ALL ON BOARD: MAKING INCLUSIVE GROWTH HAPPEN IN CHINA

March 2015

OECD

Initiated by the OECD and the National Development and Reform Commission of the People's Republic of China (NDRC), the report has been prepared by the OECD for the NDRC, to provide policy recommendations for the formulation and implementation of China's 13th Five-Year Plan for Economic and Social Development.

***

The document was prepared by the OECD Secretariat. Lamia Kamal-Chaoui and Shaun Reidy drafted the report, under the guidance of Gabriela Ramos, Luiz de Mello and Juan Yermo. The main contributors are: Romina Boarani, Marco Mira D'Ercole, Fabrice Murtin and Paul Schreyer (Statistics Directorate); Vincent Koen, Margit Molnar and Ben Westmore (Economics Department); Andrea Bassanini, Michele Cecchini, Kristine Langhenbucher, Pascal Marianna, Guilliermo Montt and Hilde Olsen (Directorate for Employment, Labour and Social Affairs); Ioannis Kaplanis, William Tompson, Oscar Huerta Melchor and Camila Vammalle (Public Governance and Territorial Development Directorate); Irène Hors and Li Yan (Global Secretariat Relations), Kumi Kitamori and Ziga Zarnac (Environment Directorate); Bert Brys and Sarah Perret (Centre for Tax Policy and Administration); Kensuke Tanaka (Development Centre); Luis Martinez (International Transport Forum). The report also benefited from a contribution from Richard Herd (former OECD Senior Economist and external consultant). Caitlin Connelly provided co-ordination support in the preparation and translation of the publication. Isabelle Renaud provided production and administrative support. The Chinese translation of the report was reviewed by Li Yan, Chan Yang (Global Relations Secretariat) and Xiao Wang (external reviewer).

Photo credits: Cover © Shutterstock.com

Corrigenda to OECD publications may be found on line at: www.oecd.org/publishing/corrigenda.

Table of contents

Foreword

Over the past three decades, rapid growth has changed the face of China, lifting hundreds of millions of people out of poverty, facilitating urbanisation on an unprecedented scale and raising living standards for all. Yet, a number of challenges will need to be addressed to sustain strong, increasingly Inclusive Growth, so that the benefits of rising prosperity can be shared evenly in society.

All on Board: Making Inclusive Growth Happen in China provides evidence-based analysis, shares international best practices and identifies policy options for doing so. Together with the companion document, *China in a Changing Global Environment*, this report contributes to the policy discussions leading up to the launch of the forthcoming 13th Five-Year Plan, which provides an invaluable opportunity for building on previous achievements, removing policy impediments to further progress and laying the groundwork for even stronger performance in all aspects that matter for people's wellbeing.

All on Board examines the key drivers of living standards in China from a multidimensional standpoint. It shows that alongside rapid growth in the income of households, improvements in other aspects of people's wellbeing, such as jobs and health outcomes, have boosted living standards, although significant differences remain among social groups and across regions. On the basis of this analysis, the report identifies policy options for promoting Inclusive Growth in China, including initiatives to reduce gaps in income and opportunity between urban and rural residents, improve access to quality health care, make the tax-benefit system more equitable, enhance educational attainment and the skills of the labour force, make labour markets more adaptable to a rapidly evolving social and economic environment, and tackle pollution and environmental degradation.

Taken together, the policy options identified in *All on Board* provide a roadmap for building a more inclusive economy and society during the next five years and beyond. By making the most of the synergies between growth-friendly and pro-inclusiveness policies, this roadmap focuses on initiatives that can ensure that the benefits of continuing growth are felt up and down the country, by businessmen in Shanghai and farmers in Ningxia; by migrant workers and non-migrant workers alike.

The OECD stands ready to continue supporting China in its efforts to promote more Inclusive Growth, contributing our expertise and the accumulated experience of member and partner countries.

Angel Gurría

OECD Secretary-General

Executive Summary: A Roadmap towards more Inclusive Growth in China

Rapid growth has fuelled strong improvements in living standards, but the benefits of growth remain unequally spread

The rapid expansion of China's economy has greatly improved living standards, but continued progress will call for a greater emphasis on sharing out the proceeds of growth. During three decades of average annual GDP growth of 10%, disposable incomes have soared lifting hundreds of millions of people out of extreme poverty. Yet, the rate of China's economic expansion has begun to slow, and growth of GDP per capita is projected to moderate to about 5.5% per year by 2020. To achieve further strong improvements in material living standards for the population at large, policy will need to focus on reforms to improve productivity and to make growth more inclusive, so that a larger number of citizens are given the opportunity to create wealth and benefit more from economic growth.

In recent years, most indicators of income inequality have stabilised and begun to decline, but remain at high levels. After rising rapidly in the period following economic liberalisation, income inequality in China began to fall in recent years, as reflected in declines in both the gap between top and bottom earnings deciles, and the national Gini coefficient of per capita income. By 2014, the national Gini coefficient had fallen to slightly below 0.47, still above developed countries but similar to the levels in other emerging-market economies like India, as the supply of highly educated people expanded and shortages of unskilled workers began to emerge. Poorer provinces have also grown faster than the richer ones in recent years. However, spatial inequality remains higher than in advanced countries, reflecting the persistently vast differences between urban and rural incomes within provinces.

To capture changes in the well-being of individuals, policies must look beyond income growth and take account of multidimensional living standards. In addition to income, individual well-being is shaped by a variety of factors, such as health and employment status. Between 1995 and 2011 the OECD's measure of multidimensional living standards, which incorporates household disposable income, longevity and the risk of unemployment, identified rapid improvements for the Chinese middle class, represented by households with an income close to the national median. This outcome mainly reflects strong growth in household disposable income, but also robust job creation and rising life expectancy.

Growth in multidimensional living standards has nevertheless been held back by persistent inequality and sub-par improvements in health outcomes. The first half of the period 1995 to 2011 was a time of great economic transformation that was accompanied by widening income gaps. Since then, in the first three years of the 12th Five-Year Plan (FYP), income inequality has declined somewhat and employment has expanded fast, helping to boost multidimensional living standards. However, improvements in life expectancy have been stymied by pollution and the growth of deaths associated with cancer and heart disease. Moreover, in spite of general improvements across the board, citizens have not benefitted equally from increases in multidimensional living standards. Although the urban-rural income gap has narrowed, it remains very large.

The 13th FYP offers an opportunity to build on past improvements and make growth more inclusive. As China moves towards becoming a moderately prosperous society during the 13th FYP, it will become increasingly important to ensure that targets other than GDP growth are pursued, such as raising living standards, promoting well-being and laying the foundations for future inclusive economic expansion. In particular, policies need to help the poorest in society, notably those from rural backgrounds, benefit more from continuing economic development.

A possible policy roadmap for Inclusive Growth in China would encompass interventions across a range of policy domains. Priority areas for reform are discussed in detail below and complement those relating to productivity and investment contained in the companion document *China in a Changing Global Environment*.

Reducing the gap between urban and rural incomes will be key to making growth in China more inclusive

Land reform and policies to promote rural productivity and diversification are needed. To foster agricultural productivity, growth measures could focus on making smallholdings more competitive and pursue land reform that allows land-use rights to be freely bought, sold, mortgaged and leased on a national basis. Such reforms would improve the access of farmers to credit, giving them a better chance to use their entrepreneurial skills in non-agricultural areas. Agricultural productivity could also be improved by the development of training programmes for farmers who do not migrate, in order to increase the reach of new technologies. There is also a need for strategies to promote economic diversification in rural areas based on engagement with the local population. Programmes that promote productive development in disadvantaged communities need to be better targeted.

Improving access to high-quality education in rural areas will be essential. On average, people living in rural areas spend three fewer years in education than their urban counterparts. Overall, the limited access of rural students to the best institutions and the lower educational standards in rural areas hold back the accumulation of human capital, limit the scope for a long-term reduction in the urban-rural income gap, and hinder the movement of Chinese firms to higher value-added sectors. The government's 2010 plan for *Medium and Long-term Education Reform and Development (2010-2020)* recognises that the spatial distribution of educational resources needs to be placed on a more equal basis. To make growth in China more inclusive, future education policy could target disadvantaged communities in rural areas, to give their residents the same opportunities as their urban counterparts to contribute to, and benefit from, economic growth. This will also mean addressing issues of malnutrition in the poorest villages, which hinders development, improving access to upper-secondary education, and abolishing fees. Efforts could also focus on improving financing for rural schools.

By ensuring all citizens share in the benefits of urbanisation, the 13th FYP would put growth on a more inclusive footing

Taking further steps towards the gradual liberalisation of the household registration system would improve the lot of rural migrants. Rapid urbanisation in China has come at a cost, as land prices and congestion have increased, and many migrants are still unable to access welfare and essential public services. To facilitate the integration of migrants into cities, the 13th FYP could seek to build upon the reforms to the household registration system announced by the State Council in July 2014, which will remove the distinction between the urban and rural *hukou* and see the partial liberalisation of the residency permit system. The remaining barriers to acquiring residency in large and mega-cities should be lowered, with a view to full liberalisation of the new residence criteria. This would help to break the remaining links between residency status and access to public services, such as academic upper-secondary education, unemployment benefits and social assistance, and could be coupled with changes to pensions and medical insurance to improve the portability of benefits. Ultimately, such changes would enhance the role of market forces in determining city size.

Making the process of urbanisation more inclusive requires improved land management. The differential treatment of land use has limited the inclusiveness of urbanisation, pushing up prices and rents for accommodation. In setting national and local quotas for land development, government could pay closer attention to the price of land, releasing more land in areas of high prices. To increase access to

affordable housing, the proportion of land which local governments can zone for industrial use should be lowered, and both farmers and rural collectives throughout the country ought to be allowed to develop land for rental with firm legal backing. Allowing rural collectives to develop land for rental purposes has already proven remarkably successful in the Pearl River Delta, providing tens of millions of migrants with accommodation. In addition, in Shenzhen, experimental polices are helping to reduce controversial government land acquisition by allowing farmers and their village collectives to deal directly with developers, with the profits from development being shared between the farmers and local government.

The urbanisation process is complicated somewhat by the government's desire to ensure that the area of national farmland does not fall below the "red line" of 120 million hectares. In Chengdu and Chongqing there is currently a scheme whereby, in return for converting their rural construction land to farmland, rural residents obtain a *dipiao* (land ticket). The latter can be sold via a property exchange to developers, entitling them to convert farmland zoned for development in urban areas where demand is high. In line with the government's objectives, this allows land conversion in urban areas where it is most needed whilst leaving the share of national farmland broadly unchanged. Such a scheme could be rolled out across the country, as part of efforts to improve land reallocation mechanisms.

Land reforms need to be co-ordinated with the provision of public transport. This will call for continued investment in the establishment of integrated multiple-mode public transport networks. Efforts could be focussed on developing suburban rail systems, subways and rapid transit systems based on buses using dedicated roads or lanes**.** Bus rapid transit (BRT) systems, in particular, may have much to offer, especially on the urban periphery and where metro construction has yet to take place. In fast-growing cities, where public transport provision struggles to keep up, BRT systems offer several advantages over rail-based modes. First, the right of way is generally less expensive than an assemblage of rails, power supplies and signals. Secondly, bus routes can be more easily adapted as traffic patterns change. Thirdly, BRT can also use local streets when beyond the limits of its dedicated right of way, getting passengers close to their destinations even in fringe areas. Finally, the market for buses worldwide is far more competitive than that for rail cars, making it easier for cities to acquire fleets adapted to local needs. There is also a need to promote greater density around urban transport hubs to reduce commuting by private car, which would help to reduce congestion and ambient air pollution.

Measures to improve health outcomes will support growth in multidimensional living standards

Reducing air pollution will bring clear benefits for health and life expectancy. Increased incomes have allowed people to lead healthier lives, but government intervention is also needed. In particular, efforts are necessary to cut the high levels of ambient air pollution, which have stymied the contribution of improved health status to multidimensional living standards, with poor air quality alone reducing life expectancy by 0.4 years in 2011. The new limits on the emissions of air pollutants by power stations will help but need strict national level enforcement. Limits also need to be placed on other industries and strictly enforced. As far as transport is concerned, most pollution comes from diesel trucks and buses. Better national standards for new vehicles in these categories, alongside the compulsory retro-fitting of older vehicles' exhausts with cleaner technology, would help to improve air quality.

Efforts to reduce the health impact of pollution could focus on setting a uniform price for carbon emissions. Rather than relying on caps or inefficient sectoral subsidy programmes (for wind, solar energy or electric cars) to lower emissions of carbon dioxide, greater emphasis should be placed on the use of market mechanisms. This could be accomplished by the setting of a uniform price for carbon emissions through a carbon tax**,** or by establishing a national carbon trading scheme. Setting a uniform price through a tax would likely be easier to administer and would ensure that investment in the reduction of carbon emissions occurs in the most efficient way. Setting a uniform price for carbon

would have the added advantage of encouraging the development of green technologies in areas where they are the most competitive.

Preventive measures to tackle unhealthy behaviour can lower health care expenditure and benefit the disadvantaged. The greatest challenges now facing China are those posed by non-communicable diseases, many of which would be avoidable if unhealthy behaviours were discouraged and low-cost detection and medication became generally available. Preventive measures could be particularly effective in reducing illness related to smoking. The 13th FYP could establish specific targets for the reduction of tobacco sales and implement an intensive anti-smoking campaign, whilst removing responsibility for all anti-tobacco efforts from the agency which also manages and owns the tobacco industry. The tax on cigarettes could also be raised to 75% of the retail price, in line with China's treaty obligations, and smoking in all public places could be banned. Such measures could prevent as many as 400 000 smoking related deaths per year.

Making tax and benefits more inclusive will benefit the poorest and reduce inequality

Reforms could look to address low revenues from direct taxes and limited progressivity which constrain the redistributive impact of the Chinese tax system. In spite of the relatively high 45% marginal tax rate, the personal income tax does not play a significant role in income re-distribution. This is essentially due to a high basic allowance, which was doubled in 2011, and broad tax brackets. Indeed, personal income tax collections accounted for only 6% of tax revenues in 2013. The government aims to stabilise the overall tax burden. Nonetheless, horizontal equity could be increased by merging the different schedules relating to labour incomes and by taking into account the number of dependants for which an individual is responsible. The yield of income tax could also be increased by broadening the tax base to include non-monetary benefits. Moreover, the top rate of tax could be cut, whilst lowering the exemption threshold to avoid distorting labour supply, entrepreneurship, skills and saving.

A reduction in the social security contributions for low-income workers would be welcome. At present, China's social security contributions are levied at a flat rate for people earning less than 60% of the local average wage. Although this ultimately enhances the pension to be drawn from an individual account, in the short term a flat rate contribution raises the standard contribution to 25% at the level of the minimum wage, up from 11% of income at the lower threshold. Such high contributions lead to the evasion of contributions by employers and foster job informality. To avoid that, contributions should be levied as a percentage of wages, which would help to reduce the regressiveness of taxes at low-income levels.

Local pension and health insurance regimes should be consolidated further. Despite a spate of reform in recent years, the social protection system remains highly segmented. The portability of pensions needs to be improved to support mobility, and the overly long vesting period before a pension can be paid should be reduced. The level of benefits in the new national schemes for residents needs to be raised to improve income protection in rural areas. Far less progress has been made in the area of health insurance. Further reform should focus on harmonising benefits across schemes to improve fairness in financing and coverage, and on merging local schemes into a nationwide scheme, along the lines of the residents' pension scheme.

Giving individuals the support and skills to succeed in the labour market will lay the foundations for more Inclusive Growth

Reforming the labour law to better balance flexibility and security will be one of the key challenges for creating a more inclusive labour market. Achieving the right balance between flexibility and security can help to promote job growth, whilst cushioning workers from arbitrary dismissal. In China, reforms to employment protection legislation will need to address the imbalance between the

protection of permanent and temporary employees, with better enforcement of existing legislation on the use of temporary staff. In contrast, for permanent employees reform should focus on creating greater flexibility by reducing severance pay or limiting compensation and reinstatement in the case of unfair dismissal.

The coverage of the unemployment insurance system needs to be widened. Many workers covered by insurance do not receive benefits, and many local governments do not require employers to affiliate migrant workers to unemployment insurance schemes. Such legislation would be more effective at promoting inclusiveness in the labour market if it were enforced uniformly across the country. To ensure the unemployed find work quickly, the provision of unemployment benefit could be made conditional on well enforced job-search requirements. This will call for more effective co-ordination between employment service centres and benefit administration offices, to allow for effective enforcement and definition of what constitutes reasonable job search activity. At the same time employment services will need to improve the support given to job-seekers in their search for employment.

Vocational education and skills policy could be adapted to ensure a smoother transition from training to employment. A key priority is to increase completion rates for upper-secondary education and to create a high-quality vocational training system. An overall reform of vocational education institutions is needed, with efforts to engage employers at regional and sectoral levels to plan provision, agree curricula, and support workplace training while reducing the extent of internships unrelated to studies. Steps also need to be taken to improve co-ordination across levels of government in the provision of vocational education.

Increasing competition and improving the functioning of market forces in the economy will be vital staging posts on the path to Inclusive Growth

Efforts to promote Inclusive Growth via increased competition should focus on strengthening the role of market forces in relation to State Owned Enterprises (SOEs). In particular, policies will be required to ensure that pay in SOEs is market-based. Employees of SOEs often receive higher salaries and greater benefits than their counterparts in the private sector. Differences in salaries are even more pronounced when only the 284 subsidiaries of the 115 SASAC controlled enterprises are considered. The average salary in these listed companies was 3.75 times the pay in the private sector. Yet the wage differentials between the private and SOE sectors do not necessarily reflect a greater prevalence of higher levels of skills and qualifications in SOEs. Instead, they often result from other factors, including discrimination.

