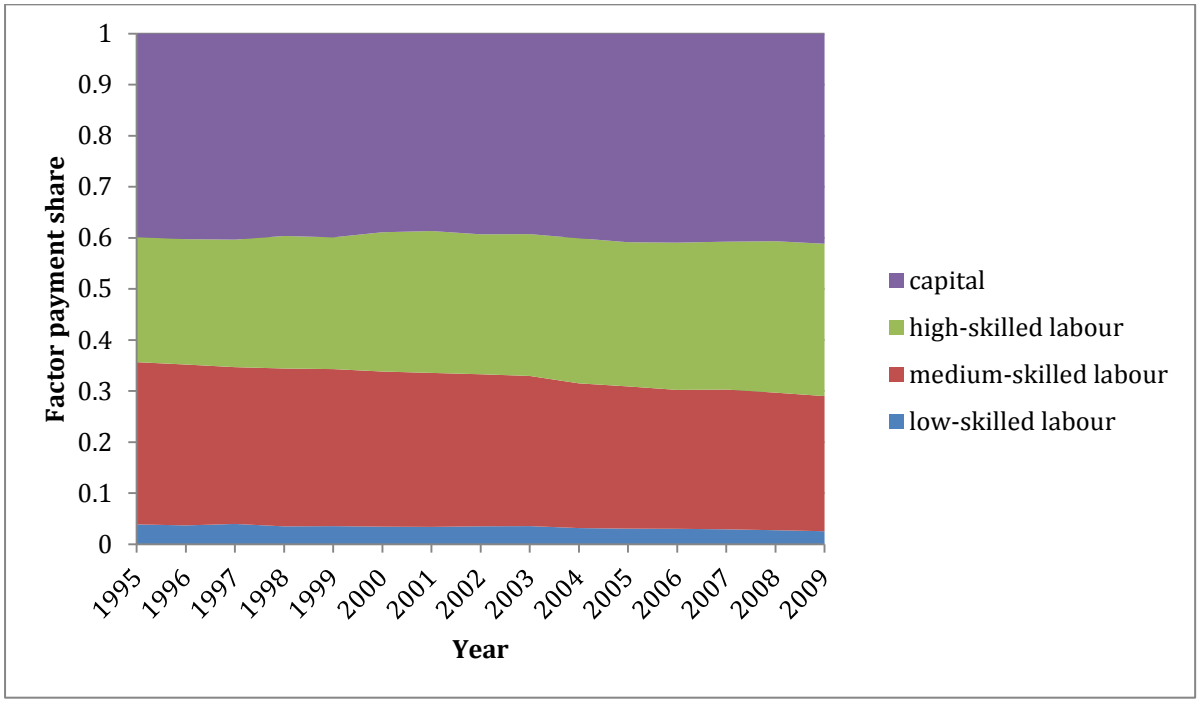
Figure 5 shows that capital share in national income in China has clearly demonstrated the trend of increasing over the period under study while the share for low-skilled labor are falling over the same period. This finding is consistent with the findings found by Piketty (2014) for many other countries showing the functional distribution of income in favor of capital owners at the expenses of low-skilled (and to some extent medium-skilled labor) is indeed an important source of the rising income inequality in China. This raises an important question as to whether China should consider adopting a progressive annual tax on capital as proposed by Piketty as an effective way of bringing its high income inequality down.

The figure also shows that the share for high-skilled labor even though relatively small in the total income is increasing over time. One implication is that human capital formation in terms of producing more high-skilled workers could be the only factor which increases its factor payment shares in total income balancing the rising of capital shares in total income.

But at the same time, the rising share of high-skilled labor may itself be a source of rising income inequality as compared with the falling shares for both medium and low-skilled labor. This is indeed the case for the United States (Figure 6) which shows that the factor shares for high-skill labor are steadily increasing along with the increase in capital shares while the income shares for medium-skilled continued to fall with low-skilled labor accounting for a very low share of income.

This may suggest that increasing human skills through education or training could be unambiguous in influencing income inequality. For example, the expansion of the shares of high-skilled labor in the United States didn't do much in reducing income inequality. On the contrary, it may help with raising the degree of income inequality there which has been getting worse (Stiglitz 2012). For China, there may be a huge potential as compared with the United States to further increase its human capital formation which will be crucial for the task of economic rebalancing towards an innovative country. At the same time, there is need to explore further the link between human capital formation and income inequality.

Figure 6: Factor payment shares in the United States, 1995-2009



Source: Authors' calculation based on the data from the World Input-Output Database (WIOD).