A number of measures could help to ensure that pay in SOEs is increasingly market-based. In particular, China could benefit from the introduction of stricter guidelines to govern the interchange of staff between the public administration and senior management positions in SOEs. On top of this, efforts could be made to foster greater separation of administrative powers over SOEs in relation to the roles of strategic policy setting, regulation, management and ownership. The government could pursue reform in this area by creating asset management companies to help the boards of SOEs achieve their mandates.

Policies to support Inclusive Growth would be buttressed by increased competition and efforts to put in place the framework conditions for a thriving private sector. As this report's companion piece *China in a Changing Global Environment* notes, policy makers need to focus on fostering an environment in which all firms compete on a level playing field, paying due regard to consumer interests, occupational health and safety, as well as environmental protection. Such an environment would undoubtedly be good for growth, but can also enhance inclusion by bestowing greater benefits on a wider group of consumers and would-be entrepreneurs.

Box 1. Policy Priorities for Inclusive Growth

Easing internal migration and improving mobility

- Provide public services to all residents regardless of hukou status.
- Set social insurance contributions for low-income workers as a proportion of income.
- Grant universal access to unemployment and maternity insurance.
- By 2020, make urban social pension rights fully transferable, with lower vesting periods.

Raising human capital

- Increase spending on education, including teacher compensation.
- Make higher secondary education a basic public service free to the user.
- Equalise entry opportunities to four-year universities across provinces.
- Facilitate access of rural children to academic upper-secondary education and university.
- Increase public resources devoted to high schools in rural areas.
- Improve teacher quality in rural areas and the quality of rural boarding schools.
- Strengthen vocational education and allow students greater freedom to switch between vocational and academic pathways.

Raising life expectancy

- Develop an effective anti-tobacco strategy under the purview of the health ministry.
- Ensuring effective monitoring of pollution emissions.
- Focus anti-pollution efforts in the transport area on reducing emissions from trucks and buses.
- Introduce payment incentives for community health centres to treat diseases such as diabetes and high blood pressure.
- Harmonise health insurance systems across the country.

Improving labour market outcomes

- Improve the coverage of the unemployment benefit system.
- Reduce the level of employment protection for permanent workers and raise it for temporary workers.
- Engage employers to agree on the provision and the content of vocational education.

Modernising the tax system

- Create one tax schedule for all labour income.
- Aim to increase the share of government revenues from personal income taxation.

Improving sustainability for future generations

- Introduce a national carbon market.
- Increase the tax burden on petroleum products, and reduce subsidies that encourage coal use.

Spreading wealth

- Rezone urban industrial land to residential use, incentivising existing users to redevelop the land.
- Auction industrial land-use rights, and allow commercial and residential developers to bid.
- Improve the ability of rural households to transfer rural land rights.

Increasing competition and reducing the role of the government in the economy

- Create asset management companies to assist the boards of state companies achieve their mandates.
- Strengthen competition in network and energy industries by reducing entry barriers, eliminating investment licensing, and creating independent regulators.
- Reduce state ownership in commercially-oriented industries and open up more sectors to private investment.

Chapter 1. Trends in Growth and Inequalities in China

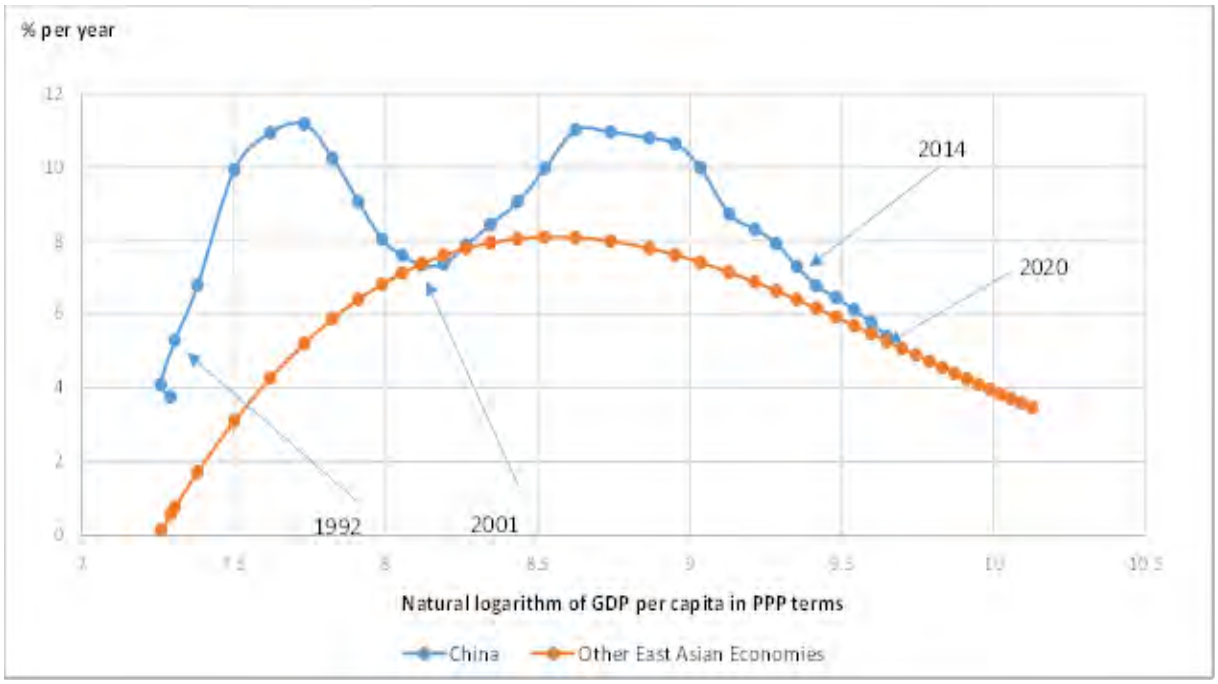
1.1 Economic growth trajectory and outlook

China's economic growth has been impressive

China has recorded rapid economic growth in the past 30 years. GDP grew at an average annual rate of around 10% over the past three decades, and only marginally slower in per-capita terms, a pace of expansion that exceeds those of other high-performing, rapidly-industrialising Asian economies during their take-offs (**Figure 1.1**). In Chinese Taipei, Korea and Japan, or in the city-size economies of Hong Kong, China and Singapore, rapid convergence in relative income only began to slow noticeably at relatively high levels, suggesting that China has room to continue to catch up. Sustained, vigorous growth has delivered major improvements in living standards, and China has become an upper middle-income country, with GDP per capita exceeding USD 12 000 by 2013 (in purchasing power parity terms).

Figure 1.1. Per capita growth has been faster throughout China's development than other East Asian economies saw at similar stages, but it will fall in line by 2020

(year markers apply only to China - the other East Asian economies are Chinese Taipei, Japan, Korea and Hong Kong, China.)



Note: Growth is measured as a centred five year moving average with GDP per capita measured at the centre of the average. The curve for East Asian economies is based on a cross-country estimate of the relation between growth and the level of PPP GDP. The first observations of the centred moving average are as follows Japan: 1960, Korea: 1961, Chinese Taipei: 1961 and Hong Kong, China: 1968. See Koen V., R. Herd and S. Hill (2013), "China's March to Prosperity: Reforms to Avoid the Middle-Income Trap", OECD Economics Department Working Papers, No. 1093. A logarithmic scale has been chosen as the impact of given absolute increments of GDP on growth is likely to diminish as GDP increases.

Source: OECD Economic Outlook Database; OECD National Accounts Database; IMF WEO database and Penn World Tables V7.

Economic reforms have been a key ingredient of growth. A major impulse to growth was provided in 1992 by the decisions of the third plenum of the 14th Central Committee of the CCP to give the market a greater role in the economy, which saw reforms such as the drive to improve management in SOEs. Momentum weakened in the late 1990s, but a further boost was then imparted by the reforms undertaken as part of the process of joining the World Trade Organisation in 2001. The transformative effects of those reforms had largely worked their way through by the end of the decade, and growth is now broadly in line with the earlier experience of comparator East Asian economies.

Domestic sources of growth must be unlocked to achieve more inclusive development

China's trend growth is projected to moderate over the longer term. Over the past five years, GDP growth has slowed reaching 7.4% in 2014.[1] OECD projections suggest that the five-year average of per capita GDP growth will fall to 5.5% by 2020, in line with other East Asian countries at a similar stage of their development (**Figure 1.1**), unless a new round of innovative reforms allows the Chinese economy to outperform its counterparts once again. In the longer term, Chinese growth will likely mirror the pattern of other East Asian countries with growth of GDP per capita moderating to about 3.5% by 2030.[2] This slowdown reflects a range of structural factors, including population ageing and a shrinking scope for - and therefore a slowing pace of - productivity catch-up.

China will have to overcome domestic hurdles and respond to global trends to achieve sustained, inclusive growth and avoid the middle-income trap. As highlighted in the report *China in a Changing Global Environment* (**Box 1.1**), further reforms are necessary to boost productivity and economic growth during the period of the 13th Five Year Plan (FYP). As it approaches the limits of investment-dominated growth, China is rebalancing its economy towards greater reliance on household consumption, a transition underpinned by the 12th FYP. With a shrinking workforce as well as falling saving and investment rates, factor accumulation-based growth will increasingly be replaced by a reliance on multifactor productivity gains as the key driver of growth.

1 OECD (2014), Economic Outlook, November OECD Publishing, Paris.
2 *Ibidem.*

Box 1.1. Key recommendations from the report on ''China in a Changing Global Environment''

The report ***China in a Changing Global Environment***[3] identifies several key areas where reform is required in order to improve growth during the 13th FYP. These include:

- **Increased efforts to move up the value chain to derive maximum benefits from existing and emerging GVCs**: by pursuing domestic reforms that support integration into regional trade agreements.
- **Investing in human and knowledge based capital**: by taking further steps to improve access to finance for innovative entrepreneurs, through both the banking sector and appropriate non-bank mechanisms; supporting private sector investment in innovation, including through the introduction of an effective intellectual property rights regime; and orientating the education and skills systems to help transition to a knowledge-driven economy, including by improving the vocational training system.
- **Prioritising reforms of product market regulations to boost productivity**: by relaxing controls on prices, fees and advertising rights, particularly for professional service providers such as accountants, architects, engineers and lawyers; and removing excessive restrictions on foreign market entrants in non-manufacturing sectors.
- **Stimulating and appropriately regulating competition while protecting consumers**: by encouraging greater competition in network industries, while ensuring social and environmental costs are fully factored into pricing decisions (e.g. in the energy sector).
- **Enhancing corporate governance and tackling corruption in the private sector**: by stepping up efforts to increase transparency of related-party transactions at listed firms.
- **Improving labour market flexibility while protecting worker rights**: by easing restrictions on employment protection legislation, while improving enforcement of laws and the capacity of trade unions to have their members rights vindicated.
- **Reforming the state to sustain the changing growth model**: by continuing efforts to professionalise SOE boards of directors and establish clear specifications of the state's commercial and strategic goals for different types of SOEs; establishing a dedicated institution to manage, assess and promote the quality of regulations and considering the introduction of automatic sunset clauses for new regulations; promoting a culture of integrity in the public sector through raising awareness and coherent application of up-to-date standards in codes of conduct, including managing conflicts of interest, using official information and resources; and finally by improving uniformity of the implementation of best practices in the civil service across all regions.

China's growth prospects will also be shaped by a global economic landscape characterised by intensified trade and foreign investment integration. With other emerging-market economies competing with China to attract investment, and as abundant labour and capital accumulation fade in importance as domestic growth drivers, China needs to prioritise moving up the value chain and continue to integrate into emerging and existing global value chains (GVCs). Successfully completing this transition will necessitate further financial and private sector development, and improved labour market regulation alongside other policies to respond to the new economic and business environment. Fiscal pressures arising from China's ageing society will also increasingly require attention.

[3] OECD (2015), China in a Changing Global Environment, OECD Publishing, Paris.

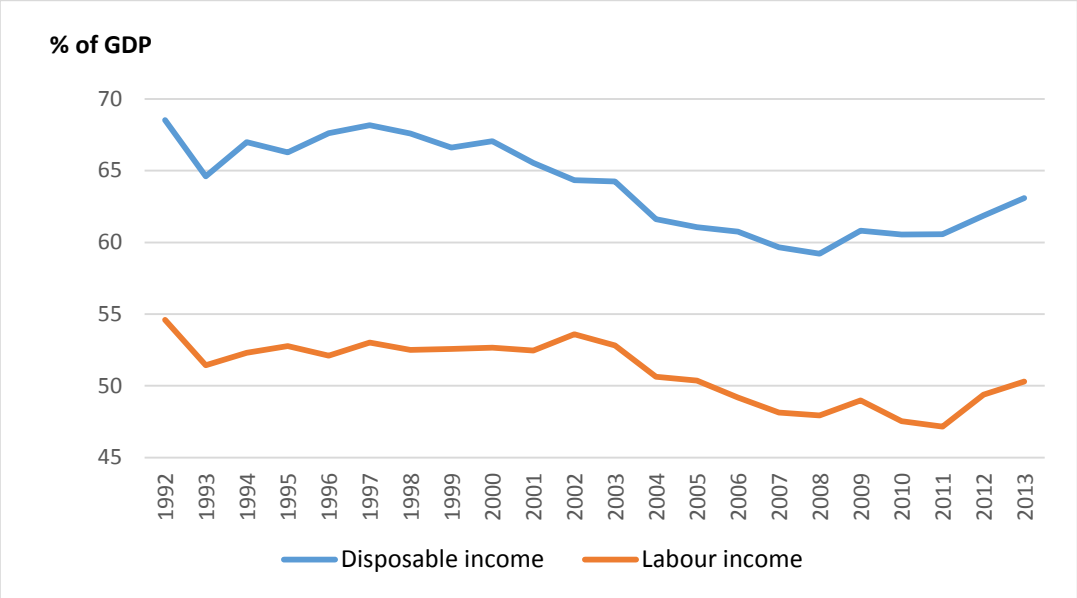
1.2 Trends in disposable income

Despite rapid GDP growth, disposable income declined as a share of GDP until 2008

China's rapid GDP expansion has not always been translated into equivalent gains in household disposable income. As a share of GDP, disposable income dropped by nearly 9 percentage points between 1997 and 2008 (**Figure 1.2**),[4] due in part to reforms geared towards increasing the profitability of SOEs and the gradual liberalisation of restrictions on the movement of labour. The re-organisation of SOEs focussed on raising labour productivity by cutting surplus labour, which held back income growth relative to GDP. At the same time, the relaxation of the requirements for migrants to permanently carry documentation, and the subsequent diminished risk of deportation, combined with surging foreign demand, resulted in a large migration of workers from the countryside to cities. These workers were prepared to work for wages which, while low by urban standards, were high relative to their potential earnings in rural areas. The overall result was a drop in the share of the compensation of employees, which is the principal component of household disposable income in China, largely during the period when migration was at its peak.

Figure 1.2. In the late 1990s disposable income began to lag behind GDP

Disposable income and labour income as a share of GDP



Source: CEIC.

Changes in the tax and benefit system, in combination with low real interest rates, held back disposable income growth. In 1997, households received more from the government in transfer payments than they paid in tax and social security contributions. By 2008, transfers received and taxes paid were almost in balance. As a result, the contribution of taxes and benefits to disposable income fell by over 2.5% of GDP between 1997 and 2008. At the same time, low real interest rates made for a lower contribution of property income to disposable income, an effect mirroring that of low rates of return on the savings accumulated by households.

[4] National Bureau of Statistics, China Statistical Yearbook, Physical Flow of Funds tables and CEIC.

In recent years, the trend has reversed and household disposable income has risen as a share of GDP

Incomes have been boosted by tightening in labour market conditions resulting from demographic factors and migration. The inflow of new workers into the labour market dropped by a quarter between 2008 and 2013, as the working age population began to decline in 2011,[5] and as a greater proportion of youth continued into tertiary education.[6] Further upward pressure on incomes was applied by the transitory nature of migration from rural to urban areas. Rural migrants constitute about one fifth of the working-age population in urban areas, but their ability to remain active participants in the urban workforce is hindered by the *hukou* system, which despite reform has limited the access of rural migrants to essential services and social welfare in urban areas. In most instances, rural migrants find it difficult to satisfy the requirements to obtain an urban *hukou* and, in the past, most have preferred to retain the rural *hukou* as they ran the risk of losing their land rights if absent when land reallocation was made.[7] Consequently, in 2002-06, most migrants only stayed in cities for an average of seven years before exiting the urban labour market.[8] These factors spurred wage growth, especially at the lower end of the distribution. As a result, wage compensation as a share of GDP bottomed out around 2011.[9] However, since 2008, the length of migrants' stay in urban areas has increased, bringing the average stay to nearly nine years in 2012.[10] Part of the reason for this lengthening has been the requirement for local authorities to provide education to migrant children between the ages of 6 and 15. This has partially offset the lower inflow of new migrants.

Wages increased rapidly in 2012-13, suggesting that the share of labour income in GDP has risen in the past two years. Overall, the increases in wages and employment in the non-agricultural sector suggest that the total wage bill rose faster than the growth of nominal GDP in the non-agricultural sector.[11] Household survey data confirm the upward movement in wages. Between 2011 (the latest year for which official figures for household disposable income are available) and 2013, national household disposable income per capita rose by over one quarter, as against a 19% increase in nominal GDP per capita. As a result, the share of compensation of employees in GDP appears to have risen and the profitability of companies has come under pressure.

Overall, since 2008, household disposable income has outpaced GDP. Government policies resulted in a substantial increase in social transfers, while tax payments remained constant relative to GDP. Real household disposable income per capita has risen by 9.25% per year since 2008, against an increase in GDP per capita of 7.75%.[12] This trend is encouraging, but it remains necessary to look beyond the average and see how growth in income has been distributed between social groups and across the country (**Box 1.2**).

---

5 See *China in a Changing Global Environment* (OECD 2015), OECD Publishing, Paris.

6 The number of people available for work can be judged as the difference between the number of people in an age-group and the number of people in tertiary education. On the assumption that all people in tertiary education are aged between 18 and 22, the number of people available for work in the age group 18 to 22 fell from 104 million in 2008 to 78 million in 2013. The population by single year age groups by year has been taken for the US Bureau of Census International Database in the absence of national data and the number in tertiary education from the China Statistical Yearbook.

7 Rupelle M. de la, D. Quheng, l. Shi and T. Vendryes (2009), " *Land Rights Insecurity and Temporary Migration in Rural China*", IZA Discussion Paper No 1668, Bonn.

8 Zhu Y. and W. Chen (2010), "The Settlement Intention of China's Floating Population in the Cities: Recent Changes and Multifaceted Individual-Level Determinants", Population, Space and Place, Vol. 16.

9 National Bureau of Statistics (2013), China Statistical Yearbook.

10 Meng X. (2013), "Rural-Urban Migration", Chapter 9 in Garnaut R., Cai Fang C. and L. Song, editors, *China: A New Model for Growth and Development*, Australian National University, Canberra.

11 According to the NBS and Ministry of Human Resources, between 2011 and 2013 average wages in non-private, private and for migrants rose by 23%, 33% and 29%, respectively. After weighting by the number of employees in each category, average wages rose by 27%. Given that employment in the non-agricultural sector rose by 6%, the total wage bill rose by 35%. During the same period, the nominal value of non-agricultural GDP rose by 20%, less rapidly than the wage bill.

12 OECD estimate for disposable income, CEIC for GDP per capita.

Box 1.2. Measuring household disposable income and its distribution

This report uses the national accounts measure of household disposable income, as opposed to those generated from household surveys. In general, growth in personal income tends to be lower when measured using survey, rather than national accounts, data. In China, household surveys appear to capture property income poorly and do not capture the income that consumers derive from living in the house that they own.

Using survey data in China poses additional challenges. Until recently, China lacked an official survey providing information on the distribution of household income across the entire territory of the country; while such a survey (the *Integrated Household Survey*) was introduced by the National Bureau of Statistics in 2013, there is a lack of micro-records from this survey that would allow for the computation of estimates of income inequality comparable to those available for other OECD countries. In the absence of these country-wide estimates, researchers have in the past relied on different approaches to combine information from surveys referring to the urban and the rural population. This second-best approach, which is also used for the present study, has however its own limitations. For example, it is not clear how the disposable income from the urban and rural household surveys should be combined.

One problem is that the two surveys do not measure the same concept of disposable income: the rural household survey uses net income, while the urban survey uses disposable income. If the income concept used for rural areas were adjusted to the urban concept, then according to the NBS the rural disposable income would be 5.7% lower than rural net income.[13] The primary difference between the concepts is that payments to social security funds have not been deducted from net income. On the other hand, medical insurance payments were treated as income in the rural survey but as negative expenditure in the urban survey. In 2008, these two factors accounted for two-thirds of the difference between the two concepts. As social security only started to emerge in rural areas in 2005, it is unlikely that the difference was significant prior to that date. In addition interest payments were not deducted from net income, but compensation from land takings was counted as income when it should not have been.

Another consideration is whether or not the results from the urban and rural surveys should be combined using the actual population of urban and rural areas, or the population classed under the household registration system as having agricultural or non-agricultural status. Given that the samples are drawn from household registers, this report combines the urban and rural income data using household register weights.

A further problem arises from the need to measure the real income of households. In the national accounts a specific price deflator is used for this purpose. The NBS has not published a household consumption deflator since 2004. Since then it has published a total consumption deflator which includes the price of goods and services purchased by the government. Prior to 2005, the private consumption deflator, the total consumption deflator, and the consumer price index moved very closely together. Since 2005 though the total consumption deflator has increased by 2 percentage points a year faster than the consumer price index (CPI). The GDP deflator has also increased markedly faster than the CPI. By the standards of the OECD area, a differential of nearly 2 percentage points is unusually large. While national accounts data can be deflated by a consumption deflator,

[13] Zhang Y. and R. Wang (2011), "The Main Approach of Proposed Integrated Household Survey of China", Presentation by the Department of Household Surveys, National Bureau of Statistics of China to the Wye City Group on Statistics of Rural Development, Rio de Janeiro.

there is no rural and urban consumption deflator. As a result, the incomes at different points on the distribution have been deflated by using the CPI as this index is available both on an urban and a rural basis.

As for income inequality, while the NBS now publishes an aggregate national measure of inequality, this is based on the concept of income per capita rather than per consumption unit (as is done for OECD countries); in addition, NBS does not publish detailed distribution tables at the national level. Due to the impossibility to access NBS micro-data, this report has estimated a national distribution of household income using an algorithm based on published data by quintiles for the urban and rural populations available from the published data for quintiles.[14] These two separate distributions were then aggregated to obtain the national distribution; also, these estimates do not reflect the revision introduced by NBS in October 2014 to its data on income distribution for urban areas, which significantly increased income inequalities in these areas.

After a long period when inequality increased, it now appears to be dropping slightly

The opening-up of the economy after 1992 was accompanied by a rise in income inequality. Significant changes in the relative prices of goods and labour took place, as market forces gradually replaced central planning. This transition led to a substantial increase in inequality, especially in urban areas. In particular, wages rose more at the upper end of the spectrum, with the ratio of earnings of the top decile to the earnings of the bottom decile reaching 5.6 by 2009, a level similar to that seen in the United States or Korea, but well above that found in most other OECD countries. The bulk of the rise came in two surges, between 1992 and 1994 following the first move to open up, and between 1997 and 2003, as state-controlled industries declined and private sector industry grew. Between 2003 and 2009, the ratio stabilised and it has fallen since.

Rising wage inequality was accompanied by widening income gaps among households. The ratio of average income in the highest decile to that in the lowest decile rose from 6 to nearly 13 by 2008, far above equivalent ratios in advanced countries. The increase mostly reflected a rise in household income in the top decile relative to the median, rather than in the ratio of the median to the bottom decile, though this ratio has also been steadily increasing. By 2013, however, the ratio of the top decile to the median had fallen by 14% and almost returned to its 2002 value.

Income inequality has recently begun to decline in China, in contrast to most OECD countries. The official nation-wide Gini coefficient measuring the extent of income inequality showed that inequality in per capita incomes peaked in 2008 and subsequently edged down. In 2014, it stood just below 0.47. The slight decrease in the Gini coefficient since 2008 results from a variety of factors, including faster growth in wages, larger health care reimbursements for those at the lower end of the distribution and the growth in transfers from migrant workers in urban areas to their households in the countryside. This contrasts with developments in OECD countries, where on average, income inequality has remained stable since 2004, with increases in some countries offsetting falls in other countries.

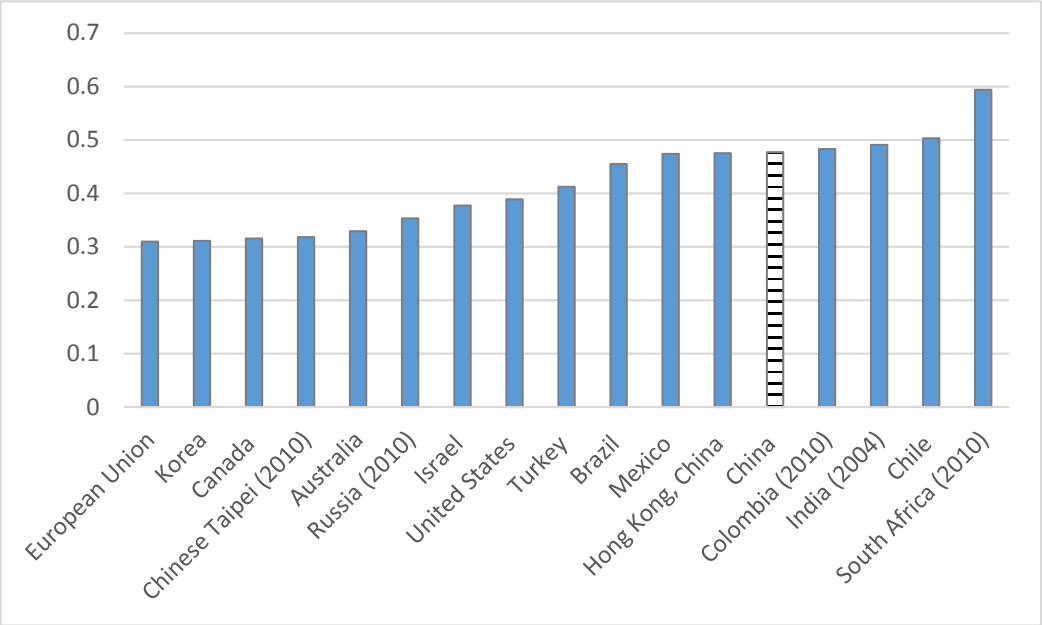
Income inequality in China is higher than in the majority of advanced economies, but most likely lower than in a number of other emerging market economies (**Figure 1.3**)**.** The inequality of per capita disposable income in China in 2011, as measured by the Gini coefficient, was markedly lower that in South Africa, but similar to that in Mexico, Brazil, Turkey and Chile , as available in OECD

[14] Herd, R. (2010), "A Pause in the Growth of Inequality in China?", OECD Economics Department Working Papers No. 748.

data.[15] It was also lower than that in India in 2004.[16] At the same time, whilst China's Gini coefficient (based on per capita income) is well above the 0.36 population-weighted average for OECD countries (based on income adjusted by the square root of household size), income inequality in China is only slightly higher than in lower-income OECD members. Moreover, this difference would likely vanish if the economies of scale in consumption were taken into account in China, as they are for lower-income OECD countries.

Figure 1.3. The inequality of disposable income per capita in China remains above that in high-income countries

Gini coefficient for household disposable income in 2011.



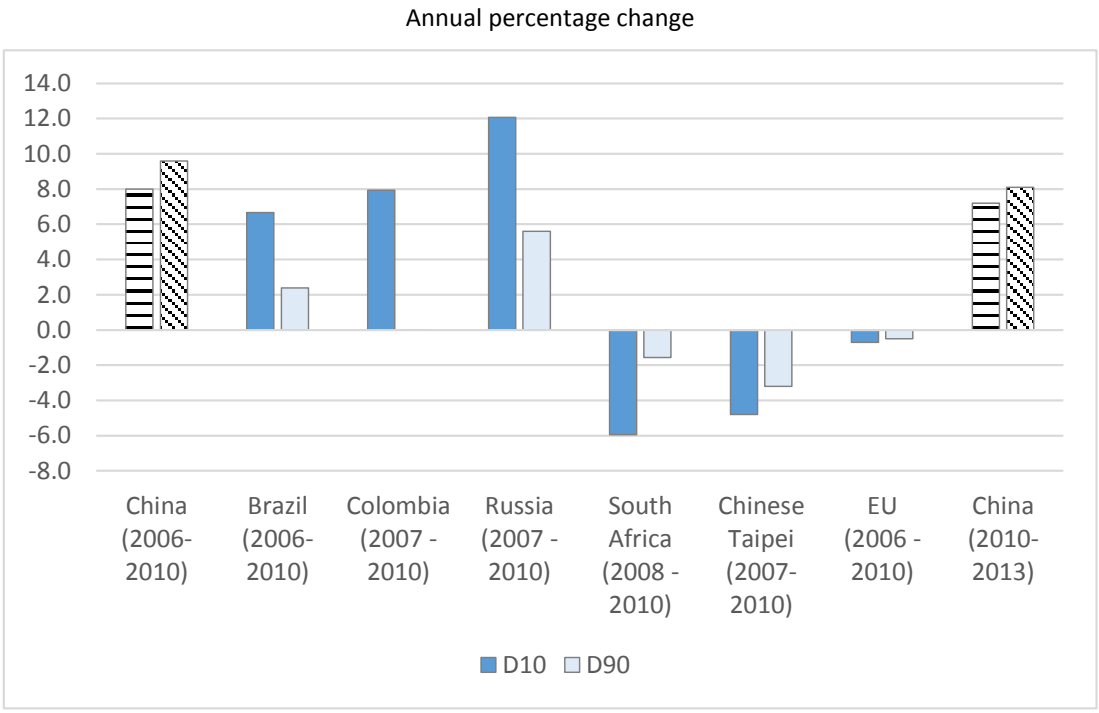
Notes: Data refer to 2010 for all countries and measure the level of inter-personal inequality as measured by the Gini coefficient of individual disposable incomes (post taxes and transfers). The Gini coefficient ranges between 0 in the case of full equality and 1 in the case of maximum inequality. Per capita disposable income is adjusted for household size, except for China and Hong Kong, China. For all economies except the latter two, household disposable income has been divided by the square root of the number of people in the household in order to reflect economies of scale in household consumption. If this correction were made to the data for China and Hong Kong, China, the Gini coefficient would likely be lower. For example, in the United Kingdom in the late 1980s, changing the standardisation from the number of people in a household to the equivalent number of people in a household, reduced the Gini coefficient by around 0.04 points with the exact reduction depending on the covariance between household income and family size (Coulter F., F. Cowell and S. Jenkins (1992), "Equivalence Scale Relativities and the Extent of Inequality and Poverty", *Economic Journal*, Vol. 102 and Banks J. and P. Johnson (1993), "Equivalence Scales Revisited", *Economic Journal*, Vol. 104) Source: OECD online database for OECD countries; China: National Bureau of Statistics; Hong Kong, China: Census and Statistics Department; other economies: Luxembourg Income Study Cross National Data Center.

[15] OECD Statistical Database; data extracted in June 2014 from http://stats.oecd.org/. Note: Data refer to 2010 for all countries and measure the level of inter-personal inequality as measured by the Gini coefficient of individual disposable incomes (post taxes and transfers).

[16] These comparisons are vitiated by the fact that Chinese income data are measured in per capita terms, unlike in other countries where total household income is divided by the square root of household size in order to reflect economies of scale in household consumption If such an adjustment were made for China, then the income Gini would be lower than in these emerging countries. - see OECD Project on Income Distribution and Poverty, "What are Equivalence Scales?" http://www.oecd.org/eco/growth/OECD-Note-EquivalenceScales.pdf.

Despite a significant increase in inequality, the period of economic transformation also saw stronger growth in real income for those at the lower end of the distribution. From the early 1990s to the middle of the last decade, the transformation was particularly stark in China's urban areas, with the incomes of the top quintile growing at double the rate of those in the bottom quintile, as returns to education rose to levels seen in advanced economies and centrally-planned pay scales in SOEs were abandoned in the face of market pressures. Even so, growth in real income for the bottom quintile was still impressive in absolute terms, much faster than in countries such as South Africa, or Brazil. In China, between 2006 and 2010, inequality has been falling and the gap between the increase of real disposable income for the highest and lowest deciles has almost been eliminated (**Figure 1.4)**. The growth of real incomes of the lowest decile of the Chinese population was only exceeded in Russia. Moreover, in many countries, the real incomes of the lowest decile fell in real terms.

Figure 1.4. Since 2006, the growth in the incomes of lowest decile of Chinese households has been similar to that of the highest decile



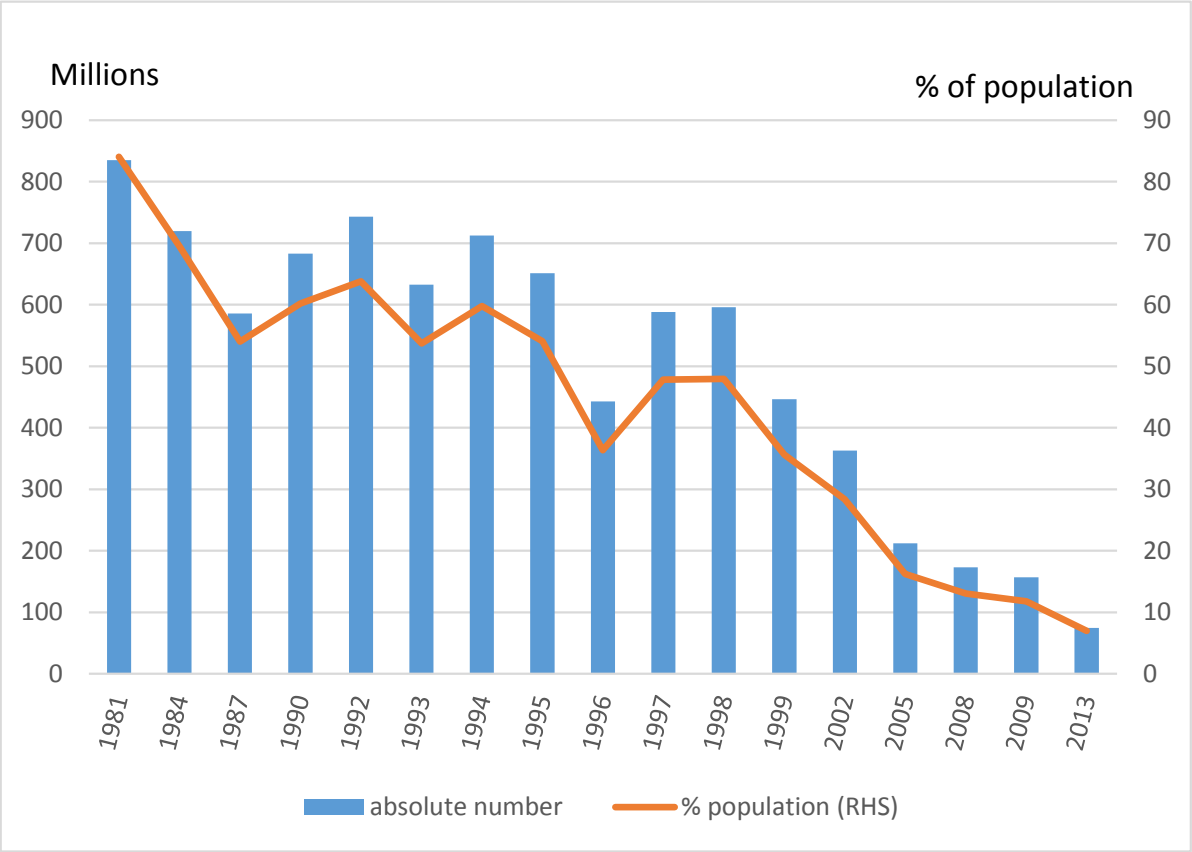
Source: OECD members: OECD online database; China: OECD estimates; other economies: Luxembourg Income Study Cross Country Database.