To further compare Figures 5 and 6, we can also see that the expansion of capital income share in total income is more rapid in China than in the United States over the same period

possibly due to the transitional nature of the Chinese economy as mentioned earlier in the paper. This observation also means that if the trend continues the functional distribution of income as a source of income inequality in China will become more entrenched and difficult to tackle. This the context by which we discuss the policy responses to the rising income inequality below.

POLICY RESPONSES TO INCOME INEQUALITY

In the early stages of the economic reform process, inequality was not viewed as a problem, but rather, under the "*let some people get rich first*" policy, a necessary ingredient for success. However, with incomes rising continuously (and indeed spectacularly) over time, the Chinese leadership has come to be less sanguine about rising inequality. More generally, the leadership has started to stress the goal of "harmony" or having a "harmonious" society. Rising inequality is seen as a threat to the achievement of this goal, and a precursor to social instability.

In 2013, the Chinese government released its Income Distribution Plan, also known as the "35 Point Plan". The plan acknowledges that "the urban-rural gap and the difference in citizen's income is relatively large, income is irregularly distributed, there are obvious problems of grey income and illegal income, and some of the masses live in difficult conditions" (Salidjanova, 2013). Its key measures include "boosting minimum wages to at least 40 percent of average salaries, loosening controls on lending and deposit rates, and increasing spending on education and affordable housing, … a requirement that state-owned enterprises (SOEs) should contribute more of their profits to the effort of reducing inequality, and a commitment to push through market oriented interest rate reforms to give savers a better return and more security" (Salidjanova, 2013).

This section presents a number of policy measures undertaken by the Chinese government, through the 35-point plan and other initiatives, to address income inequality.

Regional development policies

As discussed earlier, during the 1980s and 1990s, the Chinese government adopted preferential policies for the coastal regions, for example by establishing export processing zones along the coastal regions. This potentially increased income inequality between regions. Since the late 1990s, Chinese leaders have been increasingly concerned that the poorer western region is being left behind. The Great Western Development (GWD) strategy adopted in 1999 targeted 12 provinces and autonomous regions in the central and western

parts of China. The GWD, which is still in force, provides some preferential policies to the western region through special taxation rates, land use rights, foreign investment and favourable bank loans, huge fiscal transfers, transportation and other infrastructure investment, ecological protection (such as reforestation), and the provision of public services in areas such as education, health and social welfare. To address the development gap between the central and eastern regions, in 2003, the Chinese government began to implement the North-East Revival Strategy. In recent years, it has enacted the Rise of Central China program. Through all these development programs, large volumes of state funds have been invested in infrastructure, energy, environment and resources projects in the western and central regions to help them catch up with the eastern region.

Minimum wage policy and urban income inequality

Minimum wage regulations were first introduced in urban China in the late 1990s, but only started to be used actively to combat income inequality several years later. Today, the minimum wage is regarded as an important public policy tool to reduce poverty and income inequality. In 2004, the government introduced a new minimum wage law, which ensured the application of minimum wages to state-owned and private enterprises, and to employees in self-employed businesses. The new law also required local governments to renew the minimum wage standards at least once every two years, increased penalties for violations, and placed tighter restrictions on what could be included when calculating wages (e.g. ruling out the inclusion of overtime and canteen and traveling supplements). The new law led to frequent and substantial increases in minimum wages in subsequent years (Fang and Lin 2013).

Lin and Yun (2014) use a large set of panel data at the county level that contains relevant information on minimum wages, combined with a longitudinal household survey of 16 representative provinces, to estimate the distributional effect of minimum wage changes in China over the 2002 to 2009 period. They find that minimum wage changes significantly helped reduce the total income gap at the bottom end of the income distribution. They further decomposed the total change in China's income distribution and found that minimum wage changes contributed substantially to reducing the income gap at the bottom end of the distribution, especially in the post-2004 period. Likewise, the results for Gini coefficients and the variance also suggest that improvements to the minimum wage helped reduce income inequality in all periods of their analysis. Some other studies on the impact of minimum wages on inequality are less optimistic. First, there is the problem that minimum wage

regulations may cause job losses for low-wage workers. Fang and Lin (2013) use the same panel data as used in Lin and Yuan (2014) but focus on the period 2004-2009. They find that minimum wage changes have significant negative effects on employment in the eastern and central regions of China, and resulted in job loss for urban workers at the bottom end of the wage distribution, especially for females, young adults and low-skilled workers. Second, there is incomplete coverage and enforcement of minimum wage regulations, especially in the informal sector, which employs a large share of low-income workers (Ngok, 2008).