Rapid economic expansion has coincided with a marked decline in extreme poverty

The number of people living in extreme poverty has dropped sharply (**Figure 1.5**)**.** This is consistent with the sharp rise in real incomes in the lowest decile between 1990 and 2013. The fall was particularly marked after the end of collective farming in the early 1980s, helped by the success of local rural enterprises. The next downshift in the poverty rate started in 1998 with the intensification of economic reforms. Since then, the poverty rate has declined steadily, and OECD estimates suggest that the extreme poverty rate had fallen to 7% by 2013.

Figure 1.5. Extreme poverty has declined sharply in China

Extreme poverty, defined as consumption of up to USD 1.25 per capita in PPP terms



Source: World Development Indicators 1981 to 2009, OECD estimates from 2009 onward based on the estimated national income distribution.

Extreme poverty has now become more of a transient phenomenon, though the proportion of people with an income less than 50% of the median has increased slightly. Only 6% of those in extreme poverty (consumption below USD 1.25 in PPP terms) in any three year period remain in the group for three consecutive years.[17] The predominant reason for being in extreme poverty is an adverse event, such as illness or crop failure. While the number in extreme poverty has fallen, around one-quarter of the population still consumes less than USD 2 of goods and services per day in PPP terms. Moreover, many of the households in this latter category are at risk of dropping below the extreme poverty line on an occasional basis. In relative terms, the proportion of the national population with an income less than half of the median income rose from around 19% to 23% between 1992 and 2011, and has since stabilised – following a similar pattern to the overall Gini coefficient.

[17] World Bank (2009), China - From Poor Areas to Poor People: China's Evolving Poverty Reduction Agenda - An Assessment of Poverty and Inequality in China, Washington, DC.

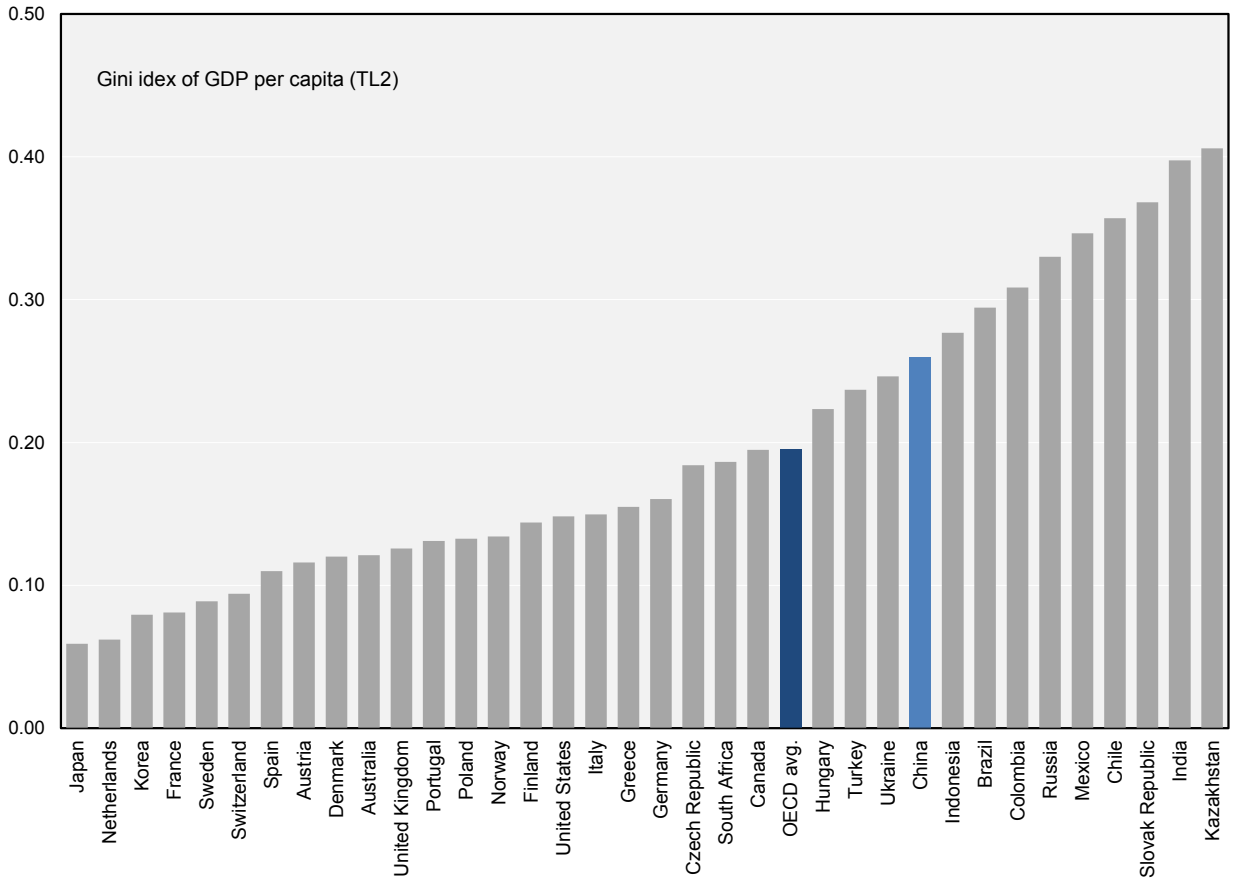
1.3 Spatial dimension of income inequalities

Spatial inequalities are high in China compared to OECD countries

China exhibits high levels of territorial inequality compared with the OECD and other non-OECD countries. In 2010**,** the Gini coefficient of GDP per capita across China's provinces was 0.26 compared with 0.20 for the OECD average (**Figure 1.6**). Strong growth in the Western and Central provinces has resulted in a marked decline in spatial inequality since the middle of the last decade, a trend that has continued after 2010. Importantly, spatial inequality can be attributed mostly to the large differences in development within, rather than across, provinces, which in turn reflect differences between rural and urban areas within each province.

Figure 1.6. Levels of spatial inequality are high in comparison to the OECD

Gini index of regional GDP per capita (TL2) for selected OECD and non-OECD countries (2010)



Note: OECD classifies regions according to two different territorial levels (TL). The higher level (Territorial Level 2) consists of about 362 regions in the OECD member. For China, the data refer to 31 provinces, autonomous regions and directly governed municipalities. The average size of the regions in the OECD area is 3.4 million people. The average population of the 31 provinces etc. is 43 million. A prefecture in China is more comparable to a region in the OECD area and has an average population of 4 million. The population weighted Gini of GDP per capita for Chinese prefectures is higher than that for provinces at 0.33[18].

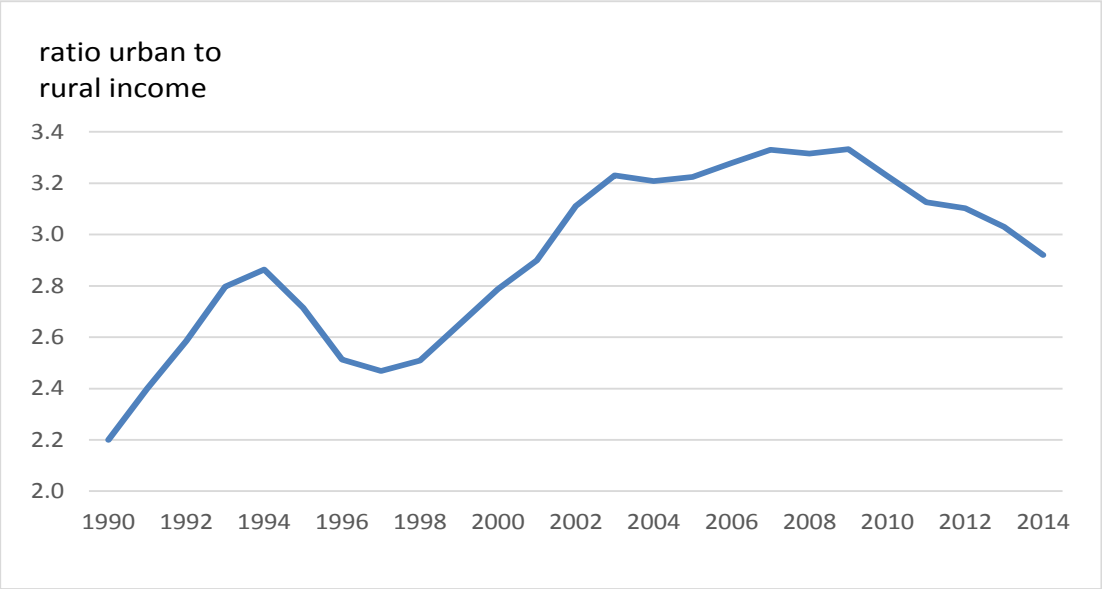
Source: OECD Regional Database and NBS.

[18] Wang X. and R. Herd (2013), "The System of Revenue Sharing and Fiscal Transfers in China", OECD Economics Department Working Paper, No 1030, OECD Publishing, Paris.

There are vast income gaps between urban and rural areas. The ratio of urban to rural per capita income rose sharply between 1978 and 2011 from 2.5 to 3.3, though it would be lower if differences in prices between rural and urban areas and the imputed income of owner-occupiers were taken into account (by some 15% in 2007).[19] However, this ratio plateaued in the middle of the last decade as government measures, such as the abolition of the regressive agricultural taxes and fees set by local governments took effect. More recently, rapid growth of off-farm earnings, notably those of migrants, has contributed to further narrowing urban-rural income gaps (**Figure 1.7**).

Figure 1.7. By 2014 the ratio of urban to rural income had declined back to its 2000 level

Ratio of urban to rural disposable income in nominal terms



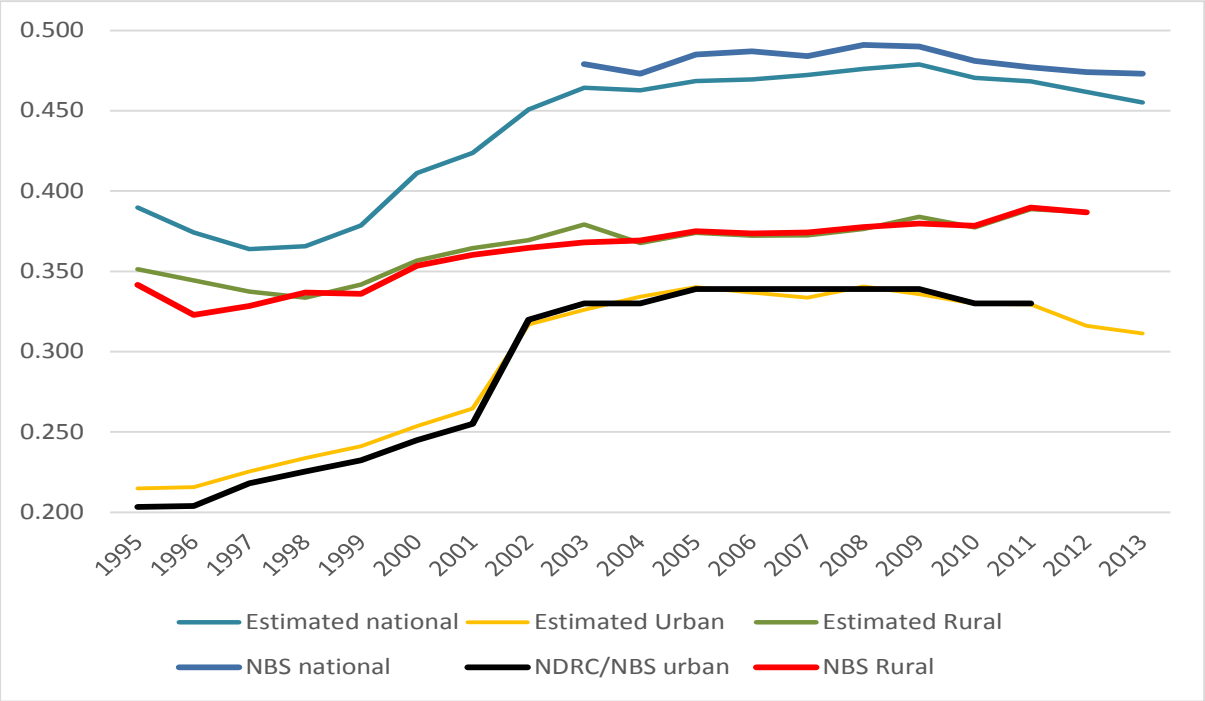
Note: The ratio takes no account of differential levels or rates of change in urban and rural prices. Moreover, the definitions of disposable income differ between rural and urban households.

Source: CEIC

[19] Li S., C. Luo and T. Sicular (2014), "Overview: Income Inequality and Poverty In China", in Li S., H. Sato and T. Sicular, (editors) (2014), Rising Inequality in China: Challenges to a Harmonious Society, Oxford University Press, Oxford.

Figure 1.8. Lower income levels in rural areas have increased income inequality at the national level

Trends in the Gini index at urban and national levels



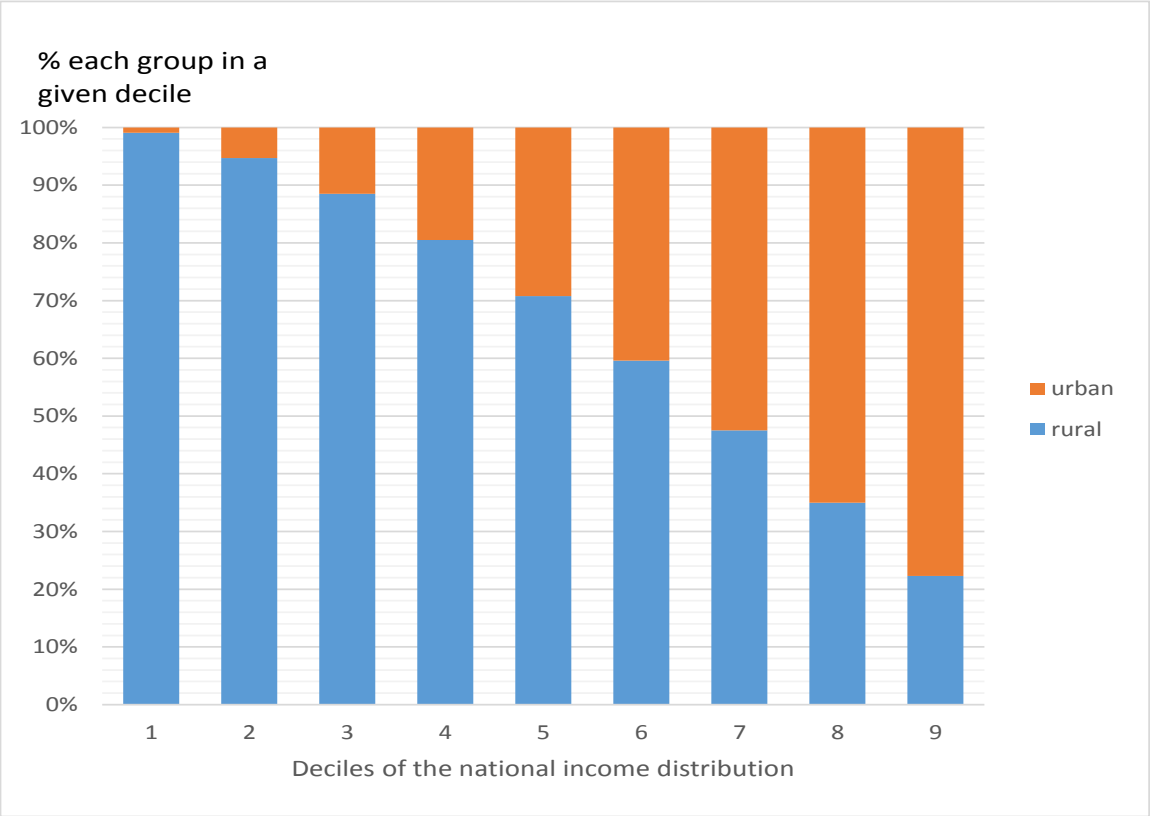
Source: The NBS series for the national Gini is taken from the NBS Economic and Statistical Communique and CEIC. No data is available prior to 2003. The urban Gini coefficient from the NDRC is taken from Zhang D., (various years), The China Income Distribution Report, NDRC Income Distribution Department, (in Chinese), Economic Science Press, Beijing. The derived income distribution data used to calculate the estimated Gini coefficients have been aggregated with the series for the registered urban and rural population to generate the average income by decile at the national level. This procedure is necessary because no detailed distribution data is available at the national level. The data used for estimation were those available in February 2014..

Lower levels of income in rural areas mean that national income inequality is higher than the levels seen solely within either rural or urban areas (Figure 1.8). When the National Bureau of Statistics combines the data from the urban and rural household surveys, it finds the national Gini coefficient is higher than either the urban or the rural income one (0.47 in 2013, against 0.31 and 0.38 in urban and rural areas) due to the large gap between urban and rural incomes. This is due to the large difference between rural and urban incomes, and because people living on low incomes are concentrated in rural areas (**Figure 1.9**).[20]

[20] Measuring the evolution of the income distribution at a granular level requires estimation. Up to 2015, the NBS only published summary data for the national income distribution. For the purposes of this report a more complete picture of the national income distribution was needed. In order to obtain this detail, first distributions of the urban and rural incomes were estimated from the published data. The Gini coefficient derived from these estimated rural and urban distributions replicates the official data (Figure 1.8). However, the aggregate estimate of the Gini coefficient slightly underestimates the official national Gini. This is perhaps because the NBS has corrected the over-estimate of rural disposable income relative to that of urban disposable income. At present, though, it is necessary to use this estimated method to obtain a sufficiently granular estimate of the national income distribution in the absence of official data for 2013. The estimates show the extent to which people living on low incomes are concentrated in rural areas (Figure 1.9). Inequality may also be understated by the official income surveys, because they do not adequately capture the income of rich households nor do they include income from corrupt activities.

Figure 1.9. Those with the lowest incomes overwhelmingly live in rural areas

Distribution of rural and urban inhabitants by national income deciles in 2012



Source: OECD estimates of the national income distribution.

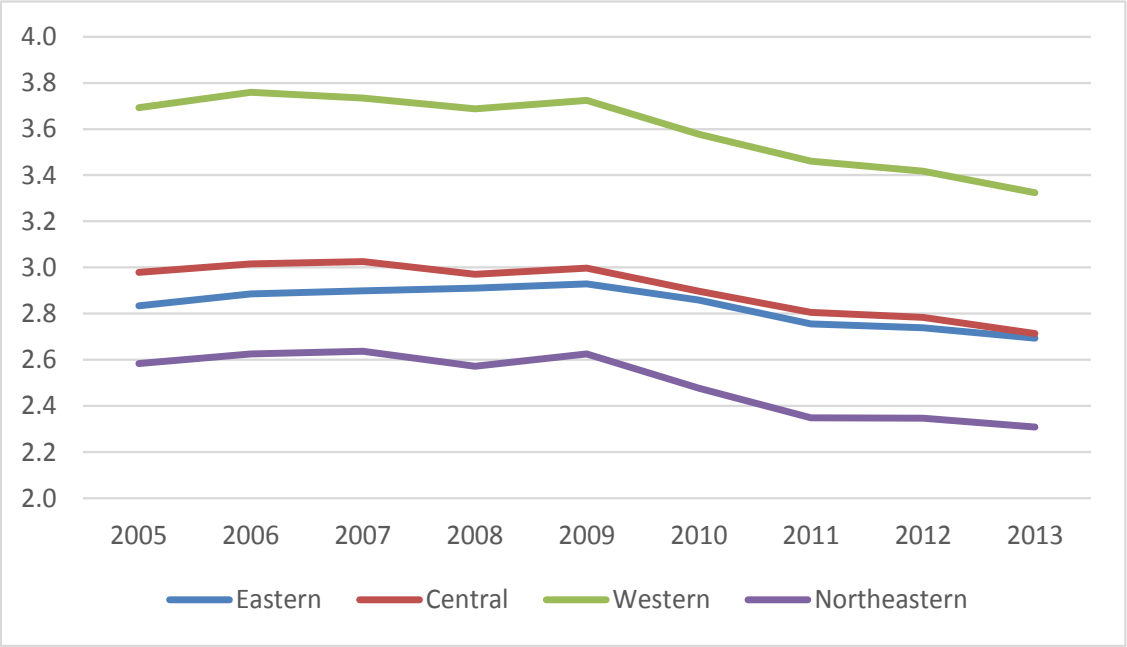
Income gaps between urban and rural areas and across provinces have narrowed in recent years

The magnitude of the income disparities between urban and rural areas is the result of features particular to the Chinese economy. The *hukou* system is a case in point, since it constrains the mobility of rural-migrants, who would otherwise be more likely to move from rural areas towards more productive urban ones. Despite recent moves towards reform, with the State Council announcing in July 2014 that the distinction between urban and rural residents will be removed, exemptions for major cities mean that rural migrants continue to face discrimination in access to essential services and welfare benefits in the most popular areas for migration.

Urban-rural income gaps differ substantially across regions, **with Western China exhibiting the highest urban-rural income gap** (**Figure 1.10**). This is contributing to a narrowing of income gaps among the provinces and in the country as a whole.

Figure 1.10. The urban-rural income gap varies substantially across regions

Ratio of urban to rural income for China's geographical areas (2005-13)



Note: The classification of the provinces to macro-regions follows the standard geographical classification of NBS. It identifies 10 provinces for East China, 3 for Norhteast China, 6 for Central China and 12 for West China. East China: Beijing, Tianjin, Hebei, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong, Hainan; Northeast China: Liaoning, Jilin, Heilongjiang; Central China: Shanxi, Anhui, Jiangxi, Henan, Hubei, Hunan; West China: Neimenggu, Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Xizang, Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang.Source: China Statistical Yearbook 2013, National Bureau of Statistics (NBS)

Cross-province differentials in GDP per capita have been narrowing over the past decade. The catch-up of the poorer provinces has been accompanied by a profound change in the demographic structure of China. Population growth slowed markedly in the less prosperous Western and Central provinces. Indeed, population has been growing faster in the coastal provinces than in their Western and Central counterparts, reflecting internal migration to the coastal areas.

1.4 Trends in non-monetary outcomes and opportunities

Health outcomes have improved substantially, but remain unequally distributed

Five years on from the launch of the healthcare reform plan, the health status of the Chinese population has improved markedly. That plan saw the virtual achievement of universal access to health insurance coverage (from 10% in 2003 to nearly universal in 2012), with official figures showing a sharp decline of out-of-pocket expenses from 60% to 34% between 2001 and 2013.[21] Death from communicable diseases has been reduced dramatically, as has infant and maternal mortality.[22] Concomitantly the fall in premature losses of life has been amongst the most rapid among G20 countries (**Table 1.1).**

[21] NBS, China Statistical Yearbook (various years).
[22] Ministry of Health, China Health Statistics Yearbook (various years).

Table 1.1. The fall in premature loss of life in China has been amongst the most rapid in the G20

Health outcome indicators: China compared to other G20 members

	China	Advanced countries	Emerging market countries	USA	Advanced countries	Emerging market countries
	level in 2010				China relative to other groups (ratio)	
Age-standardised death rate (per 1 000 000)	60.7	42.3	80.2	516	1.4	0.8
Age-standardised YLLs (per 1 000 000)	1402.4	856.6	2313.3	1144.7	1.6	0.6
Life expectancy at birth (years)	75.7	80.6	71.2	78.2	0.9	1.1
	% change per year 1990-2010				Ratio of growth rates	
Age-standardised death rate	-1.93	-1.76	-0.8		1.1	2.4
Age-standardised YLLs (per 100 000)	-2.85	-2.21	-1.14		1.3	2.5
Life expectancy at birth (years)	0.44	0.28	0.24		1.6	1.8

Note: The data for life expectancy are the results of the authors and may differ from national estimates.

Source: Yang G. et al. (2013), "Rapid health transition in China, 1990–2010: findings from the Global Burden of Disease Study 2010", Lancet, Vol. 381.

Despite major improvements, life expectancy in China remains below its potential. Cross-country analysis suggests that improvements in life expectancy are closely linked to increases in GDP per capita. As will be shown in Chapter 2 on the basis of cross-country regressions, China is among the countries where potential and actual life expectancy diverge most. The gap amounted to about 1.2 years in 2011. The increase in deaths from non-communicable diseases may be one factor behind this shortfall.

Health status is unequal among social groups. In urban areas self-reported health status is better for higher-income individuals, as in OECD countries.[23] Inequalities in health outcomes also differ across provinces and between urban and rural areas. Analysis of census data shows that life expectancy has increased in both urban and rural areas between 1990 and 2010, but more so and faster in urban areas. However, the gap between life expectancies in rural and urban areas is much greater in the poorer Western provinces than in the coastal areas. In the Western provinces distances to medical facilities are greater than in coastal areas and travel times are even greater due to the nature of the terrain.

Between 2000 and 2010, life expectancy in the Western provinces improved faster than in the coastal areas, but urban-rural inequalities remain stark. Overall, between 2000 and 2010, life expectancy in rural areas increased faster than that in urban areas.[24] The catch-up effect was quite marked, with life expectancy in mainly rural Yunnan having risen almost twice as rapidly as that of mainly urban Shanghai. Even so, in 2012 life expectancy in Shanghai, at 80.2 years, was still 10 years longer than that in Yunnan. Indeed, in the more prosperous urban areas to the east of the country, such as Shanghai and Beijing, the average life expectancy at birth was almost the same as the average in the advanced economies of the G20 in 2010.[25]

[23] Yang W. and P. Kanavo (2012), "The Less Healthy Urban Population: Income-Related Health Inequality in China", *BMC Public Health*, Vol.12.

[24] This statement is derived from tabulations in the 2000 and 2010 Census. They showed life expectancy in rural areas to have increased from 69.8 years to 75 years, while life expectancy in urban areas rose from 75.3 years to 79.9 years.

[25] China Statistical Yearbook and Yang G. et al. (2013), "Rapid Health Transition in China, 1990–2010: Findings From the Global Burden of Disease Study 2010", Lancet, Vol. 381.

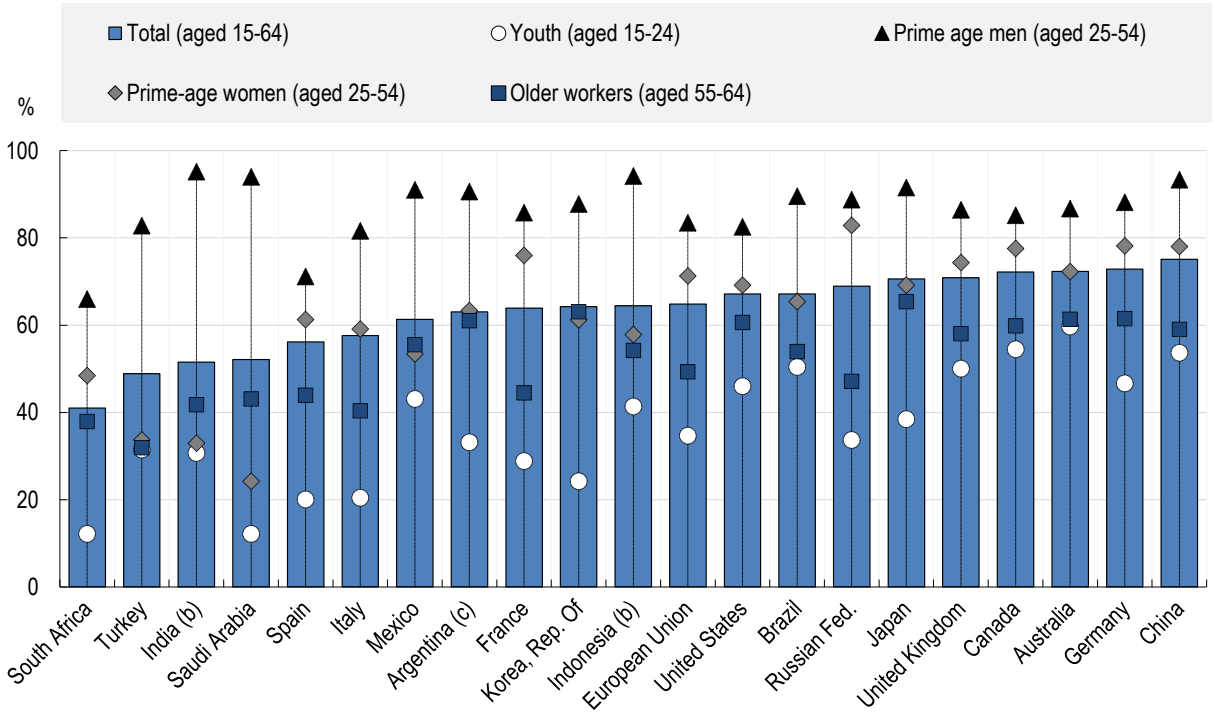
China's employment record is impressive, but job quality and employment protection differ between permanent and temporary employees

The Chinese labour market successfully weathered the storm of the global economic and financial crisis. In its aftermath the labour market performed strongly and registered relatively low unemployment rates, which in 2012 stood in urban areas at an estimated 6.4% despite a slowdown in economic growth. China recorded the highest employment rate of all G20 countries in 2012 (**Figure 1.11**), at 75% for the working age population (aged 15 to 64 years).[26] Strong employment has been supported by sustained economic growth and the vast restructuring of the economy (**Figure 1.12**). This high employment rate reflects the continued importance of rural employment rates in China, which are higher than those in the OECD area for all age-groups. For younger age-groups this is caused by low participation in education. For older age-groups, it reflects the tendency for all members of the family to work on the farm and to continue working to advanced ages due to the lack of pensions in rural areas. In urban areas, though, the difference between age-specific employment rates in the OECD area and China is less marked. In the 20-49 age range, employment rates are somewhat higher but beyond 50, employment rates drop below those seen in the OECD area. These differences may reflect the divergent nature of the social welfare systems in China and the OECD. Few government benefits are available to people below age 50 in China, but after 50 provisions for retirement are more generous than in the OECD area with most women being able to retire at age 50.

[26] OECD (2013), OECD Economic Survey of China, OECD Publishing, Paris.

Figure 1.11. China has the highest employment rate among G20 countries

Employment by gender and age groups, as a percentage of the population of the indicated group (2012)



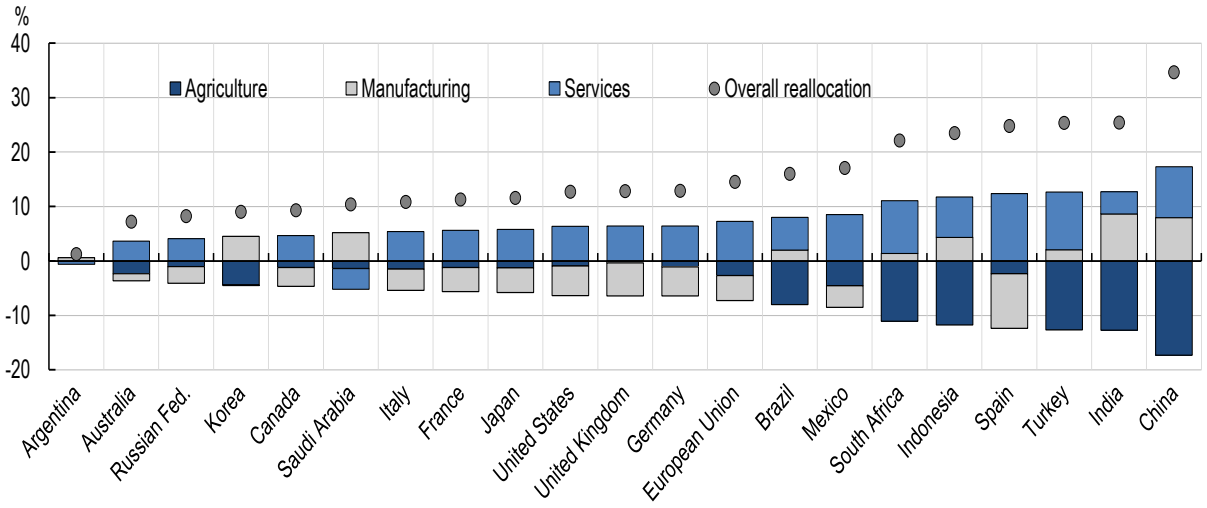
Notes: Countries are shown by ascending order of the total employment rate.
1. 2010 for China and 2011-12 for India.
2. Older workers refer to person aged 55 and over and total to persons aged 15 and over.
3. Selected urban areas only.

Source: OECD Labour Force Statistics Database and national labour force surveys.

The Chinese labour market is changing fast, with employment shifting from rural agriculture to urban industry and services. As a reflection of the changing composition of GDP, more than 30 percentage points of the workforce have shifted away from agriculture since early 2000, from low to more productive jobs in manufacturing and services a decade later (**Figure 1.12**).

Figure 1.12. China experienced the greatest overall reallocation of labour amongst G20 countries

Percentage-points change of the share of the indicated sector (between 2000 and 2012)



Source: ILO - Trends Econometric Models, October 2013

The large influx of low-skilled rural migrants into urban areas has contributed to the informalisation of the urban labour market. Low actual,, as opposed to legislated, employment protection has helped the urban labour market absorb unskilled rural migrants and large numbers of workers formerly employed by SOEs. This has given new opportunities to private entrepreneurs to create businesses and innovate, but has also led to the informalisation of the urban labour market, and increasing neglect of duties like the protection of workers from industrial injuries. The flexibility of the migrant labour force meant that during the period of the global financial crisis between 2008 and 2009, total employment of migrants rose.[27] Even though migrants bore the brunt of job losses following the downturn after global financial crisis,[28] their unemployment rate only rose to slightly above 1%.[29]

Migrants and informal workers continue to lack adequate protection. The system of unemployment insurance remains unequal and inadequate. The average replacement rate provided by unemployment benefits to eligible workers remains one of the lowest among G20 countries. In 2008 an affiliated worker with 4 years of seniority in the job would receive on average 2.4 months of previous earnings in the first year of unemployment, against 2.8 months in the United States, 3.3 months in Turkey, 3.4 months in Brazil or 4.6 months in South Africa.[30] Moreover, the coverage of unemployment benefits is extremely low with only 9% of the unemployed population receiving benefits (**Figure 1.13**).