Reforms to increase rural incomes

To raise rural incomes and alleviate rural-urban income inequality, the central government announced the decision to abolish the agricultural tax and prohibit the collection of fees by local governments in 2006. Annex Table A7 shows the changes in the burden of taxes (including fees) from 1988 to 2007. The average tax rate was 5 percent in 1988 and 5.3 percent in 1995. A pilot reform of agricultural taxation was launched in 2000. In 2002, the average tax rate dropped to 2.8 per cent. When the agricultural tax was abolished nationwide in 2007, the average tax burden on farmers dropped to 0.3 percent. Luo and Sicular (2011) find that abolition of agricultural taxes and fees has had a positive impact on poverty, but that the impact on rural inequality has been small since agricultural tax has never played a significant role in determining rural inequality. The policy may have had a positive impact on national inequality through reducing the urban-rural income gap.

The central government's program to Build a New Socialist Countryside, a new policy approach to rural development, was officially promulgated in March 2006. This initiative requires local governments to promote comprehensive rural development, including infrastructural and agricultural modernization linked to ecological sustainability, and the provision of public goods such as social welfare and basic education. It aims to achieve a comprehensive transformation of the Chinese countryside through the consolidation of rural population centres and the spread of commercialized agriculture (Ahler and Schubert, 2009). Drawing on fieldwork conducted in two Chinese counties in 2008 and 2009, Ahlers and Schubert (2009) provide a positive evaluation of the implementation of this policy. These policy changes with associated reform measures contributed to the relatively high growth of rural incomes in recent years.

Social welfare policies

A policy to alleviate both urban and rural income inequality is the minimum living standard program (*dibao*) (Annex Table A8). This was piloted in Shanghai in 1993. By 2003, the number of urban beneficiaries had reached 22.5 million; since then, the number of participants has fluctuated roughly around this level. According to the Ministry of Civil Affairs, the main *dibao* beneficiaries in urban areas are the unemployed, the elderly without pensions, and children. In 2009, these three groups accounted for more than 70 percent of all recipients. In recent years, *dibao* thresholds and benefits have been raised. China's rural *dibao* program was established later than the urban program and did not extend to all rural areas until 2007. During 2006-2010, the country started providing the social pension system to rural aged people over 60. By 2011, 85.3 million were in receipt of the pension (Li, 2013). The implementation of *dibao* is a first step in the creation of a social safety net in China.

Reform of the taxation system

A progressive income taxation requires high-income people to pay a higher rate of tax than low-income people. China also needs to consider adopting and improving various kinds of capital tax in responding to the rising share of capital in total national income. This policy instrument becomes more pertinent given the evidence that the functional distribution of income has increasingly become a source of income inequality as identified in this paper. With the introduction of market reforms, the government realized it would no longer be able to rely on state-sector wages to provide implicit taxation. China introduced an individual income taxation system in 1980. At the beginning, the threshold was set so high that virtually no one had to pay income taxes. China's income tax law has changed very little since its creation, but exemption thresholds have been reduced to make more of the population subject to income tax (Piketty and Qian, 2009). Piketty and Qian (2009) find that the fraction of the population in China subject to income tax has increased from less than 0.1 percent in 1986 to about 15-20 percent in 2008. They show that income tax revenues in China have increased rapidly from less than 0.1 percent of GDP in 1986 to over 1.5 percent in 2005, and 2.5 percent in 2008.

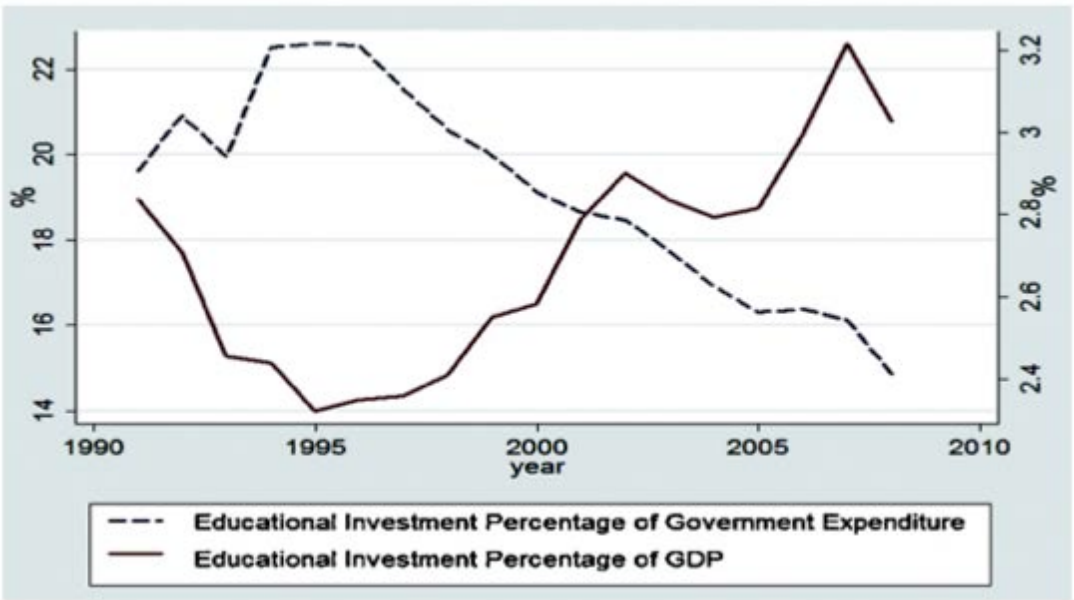
To what extent does personal income taxation affect income inequality? According to Knight (2013), despite reforms direct taxation is still low and has little effect on urban income inequality in China. In 2008, personal income tax represented less than 0.01 percent of the household income of those in the lowest income decile, 0.12 percent in the sixth decile, and