27 NBS (2014*), National Monitoring Survey of Rural Migrants.*

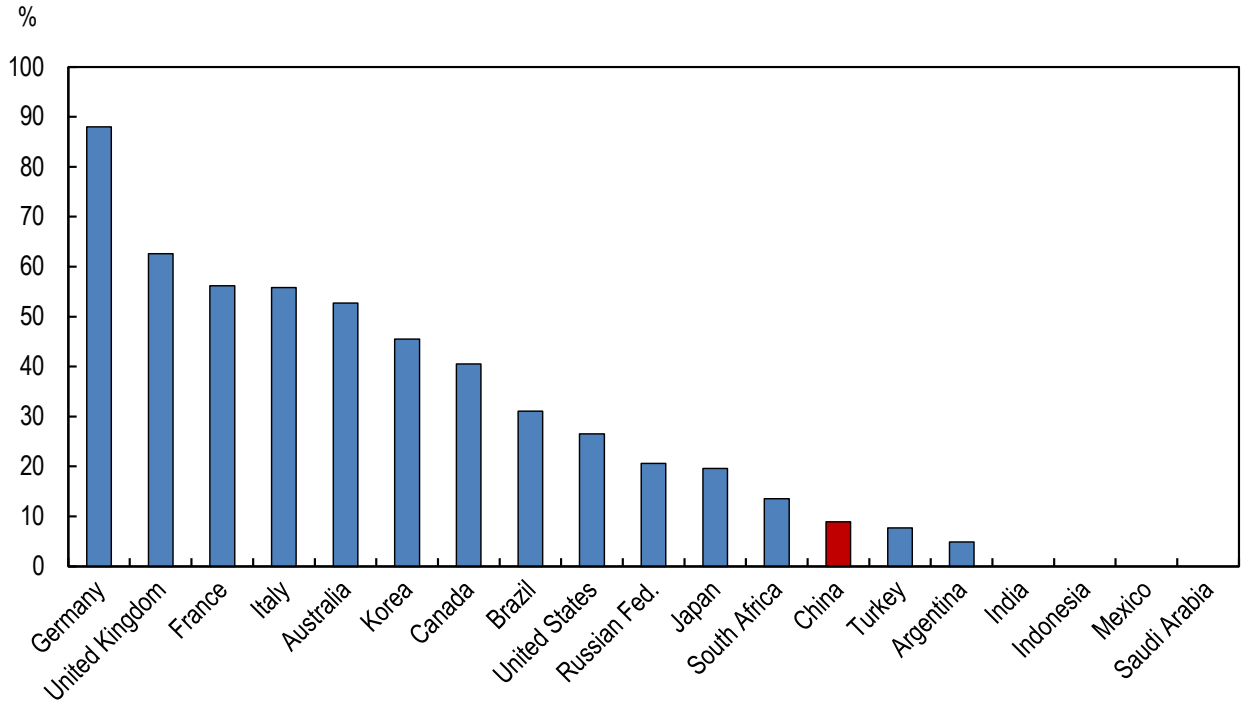
28 ILO (2013), China: Economic slowdown led to job losses and real wage declines, G20 Statistical Update.

29 Meng X. (2013), "Rural-Urban Migration", Chapter 9 in Garnaut R., Cai Fang C. and L. Song, editors, *China: A New Model for Growth and Development*, Australian National University, Canberra.

30 OECD (2013a), OECD Economic Survey of China, OECD Publishing, Paris.

Figure 1.13. The coverage of unemployment benefits in China is extremely low

Percentage of the unemployed receiving benefits in G20 economies (percentage of total unemployed)



Note: Data refer to 2013 for Canada, France, Indonesia and Mexico; 2011 for Argentina, Italy and Saudi Arabia, 2010 for China and Japan, 2009 for Brazil and India and 2012 for the other countries.

Source: ILO Social Security Inquiry Database and national sources for Brazil.

The low share of the unemployed receiving benefits largely reflects the high number of workers with short-term contracts who do not qualify for benefits and are therefore not affiliated to the system. Amongst the 41% of rural migrant workers who had labour contracts in 2013, most had short duration contracts and so were not eligible for redundancy payment. In addition, most local unemployment insurance regimes do not allow migrants to enrol and in 2013, only 9% of migrant workers were affiliated to the unemployment insurance system.[31] According to trade-union statistics, dispatch workers numbered over 37 million workers in 2010, corresponding to 10% of the non-agricultural workforce.[32] However, this is still over three times the level in OECD countries, where typically the number of dispatch workers is no greater than 3%.[33]

31 NBS (2014), *National Monitoring Survey of Rural Migrants* (in Chinese).

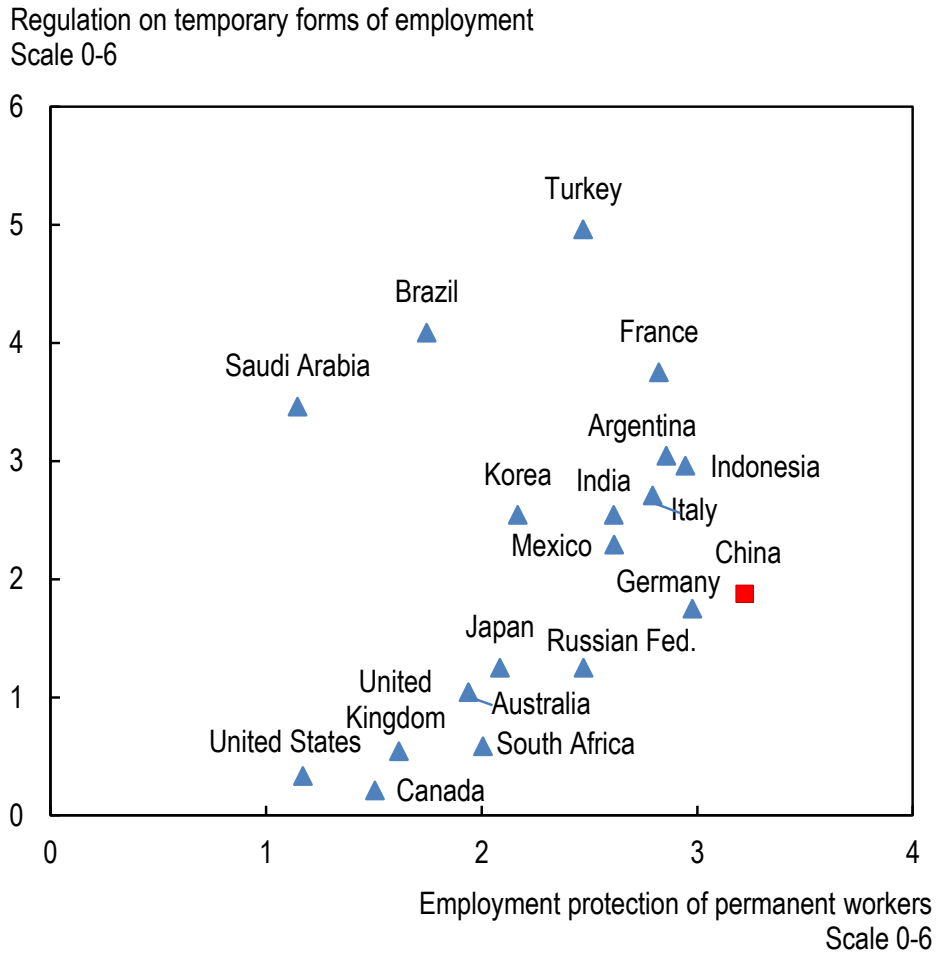
32 Wu R. (2012), "Improving the Labour Contract Law and Standardising Labour Dispatch", article by the vice-chairman of the NPC Financial and Economic Committee, The Journal of the Chinese National People's Congress, Issue 12, Beijing (in Chinese); and the All-China Federation of Trade Unions (2012), "Current Situation of Labour Subcontracting in China", China Labour, Vol. 5 (in Chinese).

33 OECD Employment Outlook (2014), OECD Publishing, Paris. Dispatch employment (most commonly called temporary-work-agency or TWA employment in OECD countries) usually designates a three-way labour relationship in which the employer (i.e. the agency), within the framework of its business or professional practice, places the employee at the disposal of a third party (i.e. the user-firm) in order to perform work (i.e. the assignment) under supervision and direction of that user-firm by virtue of an agreement for the provision of services between the user-firm and the agency.

The provision of a safety net for displaced workers relies largely on severance pay and restrictive Employment Protection Legislation (EPL) for standard contracts. In fact, EPL for permanent workers is particularly strong in China, not only compared with OECD countries, but also with other large emerging-market economies (**Figure 1.14**). With severance pay as high as one month's wages per year of service, together with Turkey, China has the highest rate of severance pay among G20 countries. In addition, in China, the definition of "fair dismissal" is somewhat restrictive, insofar as incompetent workers can only be dismissed in the case of lack of improvement after the provision of adequate training. Moreover, remedies for unfair dismissal are the most burdensome among G20 countries, giving workers the possibility of choosing between reinstatement in the job with back pay or compensation as high as two months' wages per year of service.

Figure 1.14. Temporary employees in China have very little protection compared to their permanent counterparts

Regulation of permanent and temporary contracts in G20 countries (2013 or latest available date)



Note: Data refer to 2013 for OECD countries and to 2012 for other countries. Employment protection for permanent workers measures the stringency of regulation concerning individual and collective dismissal. Regulation on temporary forms of employment measures the stringency of hiring regulation for fixed-term and temporary work agency (dispatch) employment. Both indicators vary between 0 and 6 from the least to the most restrictive.

Source: OECD Employment Protection Database, 2013 update.

Dismissal restrictions and severance pay only protect permanent employees, leaving temporary workers at a disadvantage. Fixed-term and other temporary contracts are relatively unrestricted in China, which has the widest gap between OECD EPL indicators for permanent and temporary contracts among all G20 countries. In turn, this encourages firms to replace regular workers with temporary ones, who are neither covered by severance pay nor, in most cases, eligible for unemployment benefits. The large asymmetry between the EPL provisions applying to the two types of contracts typically has the effect of reducing the conversion rate of fixed-term contracts into permanent ones. This means that fixed-term contracts become something of a trap, rather than a stepping stone into more stable employment.[34]

Actions taken to limit the use of temporary employment are only partially enforced. The government has begun to take action on the use of dispatch workers, passing a new law to restrict it use in 2013. The impact of the law on the flexibility of employers will depend on enforcement. Initial results from surveys suggest that enforcement is strictest for larger firms, SOEs and foreign companies. The law has made employers more cautious about termination practices. It also appears to have raised participation in some forms of social insurance and the proportion of migrants with labour contracts. However, enforcement of labour laws is in the hands of local government, which is often more concerned about having an employment environment attractive to employers than with labour protection, resulting in arbitrary privileges. In addition, certain parts of the law are ambiguously phrased, which has resulted in long delays when employees take employers to court.[35]

Overall, unemployment in urban China has remained modest. The urban unemployment rate in China has remained at similar levels to nationwide unemployment rates in OECD members outside of continental Europe (**Figure 1.15**).[36] In the OECD area, urban unemployment rates are similar to those nationwide. For example in 2010, in the European Union, the urban unemployment rate was 9.6%, exactly the same as the national rate.[37] The last observation for China is for 2012 when the estimated urban unemployment rate was 6.4%. More recent observations are only available for the new 31 city quarterly labour force survey which showed an unemployment rate of 5.1% in December 2014.[38]

[34] OECD (2013), OECD Employment Outlook, OECD Publishing, Paris

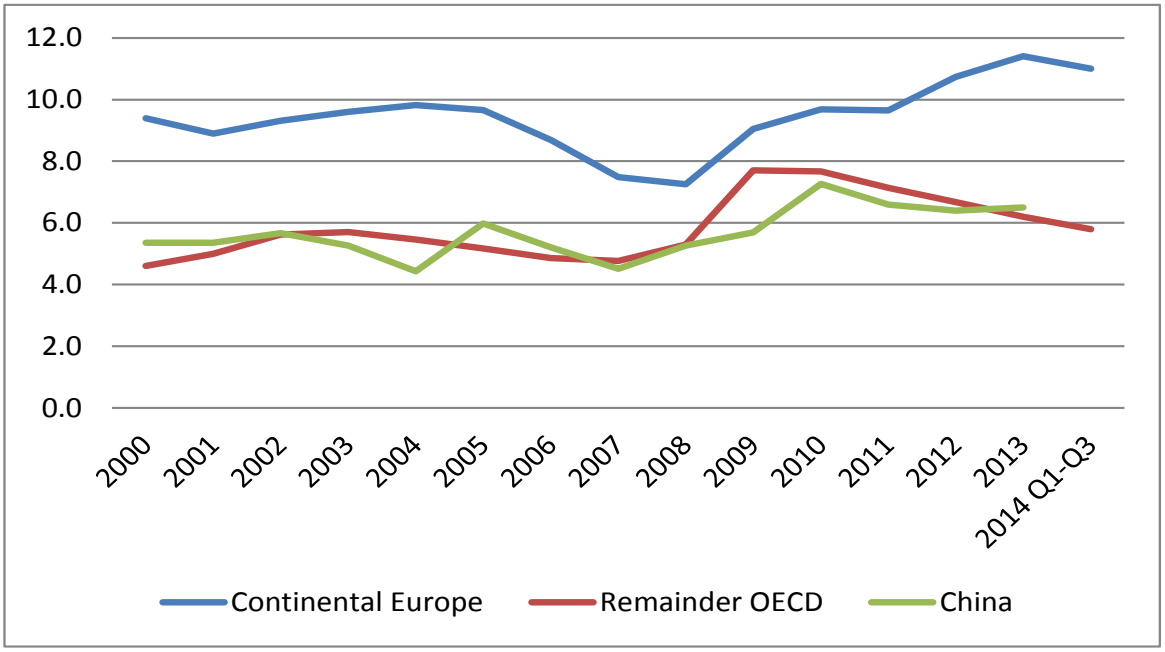
[35] Gallagher M., J. Giles, A. Park and M. Wang (2014), "China's 2008 Labor Contract Law: Implementation and Implications for China's Workers", Human Relations, Vol. 17.

[36] The NBS does not issue an unemployment rate consistent with ILO standards. However, the OECD has used the data in the annual labour force calculate an unemployment rate for urban areas, on the assumption that rural unemployment is zero, as all farmers can work on their homesteads.

[37] European Union (2012), *Rural Development in the EU: Statistical and Economic Information Report 2012*, Brussels.

[38] At the moment it is not possible to compare the evolution of the new series, issued by the NDRC, and the estimated series as there are only three observations for the new series.

Figure 1.15. The unemployment rate in urban China has been lower than the levels seen in OECD countries in continental Europe



Source: OECD countries: OECD online database; China: OECD estimates based on data from the NBS China Statistical Yearbook and Population and Employment Yearbook.

SOE employees receive higher wages and greater benefits than their counterparts in the private sector, only partly reflecting greater levels of education and skills

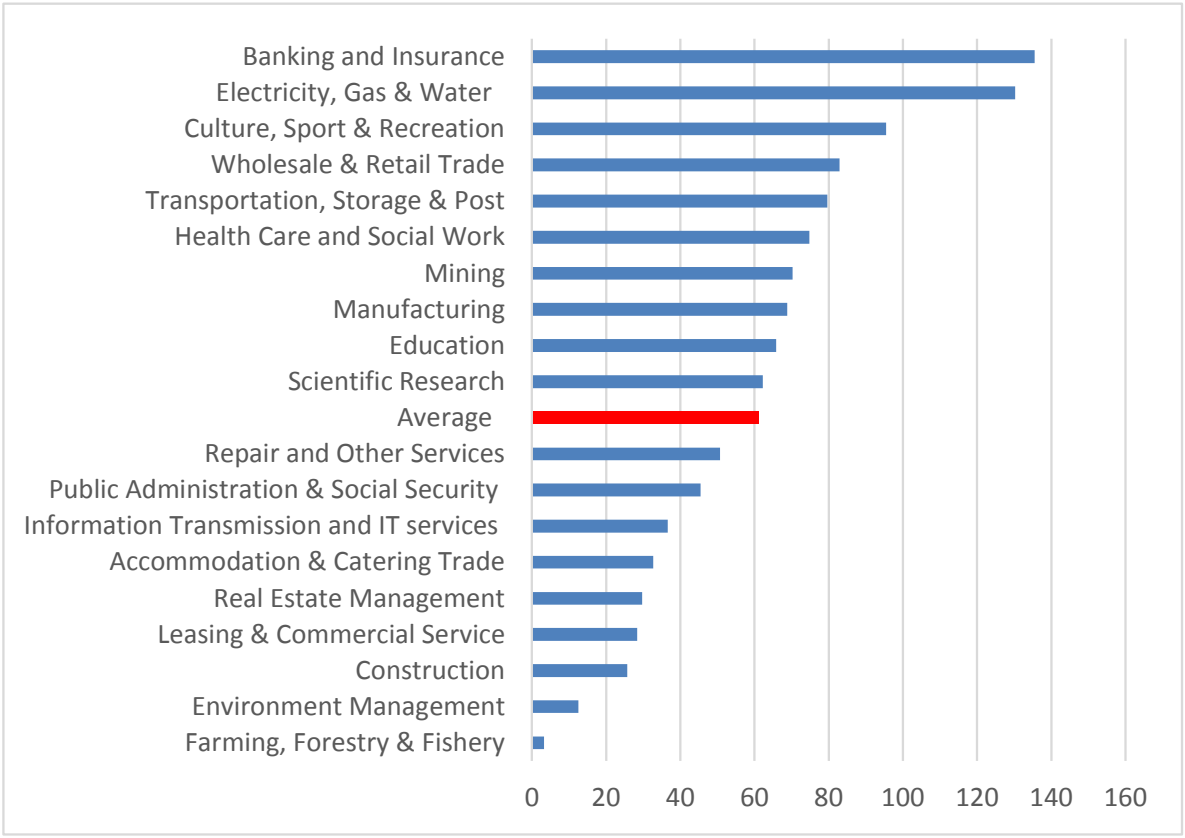
SOEs in general pay considerably higher wages to their employees than private enterprises.[39] For example, the average wage in an enterprise controlled by the central government's State-owned Assets Supervision and Administration Commission (SASAC) amounted to 6302 yuan (USD 998) per year in 2012, more than 2.5 times the salary in the private sector.[40] The differences between the state-controlled and private sectors remain pronounced even when locally controlled and government institutions are taken into account. Even in competitive sectors such as manufacturing or wholesale and retail trade pay in SOEs is higher than in private firms (**Figure 1.16**).

[39] State controlled companies are those in which different parts of the national government own more than 50% of the shares of the company or hold a controlling interest that is less than 50% as well as companies that are fully completely owned by the government. In China, the former are referred to as state held companies the latter as State owned enterprises.

[40] Financial Yearbook of China 2013, CEIC.

Figure 1.16 Employees in SOEs earn considerably more than their private sector counterparts

(Private sector earnings as a percentage of SOE earnings in the same industry)



Source: CEIC and National Bureau of Statistics

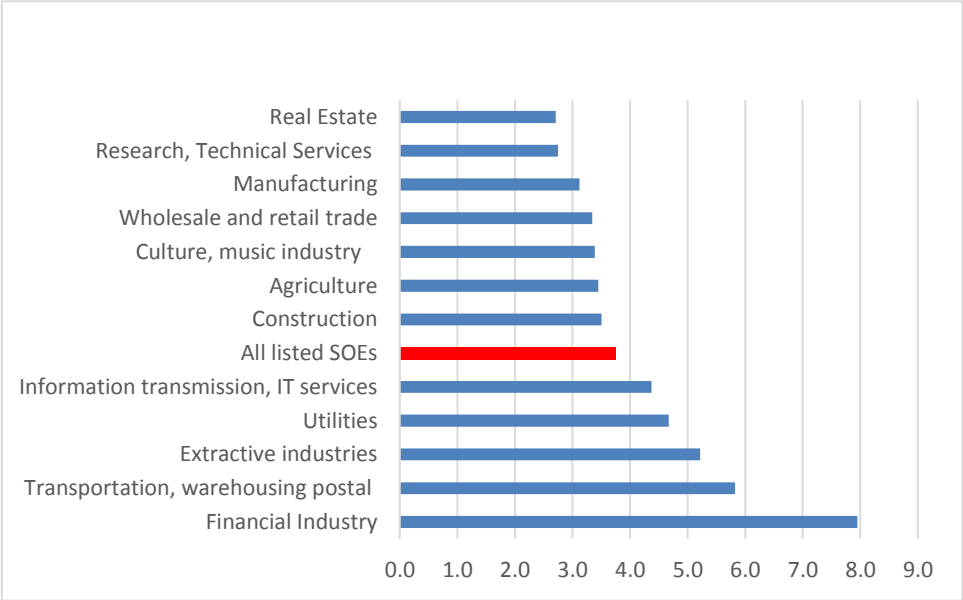
Differences in salaries are even more pronounced when only the 284 subsidiaries of the 115 SASAC controlled enterprises are considered. The average salary in these listed companies was 3.75 times the pay in the private sector.[41] Moreover, between 2003 and 2012 the gap in pay between SOEs in monopolistic industries and those in competitive sectors rose from 58% to 76%.[42] The level of pay in the listed subsidiaries of central SOEs relative to the private sector is also higher in the monopolistic sectors (**Figure 1.17**).

41 Netease Laboratory, *2013 Central Enterprise Workers and Executive Compensation Report,* http://money.163.com/special/wagereport2013/ (in Chinese)

42 Xu X., X. Song. and D. Zhang (Editor), Chinese People's Income Distribution: Annual Report, 2013, Department of Income Distribution, National Development Reform Commission, China Financial and Economic Publishing House (in Chinese).

Figure 1.17 The level of pay in listed subsidiaries of central SOEs relative to the private sector is higher in the monopolistic sectors

Ratio of average pay in listed SOEs to private sector pay in same sector



Source: Netease Laboratory (2014), 2013 Central Enterprise Workers and Executive Compensation Report,http://money.163.com/special/wagereport2013/

While earnings are higher in state-controlled enterprises, they are more equal than in the private sector. The Gini coefficient for the hourly earnings of people working in the private sector is considerably greater than the same coefficient in state-controlled industries: 0.45 against 0.37.[43] This difference may be due to the greater homogeneity of SOEs and also to the greater ability of people working in the private sector to vary their number of hours and work-effort relative to state-controlled units. In SOEs, seniority in the enterprise has a much greater impact on pay than in the private sector. Such a pay structure also induces employees to stay in the same enterprise for much longer than people in the private sector (18 years as against 10 years).

Only part of the pay differential in favour of the staff of SOEs appears to be due to higher qualifications or other measurable attributes. A typical method for analysing this differential is to try to explain earnings in the different sectors by age, experience, seniority in post, and training. When such an analysis is confined to people with an urban *hukou*, studies find that the bulk of the differential in wages could not be explained by personal attributes, suggesting that there was discrimination in hiring practices.[44] Other researchers have found that wages are higher in monopolistic sectors which are always dominated by SOEs.

[43] Démurger, S., S. Li, and J. Yang, (2011), "Earnings Differentials between the Public and Private Sectors in China: Exploring Changes for Urban Local Residents, in the 2000s", *China Economic Review*.

[44] *Op.cit. and Xia Q., L. Song, S. Li and S. Appleton (2014), "The Effect of the State Sector on Wage Inequality in Urban China: 1988–2007", Journal of Chinese Economic and Business Studies.*

Educational attainment has improved, but spatial and gender inequalities still affect access, particularly to higher education

Access to formal education has improved markedly over the past 20 years. The government has achieved its objective of providing nine years education to all children regardless of where they live and of their registration status. In addition, the proportion of the age group graduating from senior high school has grown rapidly, especially from the vocational track where the proportion of 17 year olds graduating from vocational schools doubled between 2005 and 2012 to reach 34%. Overall, the average number of years of education has been rising steadily each decade. In particular, by 2010 the 25-29 age-group had almost three times the amount of higher education as the 40-45 age-group (**Table 1.2**).

Table 1.2. The length and standard of education attained in China has improved consistently

Educational achievement of different age groups in 2010

	Descending 5 year age groups						
	59 to 55	54 to 50	49 to 45	44 to 40	39 to 35	34 to 30	29 to 25
	Years of education						
Years of education	7.2	8.6	9.1	9.1	9.5	10.1	10.6
	Highest level of education						
Junior college	2.4	3.5	4.4	4.6	6.5	8.8	11.1
University	0.9	1.3	2.4	2.8	3.7	5.7	8.3
Post Graduate	0.0	0.1	0.3	0.3	0.4	0.8	1.2
Total tertiary	3.3	4.9	7.0	7.7	10.6	15.2	20.6

Source: Tabulations of the 2010 National Census.

Government policy on charging fees has differed according to the level of education. The government policy of ending all fees and charges for junior schools helped achieve the goal of nine years compulsory education for all. Fees remain in place for senior **secondary** schools covering 17% of total costs and were 57% higher per student in the academic track high schools than in vocational schools. Fees for tertiary education were increased, and by 2011 covered around 26% of the cost of tertiary education.

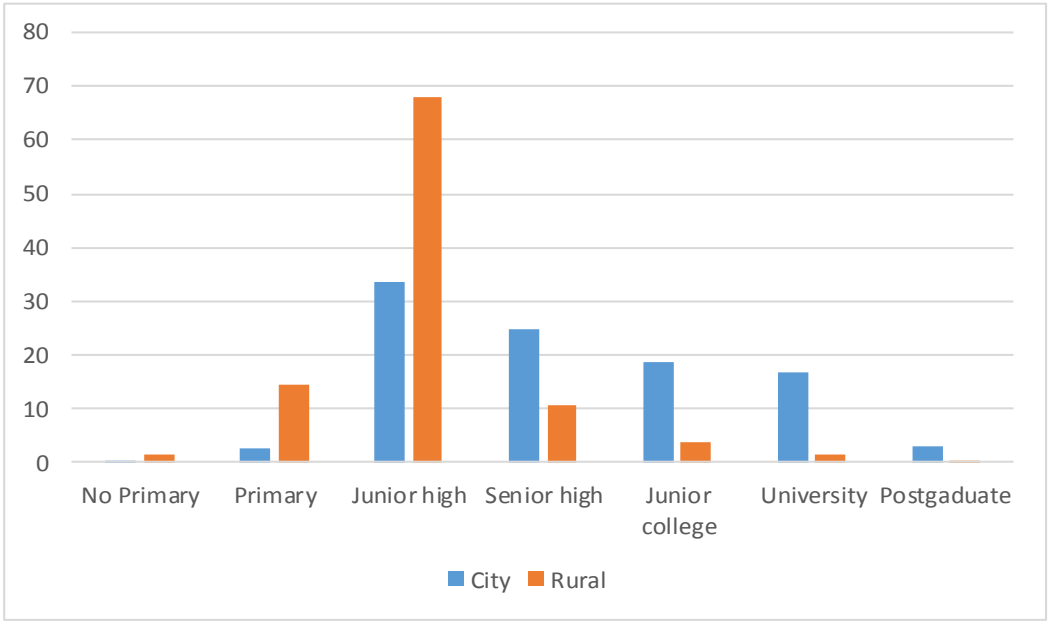
Rural-urban inequalities in educational access and outcomes remain large, and there is also a marked gender divide particularly in rural areas. The educational attainment of the 25 to 29 year-olds in cities and rural areas differs greatly (**Figure 1.18**). In 2010, the average difference in years of education between people living in cities and in rural areas was three years. Moreover, since a significant portion of people living in cities still had rural registration status, the difference between people holding an urban *hukou* and a rural *hukou* appears to be larger still. There is also evidence that families discriminate in favour of boys when they decide on the education to give to children, and in rural areas men enjoy far better access to education (**Figure 1.19**). However, gender is not the primary factor contributing to inequalities such as the urban-rural divide, geographical disparities and socio-economic background.

The discrepancies in access are most apparent in higher education (**Figure 1.18**). In 2010, people living in cities aged 25 to 29 were seven times more likely to have tertiary education than people living in rural areas. Of course, many people born in rural areas will have moved to city areas to work and so the difference in access will be lower than the ratio based on where people actually live. In addition, those living in urban areas were much more likely to enter the best institutions. In

Tsinghua and Peking Universities, the proportion of rural students in the 2011 intakes was 14% and 10% respectively. In the 100 universities in the government's 211 programme, that aims to create over 100 world class universities in the 21st century, rural students were still markedly under-represented in 2009, as they constituted 41% of admissions while the share of people with a rural *hukou* is 63%.[45]

Figure 1.18. City youth have much better opportunities to progress into higher education

Proportion of 25 to 29 year olds with a given maximum level of education in 2010

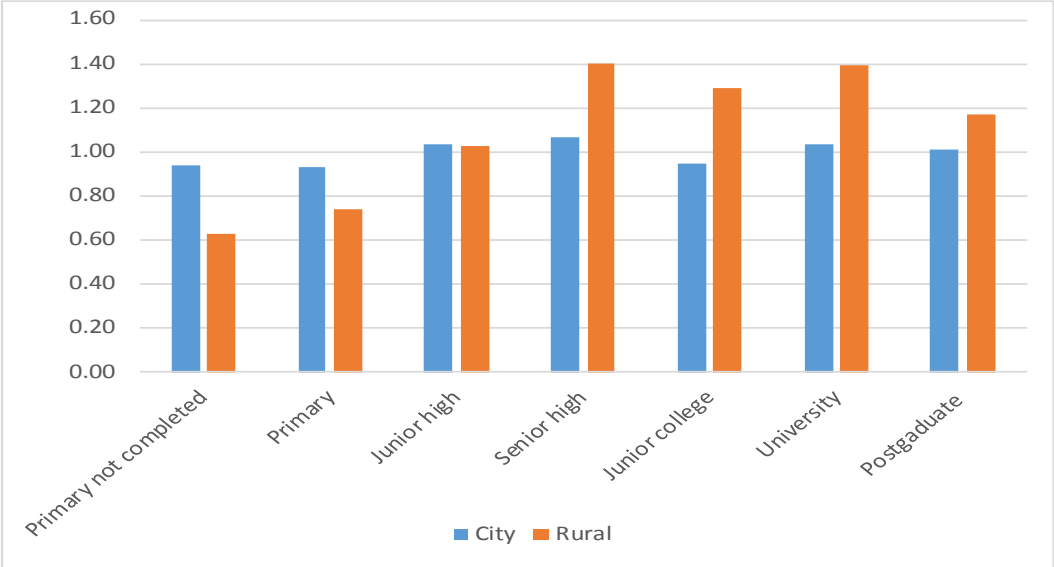


Source: Tabulations of the 2010 Census.

[45] MyCos and Phoenix Financial News (2009), Annual Survey of University Admissions and Employment, Beijing, http://finance.ifeng.com/job/special/dxsjy/zcpl/20090922/1267368.shtml in Chinese.

Figure 1.19.In rural areas men have better access to advanced education

Ratio of men to women with a given level of education in 2010



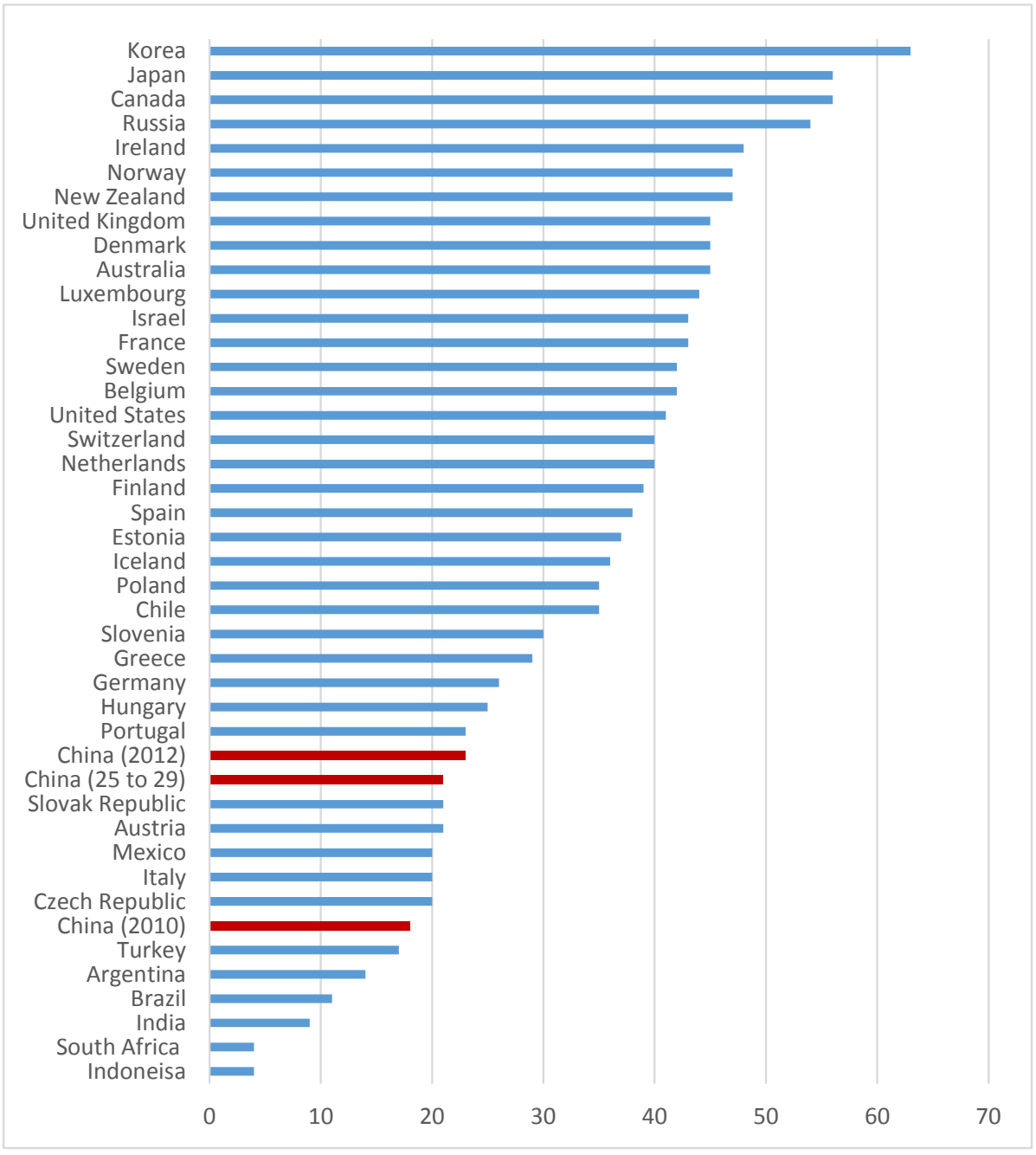
Source: Tabulations of the 2010 Census

The share of 25-34 year olds who have completed tertiary education compares favourably with other emerging-market economies but still stands some way behind most OECD countries. The rapid increase in the numbers enrolling in tertiary education that took place in the first half of the last decade paused in the second half of the decade but regained momentum at the end of the decade. By 2013, an estimated 35% of 18 year-olds were enrolled in tertiary education.[46] Since then the graduation rate has been stable (Figure 1.20). In 2012, for the age group 25 to 34, the proportion with a tertiary education was well below the 63% seen in Korea, but far above the rate in Brazil, India or Indonesia.[47] Of the 6.3 million graduates from tertiary education in 2013, about half followed four year courses at universities leading to a bachelor's degree while the other half graduated from short-cycle courses at higher vocational colleges. In the OECD area, the proportion of tertiary graduates from vocational courses is much less at slightly over one-quarter.[48]

[46] China Statistical Yearbook and US Bureau of Census, International Program.
[47] OECD Education at a Glance 2012, OECD Publishing, Paris.
[48] Table A3.1A OECD Education at a Glance 2013, OECD Publishing, Paris.

Figure 1.20. Educational performance has been strong compared with other emerging market economies, but lags behind advanced economies.

Proportion of age-group 25-34 having a tertiary education qualification in 2009



Source: China: Tabulations of the 2010 Census; Other Countries: OECD Education at a Glance 2012.

Despite some improvement, environmental degradation continues to have a considerable impact on health and the economy

The environmental quality of life has become a key issue in China. China records over 1.2 million deaths from ambient pollution per year.[49] To this have to be added lives lost prematurely due to poor water and sanitation infrastructures. This corresponds to 0.032 disability adjusted life years per person, which is 60% higher than in OECD countries. Environmental issues are also extremely pertinent to inequalities, as the impact of environmental degradation on health and other aspects of well-being are rarely spread evenly across populations: the poorest and most vulnerable are often disproportionately affected.