2.1 percent in the highest decile. Knight (2013) suggests that other types of taxes could be adopted to deal with income inequality. For instance, property taxes could be used to adjust for inequality in income from assets.

Policies to improve the equality of education

China has made significant progress in the expansion of education. Average years of schooling increased from 6.79 years in 1996 to 8.28 years in 2008. Today, nine years of education is compulsory and virtually universal. A series of government policies have been adopted to promote equalization of education (Yang et al. 2014). For example, in order to help poor families overcome the financial barriers to access to compulsory education in rural areas, all fees for compulsory education in rural areas in western China were abolished in 2006. This policy was extended to central and eastern China in 2007. Despite these efforts, education inequality in terms of rural-urban divides, gender gaps, regional differentials, and social stratification has continued to be a serious social concern. Despite rapid education expansion, high-quality educational opportunities are still scarce in China. When income inequality is high, it could be difficult for poorer families to receive an adequate share of the available high-quality education resources. This can further aggravate income inequality, forming a vicious cycle (Knight et al. 2009). To address the issue, the Chinese government could increase public education expenditure to help achieve more equal distribution of education resources. Yet spending on education has been falling as a share of government expenditure (Figure 7).

Figure 7: China's educational spending: percentage of government expenditure and GDP



Source: Yang et al. (2014)

Required institutional reform

Institutional reforms hold the key for addressing the balance between efficiency and equity as they provide the mechanisms by which the relative pay-offs for both government sector and the private sector are determined. Without these changes in institutions linking to incentives, the risks are high that public policies aimed at achieving more equitable distribution of income will compromise efficiency which is not conductive for the long-term development. The onging anti-corruption campaign in China will no doubt help reducing wealth and income at top end which is conducive to improved income distribution, but it is also important to design and improve the system of incentives for both the government sector and private sector to boost the efficiency.

Institutional reforms need to be more comprehensive. As argued by Martinez-Bravo et al, (2012), reforms in governance of both of the government and corporations, and the strengthening the rule of law and grassroots democracy will help with reducing income inequality. China is committed to further economic reform especially market-oriented reforms which will lower the entry barriers for private capital to engage with many key sectors of the economy such as the finance, telecommunications, railways and energy sectors which tend to pay much higher salaries than those firms in more competitive sectors. Various kinds of administrative powers will be reduced to enable markets to play a more significant role. As a result, fair competition can be upheld allowing all parties to compete in market places on an equal footing leading to a fairer wage structure in the economy. However, those who have vested interests and benefit from monopoly control may resist these policy shifts. The deepening of market-oriented reforms has become the subject of heated debate as various groups attempt to influence policy directions (Duan and Saich 2014).

Conclusions

It has become increasingly challenging for the Chinese government to tackle the issue of rising income inequality out of the economic, social and political considerations. Identifying those sources and causes of inequality is the first step for accomplishing the task which has been researched by many. For this purpose, the paper reviews some of the key findings in the literature with respect to the main sources of income inequality and discusses some policy implications for narrowing down income inequality in China. These policies include those on regional development, rural development, the social welfare system for low income people,

taxation and education among others highlighting the roles of both institutional changes and policy adjustment.

A new contribution in this study is to provide some empirical evidence showing that the functional distribution of income has indeed become an important source for causing the rising income inequality in China. The rapid economic growth in China has been relying on a model that pays high returns to various kinds of capital including financial capital and real estate, while the ownership of capital is very unequal. This finding prompts us to rethink about the causes of China's income inequality and to formulate appropriate policies such as taxation on capital returns based on the new way of understanding this pressing issue of income distribution in China.

At the same time, policy designs have to take into account the consideration of the possible trade-off between efficiency and equity. The challenge is to maintain efficiency gains while reducing income inequality. This requires the combination of implementing appropriate public policies for addressing equity concerns with adopting further measures for deepening institutional reforms for achieving efficiency gains through improved incentives.

ANNEX:

Table A1: Inter-household inequality for China: Gini estimates (1978-2013)

Year	WDI	Ravallion and Chen (2007)		WIID	CHIP	Lin et al. (2010)		NBS
		Data not adjusted by spatial price index	Data adjusted by spatial price index			Data not adjusted by spatial price index	Data adjusted by spatial price index	
1978	…	…	…	0.317	…	…	…	…
1979	…	…	…	…	…	…	…	…
1980	…	…	…	…	…	…	…	…
1981	0.291	0.310	0.280	…	…	…	…	…
1982	…	0.285	0.259	…	…	…	…	…
1983	…	0.283	0.260	0.284	…	…	…	…
1984	0.277	0.291	0.269	…	…	…	…	…
1985	…	0.290	0.265	0.224	…	…	…	…
1986	…	0.324	0.292	…	…	…	…	…
1987	0.299	0.324	0.289	…	…	…	…	…
1988	…	0.330	0.295	0.382	0.395	…	…	…
1989	…	0.352	0.318	…	…	…	…	…
1990	0.324	0.349	0.316	…	…	0.345	0.287	…
1991	…	0.371	0.331	0.341	…	…	…	…
1992	…	0.390	0.342	…	…	…	…	…
1993	0.355	0.420	0.367	…	…	…	…	…
1994	…	0.433	0.376	…	…	…	…	…
1995	…	0.415	0.365	0.290	0.469	0.397	0.329	…
1996	0.357	0.398	0.351	0.390	…	…	…	…
1997	…	0.398	0.350	…	…	…	…	…
1998	…	0.403	0.354	…	…	…	…	…
1999	0.392	0.416	0.364	…	…	…	…	…
2000	…	0.438	0.385	0.390	…	0.411	0.347	…
2001	…	0.447	0.395	…	…	…	…	…
2002	0.426	…	…	0.454	0.468	…	…	…
2003	…	…	…	0.449	…	…	…	0.479
2004	…	…	…	…	…	…	…	0.473
2005	0.425	…	…	…	…	0.457	0.388	0.485
2006	…	…	…	…	…	…	…	0.487
2007	…	…	…	…	0.497	…	…	0.484
2008	0.426	…	…	…	…	…	…	0.491
2009	0.421	…	…	…	…	…	…	0.490
2010	…	…	…	…	…	…	…	0.481
2011	…	…	…	…	…	…	…	0.477
2012	…	…	…	…	…	…	…	0.474
2013	…	…	…	…	…	…	…	0.473

Source: Wang et al. (2014)

Note: …=data not available, WIID=World Income Inequality Database of UNU-WIDER

Table A2: Income inequality in Asia (2000-2011)

Country	Gini coefficient
Vietnam	0.376
India	0.368
Sri Lanka	0.403
Philippines	0.44
Bangladesh	0.31
Pakistan	0.327
China	0.474

Source: Riskin (2014).

Table A3: The Gini coefficient of income inequality for selected large developing countries (circa 1988 and circa 2007)

Country	Circa 1988	Circa 2007	Change
China (World Bank)	0.30	0.43	0.13
China (CHIP Survey)	0.38	0.49	0.11
Bangladesh	0.29	0.32	0.03
Brazil	0.61	0.56	-0.05
Egypt	0.32	0.31	-0.01
India	0.32	0.33	0.01
Indonesia	0.29	0.34	0.05
Iran	0.44	0.38	-0.06
Nigeria	0.39	0.49	0.10
Pakistan	0.33	0.30	-0.03
Philippines	0.41	0.43	0.02
Russian Federation	0.24	0.43	0.19
South Africa	0.59	0.63	0.04
Thailand	0.44	0.41	-0.03
Turkey	0.44	0.39	-0.05
Vietnam	0.36	0.36	0.00

Source: Knight (2013).

Table A4: Ownership of major durable consumer goods in China

Per 100 households at year-end	Rural household			Urban households		
Item	**1990**	**2000**	**2012**	**1990**	**2000**	**2012**
Washing machine	9.12	28.58	67.22	78.41	90.50	98.02
Refrigerator	1.22	12.31	67.32	42.33	80.10	98.48
Air conditioner		1.32	25.36	0.34	30.80	126.81
Motorcycle	0.89	21.94	62.20	1.94	18.8	20.27
Telephone		26.38	42.24			68.41
Mobile telephone		4.32	197.80		19.5	212.64
Color TV	4.72	48.74	116.90	59.04	116.6	136.07
Camera	0.70	3.12	5.18	19.22	38.4	46.42
Computer		0.47	21.36		9.7	87.03

Source: China's National Bureau of Statistics (2013).

Table A5: Wage disparities between urban workers and migrant workers

Year	Migrants (NBS)		Migrants (MOA)		Local workers		Wage difference
	Nominal	**Real**	**Nominal**	**Real**	**Nominal**	**Real**	**Ratio of local worker to migrant wage (MOA)**
2001	644	644	.	.	903	896.7	1.39
2002	659	665.7	.	.	1031	1041.4	1.56
2003	702	702.8	781	774	1164	1153.6	1.64
2004	780	755.9	802	776.4	1327	1284.6	1.7
2005	861	821.3	855	841.5	1517	1493.1	1.82
2006	946	889	953	938.9	1738	1712.3	1.93
2007	1015[a]	912.8	1060	1014.4	2078	1988.5	2.18

Source: Xue (2013)

Note: 1. "a" is the average monthly earnings for the first three quarters in 2007.

2. MOA refers to Ministry of Agriculture, China.

Table A6: Composition and growth of urban household income per capita (1995, 2002 and 2007)

Income source	Share of income (%)			Average annual growth (constant prices) (%)	
	1995	2002	2007	1995-2002	2002-2007
Employment earnings	66.8	69.0	65.8	6.0	10.2
Pension income	12.7	17.3	19.2	10.1	13.6
Business income	3.5	6.0	10.6	13.3.	24.7
Imputed rents on owner-occupied housing	0.6	3.3	7.1	34.6	29.9
Other asset income	1.4	1.1	1.5	-5.5	18.0
Net transfers and other	15.1	3.3	-4.1	-8.4	-32.9
Total	100.0	100.0	100.1	5.7	11.3

Source: Table 2 in Li and Sicular (2014)

Table A7: Average tax rate (including fees) paid by households in different income per capita groups in rural China

	1988	1995	2002	2007
Average	5.0	5.3	2.8	0.3
Lowest 10%	7.5	13.9	6.2	0.3
Lowest 20%	6.5	12.0	5.4	0.3
Highest 20%	4.1	3.4	1.7	0.3
Highest 10%	3.8	3.0	1.5	0.3

Source: Li and Sicular (2014)

Table A8 Minimum Living Standard Guarantee Program (*Dibao*) (2001-2013)

	Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Rural	People (million)	3.0	4.1	3.7	4.9	8.3	15.9	35.7	43.1	47.6	52.1	53.1	53.4	53.9
	Funds (billion Yuan)							10.91	22.87	36.30	44.50	66.77	71.8	86.69
	Standard (Yuan/month)							70.0	82.3	100.8	117.0	143.2	172.3	202.8
Urban	People (1,000)	11.7	20.6	22.5	22.1	22.3	22.4	22.7	23.3	23.5	23.1	22.8	21.4	21.0
	Funds (billion Yuan)						22.42	27.74	39.34	48.21	52.47	65.99	67.4	75.67
	Standard (Yuan/month)			149.0	152.0	156.0	169.6	182.4	205.3	227.8	251.2	287.6	330.1	373.0

Source: Li (2013), Ministry of Civil Affairs China, and Li and Sicular (2014)

References

Ahlers, A. and Schubert, G. (2009). "'Building a New Socialist Countryside' – Only a Political Slogan?" *Journal Of Current Chinese Affairs*, Vol. 38, No. 4, pp.35-62.

Annual Report on Urban Development of China No.5 (2012). Social Sciences Academic Press (China).

Chi, W., Li, B. and Yu, Q. (2011). "Decomposition of the increase in earnings inequality in urban China: a distributional approach," *China Economic Review*, Vol. 22, Issue 3, pp. 299-312.

Candelaria, C., Daly, M. and Hale, G. (2013), "Persistence of regional inequality in China," *Federal Reserve Bank of San Francisco Working Paper Series*, Working Paper 2013-06.

Demurger, S., Li, S. and Yang, J. (2012). "Earnings differentials between the public and private sectors in China: exploring changes for urban local residents in the 2000s," *China Economic Review*, Vol.23, Issue 1, pp.138-153.

Deng, Q. and Gustafsson, B. (2013). "A new episode of increased urban inequality in China," in Li, S., Sato, H. and Sicular, T. (eds.), *Rising inequality in China: challenge to the harmonious society*, Chapter 7, Cambridge, UK and New York, Cambridge University Press.

Duan, P. and Saich, T. (2014). "Reforming China's Monopolies," *Faculty Research Working Paper Series*, RWP14-023, Harvard Kennedy School.

Fang, T. and Lin, C. (2013). "Minimum Wages and Employment in China," *IZA Discussion Papers* 7813, Institute for the Study of Labor (IZA).

Fields, G. (1980). *Poverty, Inequality and Development*, Cambridge, Cambridge University Press.

Golley, J. and Kong, T. (2013). "Inequality in Intergenerational Mobility of Education in China," *China and World Economy*, Vol. 21, No. 2, pp. 15-37.

Hannum, E.C., Behrman, J., Wang, M. and Liu, J. (2008). "Education in the Reform Era," in Brandt, L. and Rawski, T. (eds), *China's Great Economic Transformation*, Cambridge: Cambridge University Press.

Knight, J. (2013). “Inequality in China: An Overview,” *The World Bank Research Observer*, Vol. 29, Issue 1, pp. 1-19.

Knight, J., Li, S., and Deng, Q. (2009). “Education and the Poverty Trap in Rural China: Setting the trap,” *Oxford Development Studies*, Vol. 37, Issues 4, pp. 311–32.

Knight, J., Sicular, T. and Yue, X. (2013). “Educational inequality in China: The intergenerational dimension,” in Li, S., Sato, H. and Sicular, T. (eds) *Rising Inequality in China: Challenges to the Harmonious Society*, Cambridge and New York: Cambridge University Press.

Knight, J. and Song, L. (2007). “China’s emerging wage structure, 1995-2002,” in Gustafsson, B, Li, S. and Sicular, T. (eds.) *Inequality and Public Policy in China*, Cambridge, UK and New York, Cambridge University Press.

Knight, J. and Yueh, L. (2008). “The role of social capital in the labour market in China,” *Economics of Transition*, Vol. 16, Issue 3, pp. 389-414.

Krever, R. and Zhang, H. (2011). “Progressive income taxation and urban individual income inequality,*” Asia-Pacific Tax Bulletin*, Vol. 17, No. 3, pp. 192-199.

Kuznets, S. (1955). “Economic growth and income inequality”, *American Economic Review*, Vol. 65, Issue 1, pp. 1-28

Li, C. and Gibson, J. (2013). “Rising regional inequality in China: fact or artifact?” *World Development*, Vol. 45, pp. 16-29.

Li, S., Luo, C. and Sicular, T. (2011). “Overview: income inequality and proverty in China, 2002-2007,” *CIBC Centre for Human Capital and Productivity Working Papers* 201110, University of Western Ontario, CIBC Centre for Human Capital and Productivity.

Li, S. and Sicular, T. (2014). “The distribution of household income in China: inequality, poverty and policies,” *The China Quarterly*, Vol. 217, pp.1-41.

Li, S. and Zhao, R. (2011). “Market reform and the widening of the income gap,” *Social Sciences in China*, Vol. XXXII, No. 2, pp. 140-158.

Li, Z. (2013). “China’s agricultural development: achievements and challenges,” in Garnaut, R., Cai, F. and Song, L. (eds.) *China: A New Model for Growth and Development.*

Lin, C. and Yun, M. (2014). "Minimum Wages and Income Inequality in Urban China," online available at https://www.gate.cnrs.fr/IMG/pdf/Paper_Carl_Lin.pdf.

Luo, C. and Sicular, T. (2011). "Inequality and Poverty in Rural China," *CIBC Centre for Human Capital and Productivity Working Papers* 201114, CIBC Centre for Human Capital and Productivity, University of Western Ontario.

Martinez-Bravo, M., Padr´o-i-Miquel, Qian, N. and Yao, Y. (2012). "The Effects of Democratization on Public Goods and Redistribution: Evidence from China," *NBER Working Paper*, No. 18101.

Meng, X., Shen, K. and Xue, S. (2013). "Economic reform, education expansion, and earnings inequality for urban males in China, 1988–2009," *Journal of Comparative Economics*, Vol. 41, Issue 1, pp. 227-244.

Ngok, K. (2008). "The changes of Chinese labor policy and labor legislation in the context of market transition," *International Labor and Working Class History*, Vol. 73, Issue 1, pp. 45-64.

Piketty, T. and Qian, N. (2009). "Income Inequality and Progressive Income Taxation in China and India, 1986-2015," *American Economic Journal: Applied Economics*, Vol.1, Issue 2, pp. 53-63.

Piketty, T. (2014). *Capital in the Twenty-First Century*, Cambridge, Massachusetts, The Belknap Press of Harvard University Press.

Ravallion, M. and Chen, S. (2007). "China's uneven progress against poverty," *Journal of Development Economics*, Vol. 82, Issue 1, pp.1-42.

Riskin, C. (2014). "Trends in income inequality in China since the 1950s," in Gregory C. Chow and Dwight H. Perkins (eds), *Routledge Handbook of the Chinese Economy*, Routledge.

Salidjanova, N. (2013). "China's New Income Inequality Reform Plan and Implications for Rebalancing," *U.S.-China Economic and Security Review Commission Staff Research Backgrounder*, internet available at http://origin.www.uscc.gov/sites/default/files/Research/China%20Inequality%20-%203%2012%2013.pdf.

Sicular, T. (2013). "The challenge of high inequality in China," *Inequality in focus*, Vol. 2, No. 2.

Song, Y. (2014). "What should economists know about the current Chinese hukou system?" *China Economic Review*, Vol. 29, pp. 200-212.

Stiglitz, J. (2012), *The Price of Inequality*, London and New York, Penguin Books.

Sutherland, D. and Yao, S. (2011). "Income inequality in China over 30 years of reforms," *Cambridge Journal of Regions, Economy and Society*, Vol. 4, pp. 91-105.

Timmer, Marcel (ed). (2012). "The World Input-Output Database (WIOD): Contents, Sources and Methods", WIOD working paper No. 10, available online at: http://www.wiod.org/publications/source_docs/WIOD_sources.pdf

UNESCO (2013). The United Nations Educational, Scientific and Cultural Organization, Institute for Statistics, International Literacy Data 2013.

UNDP China (2013a). "China National Human Development Report 2013: Sustainable and Liveable Cities: Toward Ecological Civilization," Beijing, China: UNDP.

UNDP (2013b). "Human Development Report 2013—The Rise of the South: Human Progress in a Diverse World," New York, NY: UNDP.

Wang, C., Wan, G. and Yang, D. (2014). "Income inequality in the People's Republic of China: trends, determinants, and proposed remedies," *Journal of Economic Surveys*, Vol. 28, No. 4, pp. 686-708.

Wang, Q. and Chen, X. (2012). "China's electricity market-oriented reform: From an absolute to a relative monopoly," *Energy Policy*, Vol. 51, pp. 143-148.

Wang, X. and Woo, W. T. (2011). "The Size and Distribution of Hidden Household Income in China," *Asian Economic Papers*, MIT Press, Vol. 10, Issue 1, pp. 1-26.

Ward, P. (2013). "Measuring the level and inequality of wealth: an application to China," *The Review of Income and Wealth*, Vol. 60, Issue 4, pp. 613-635.

Wei, K., Yao, S. and Liu, A. (2007). "Foreign direct investment and regional inequality in China," Research Paper, 2007/32, The University of Nottingham.

Wei, Y.H. D. (2007). "Regional development in China," *Eurasian Geography and Economics*, Vol. 48, Issue 1, pp. 16-36.

Wei, Z. and Hao, R. (2011). "The role of human capital in China's total factor productivity growth: a cross-province analysis," *The Developing Economies*, Vol. 49, Issue 1, pp. 1-35.

Xie, Y. and Zhou, X. (2014). “Income inequality in today’s China,” *Proceedings of the National Academy of Sciences of United States of America*, Vol. 111, No. 19, pp. 6928-6933.

Xue, J. (2013). “Income Inequality in China,” *World Economics Association (WEA) Conferences Paper* No.3 2013, Conference on the Inequalities in Asia: 27th May to 12th July 2013.

Xue, J. and Gao, W. (2012). “How large is the urban-rural income gap in China?” In: Paper presented at world economy conference organised by RCIE at the University of Washington, KIET, APEA, and UIBE, Seattle.

Yang, J., Huang, X. and Liu, X. (2014). “An analysis of education inequality in China,” *International Journal of Educational Development*, Vol. 37, pp. 2-10.

Yue, X., Li, S. and Sicular, T. (2011). “High Incomes in Monopoly Industries: A Discussion,” *Social Sciences in China*, Vol. XXXII, No. 2, pp.178-196.

Zhang, Q. and Zou, H. (2012). “Regional inequality in contemporary China,” *Annals of Economics and Finance*, Society for AEF, Vol. 13, Issue 1, pp. 113-137.

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

Zheng, Y. and Chen, M. (2007). “China’s regional disparity and its policy responses,” Briefing Series, Issue 25, China Policy Institute, The University of Nottingham.