China is the world's largest emitter of greenhouse gases (GHG). Chinese emissions of carbon dioxide (CO_2) are the most significant component of global GHG emissions, and despite decoupling from GDP growth in recent years they have continued to rise, reaching almost 9.5 billion tonnes in 2013, over one quarter of the global total. In spite of this, China's GHG emissions per capita remain below those of a number of advanced economies, and many emissions are generated during the process of producing goods for export. The carbon intensity of GDP fell by 2.3% per year between 2010 and 2012.[50] The 12th FYP target of a 17% reduction of carbon dioxide will be hard to meet, given that the intensity would need to fall by around 4% in 2015. [51] Such a pace of reduction has only been achieved three times in the last 20 years**.**

Progress has been made in curbing some forms of pollution, but not air pollution. The main sources of air pollution in China are the combustion of solid fuels from transport and the burning of agricultural waste (**Box 1.3**). Emissions of sulphur dioxide (SO_2), an important primary air pollutant, were decoupled from economic growth in the early 2000s and later declined in absolute terms. Between 2010 and 2013, emissions of SO_2 fell by 6.5%. Discharge of various types of water pollution also fell. However, emissions of nitrogen oxides (NOx), another important primary air pollutant, have continued to climb in recent years and now exceed US emissions by a considerable margin. Emissions of both SO_2 and NOx relative to GDP are high compared with large and medium-sized OECD countries. Indeed, in London and Los Angeles, two megacities known for the extent of their pollution, levels have been falling whilst those in Beijing have risen (**Figure 1.21**). Moreover, the area of China subject to high or extreme ambient concentrations of NOx has been increasing, in marked contrast to Europe, Japan and the Eastern United States (**Figure 1.22**).

[49] Institute for Health Metrics and Evaluation, 2013

[50] IEA (2014), *Indicators for CO_2 emissions*.

[51] State Council Information Office (2014), China's Policies and Actions for Addressing Climate Change 2014.

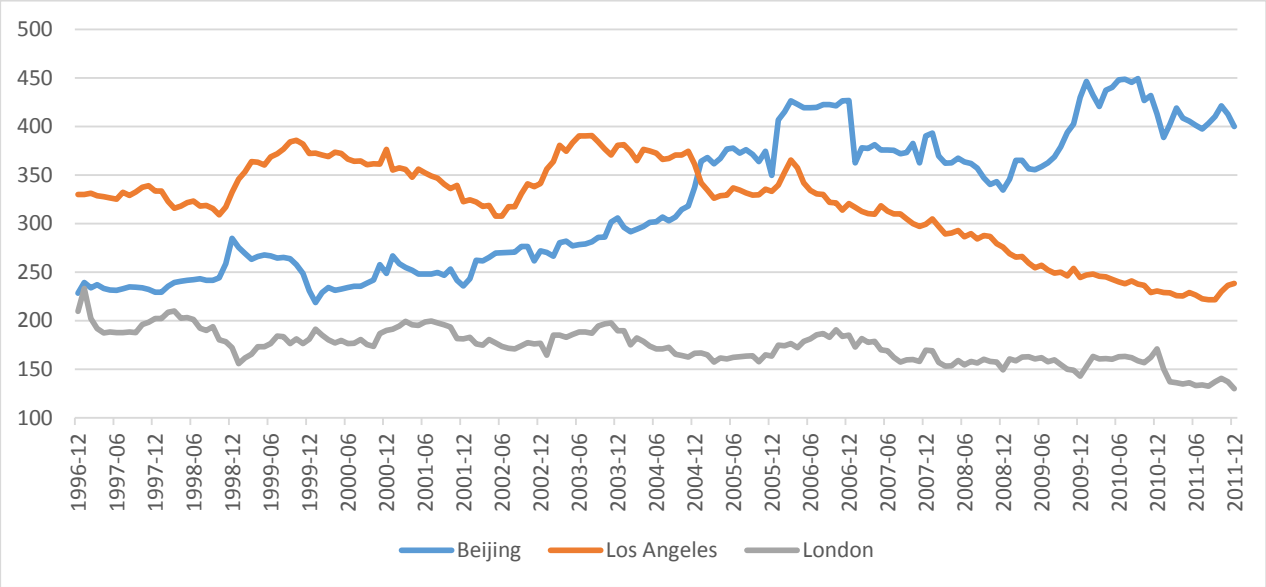
Box 1.3. Sources of pollution

One of the most dangerous air pollutants is small diameter particulate matter, which is formed from a number of components whose importance varies seasonally and geographically. Primary pollutants such as SO2, NOx and NH4 combine in the atmosphere to create small particles, representing about half of the total and the incomplete combustion of fossil fuels, burning of agricultural waste and dust account for the remainder. Recent model-based studies of the Beijing-Tianjin-Hebei region suggest that, in Beijing, the principal sources of particulate pollution are the combustion of solid fuels and agricultural waste burning, accounting for nearly 60% of total PM2.5 pollution while transport accounts for around 20% of the total (Guan D. and Liu Z., 2013). In 2010, heavy trucks and buses emitted 86% of total vehicular NOx and 92% of the PM (Ministry of Environmental Protection, 2011), despite accounting for only 11% of the vehicle fleet (CEIC). However, this analysis is based on theoretical emission factors rather than actual emission factors observed in China. There is evidence from testing of trucks that the actual emission factors exceed the theoretical norms by a very large margin making trucks and buses an even more significant source of pollution (Wu et al., 2012). Readings were taken in Beijing, elsewhere in the country low-sulphur fuel is not available and so emissions from trucks may be even higher. So it is likely that trucks continue to dominate overall emissions, even though their share in the total vehicle fleet has been falling, reaching 8.4% in 2012.

Source: China Association of Automotive Manufacturers; Guan D. and Liu Zhu (2013); Ministry of Environmental Protection (2010), "China Vehicle Emission Control Annual Report", Beijing; and Wu et al. 2012.

Figure 1.21. NOx pollution in Beijing has continued to rise while it has fallen in other mega cities

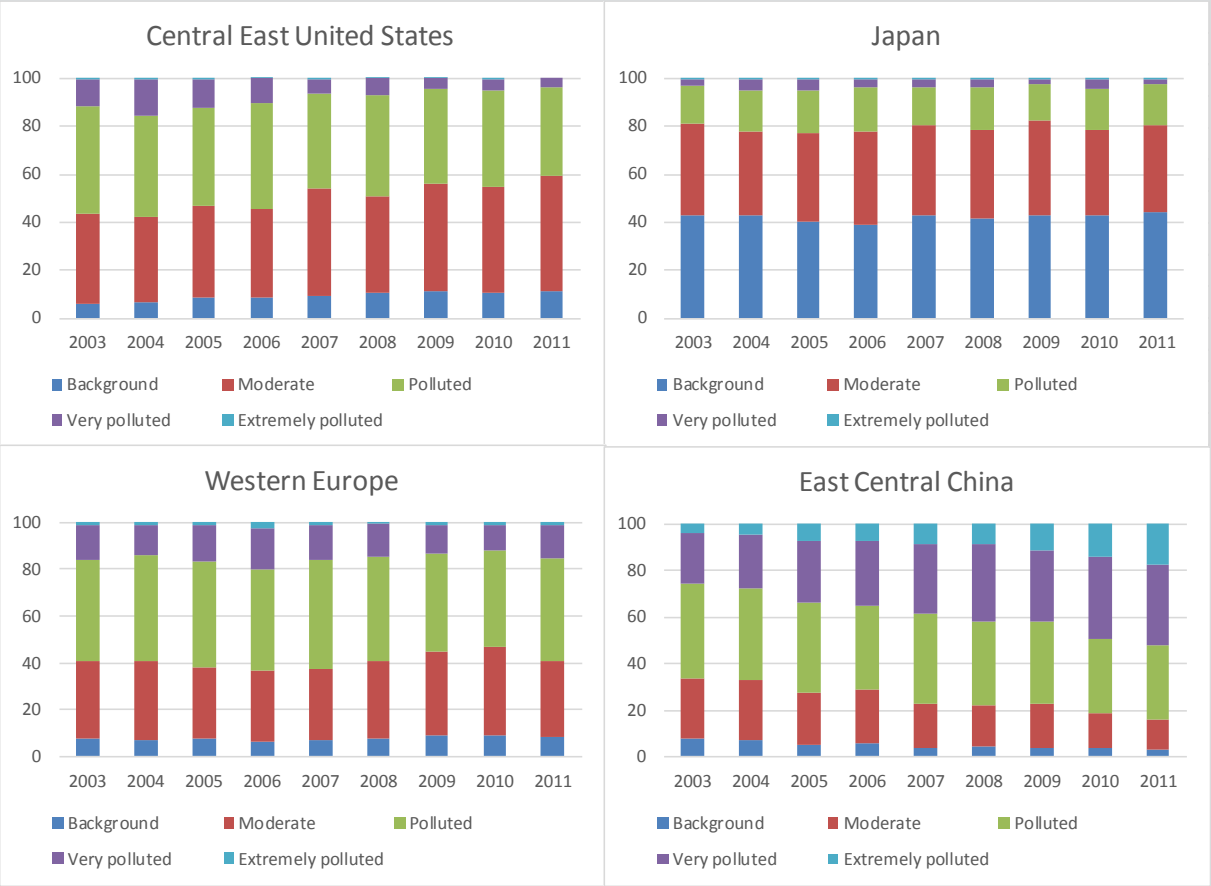
The extent of NOx pollution in three megacities



Source: Hilboll et al. (2013). Data courtesy A. Hilboll / University of Bremen

Figure 1.22. In contrast to a number of OECD countries the area of China subject to high or extreme ambient concentrations of NOx has been increasing

Percentage of the total land area of selected geographic areas subject to different levels of NOx pollution



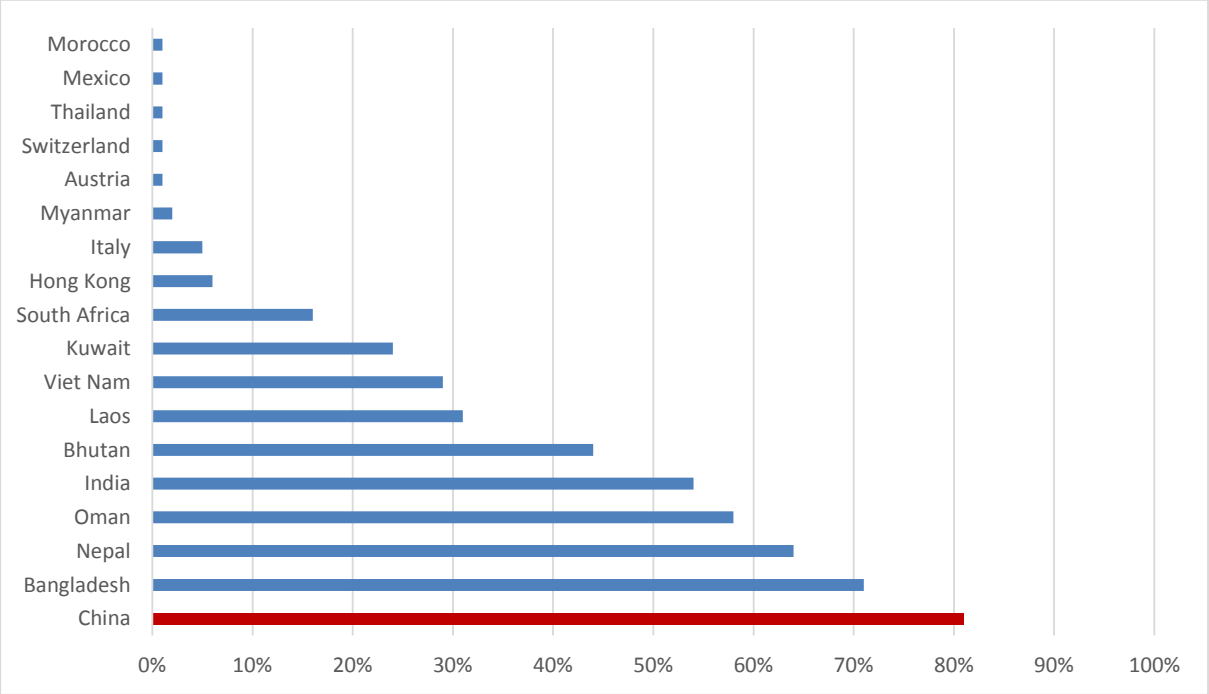
Source: Hilboll et al (2013). Data courtesy A. Hilboll / University of Bremen

Pollution and environmental degradation adversely affect the health status of the population. Analysis of satellite data suggests that the share of the population affected by severe levels of pollution from $PM_{2.5}$ rose until 2007 and then stabilised. As a result, by 2012 over 80% of the population were exposed to pollution levels more than double the guideline values proposed by the WHO, and over two-thirds were exposed to a level 3.5 times that level (**Figure 1.23**). Outdoor air pollution is estimated to be a significant cause of premature loss of life, reducing disability free life expectancy by 1.5 years in 2010.[52]

[52] Yang G., Yu Wang, Y. Zeng, G. F. Gao, X. Liang, M. Zhou, X. Wan, S. Yu, Y. Jiang, M. Naghavi, T. Vos, H. Wang, A. D. Lopez, C. Murray (2013), "Rapid Health Transition in China, 1990–2010: Findings From the Global Burden of Disease Study 2010", The Lancet, Vol.381.

Figure 1.23. By 2012 over 80% of China's population were exposed to pollution levels more than double the WHO guideline level

Proportion of the population by country experiencing PM2.5 pollution levels 2.5 times the WHO guideline level in 2012



Note: Satellite imaging data has been used to calculate average pollution levels over a year for every country or territory in the world on the basis of a geophysical model.[53]. If a country does not appear in the chart, then none of the population is exposed to this level of pollution.

Source: Environmental Performance Index 2013, Yale University

High levels of pollution can impact the economy and distort prices. Estimates drawn from across China show that house prices are higher relative to earnings in less-polluted cities, after controlling for many other variables indicating that individuals now place a considerable value on years of life lost through pollution.[54] Similar results can be found within cities where there are systematic variations in pollution levels, due for instance to prevailing winds. In Beijing, a 10 mg per cubic metre increase in the concentration of PM10 results in a 4% lower price for an apartment, other factors being equal.[55] It is not clear though if this price effect is due to the impact that pollution has on life expectancy, or whether there is an independent impact of aversion to pollution.

[53] Van Donkelaar, A., R. V. Martin, M. Brauer, R. Kahn, R. Levy, C. Verduzco, and P. J. Villeneuve, (2010). "Global Estimates of Exposure to Fine Particulate Matter Concentrations from Satellite-based Aerosol Optical Depth", *Environmental Health Perspectives*, vol 118.

[54] Zheng S., M. Kahn and H. Liu (2010), "Towards a System of Open Cities in China: Home prices, FDI Flows and Air Quality in 35 Major Cities", Regional Science and Urban Economics, Vol. 40.

[55] Zheng S. and M. Kahn (2007), "Land and Residential Property Markets in a Booming Economy: New Evidence from Beijing", Journal of Urban Economics, Vol. 63, No. 2.

Chapter 2. Inclusive Growth Trends in China

2.1 Defining Inclusive Growth

While approaches differ, Inclusive Growth refers to a combination of increased prosperity with a better sharing of its benefits among social groups. Some approaches emphasise productive employment, so that economic growth can generate the jobs needed to absorb growing populations, meet the labour market demands for skills, and ensure that workers reap the benefits of rising productivity. Others emphasise pro-poor redistribution, aiming to deliver higher income gains for low-income groups and, as a result, reduce inequalities in living standards. Still others focus on the economic and extra-economic opportunities generated by growth and on improving the quality of jobs, health outcomes and education.

Despite the absence of a unifying concept, governments and international organisations are increasingly putting Inclusive Growth at the core of their policy strategies. In emerging-market economies, India's 11th FYP aims for Inclusive Growth based on raising the living standards of the poorest, whereas the Chinese approach emphasises the need to spread the benefits of economic progress across all the population and regions (**Box 2.1**). In many OECD countries, although no explicit mention is made of Inclusive Growth, tackling inequality increasingly features as a priority in the growth agenda. In New Zealand, for instance, the Treasury has endorsed a vision of living standards that emphasises both economic growth and distributional considerations. Many international organisations are also proposing definitions and measurements of Inclusive Growth. According to the World Bank, Inclusive Growth should be broad-based across sectors and look beyond the poorest to benefit the wider labour force.[56] For the Asian Development Bank, Inclusive Growth is associated with a decline in inequality of opportunity, allowing the poorest to benefit from – and participate in – economic growth.[57]

[56] The World Bank considers the term ''Inclusive Growth'' to apply to both the pace and the pattern of economic growth, which should be interlinked and assessed together. In this view, whilst rapid economic growth is necessary for reducing extreme poverty, for growth to be sustainable in the long run it should be broad-based across sectors, and inclusive of the large part of a country's labour force. The World Bank's definition holds that policies for Inclusive Growth should be focused not just on the poor but also those in the middle of the income distribution [Ianchovichina, E. and S. Lundstrom (2009), "Inclusive Growth Analytics: Framework and Application", World Bank Policy Research Working Paper N.4851.]. From this perspective, growth is defined as inclusive when there is equality of opportunity in terms of access to markets, resources and unbiased regulatory environment for businesses and individuals.

[57] In its corporate strategy for the period to 2020, the Asian Development Bank stresses that Inclusive Growth is a concept that goes beyond broad-based growth [Ali, I. and Zhuang, J., 2007, 'Inclusive Growth Toward a Prosperous Asia: Policy Implications', ERD Working Paper, no. 97, Asian Development Bank]. An income growth episode is considered "inclusive" first, when it allows the participation and contribution of all members of society to the growth process, with particular emphasis on the ability of the poor and disadvantaged; and, secondly, when it is associated with declining inequality in those non-income dimensions of well-being that are particularly important for promoting economic opportunities, including education, health, nutrition and social integration.

Box 2.1. Inclusive Growth in India and China

The notion of Inclusive Growth in China is conceptually distinct from the goal pursued in India. Whereas for India spreading the benefits of growth can occur even at a low level of development, for China the emphasis is on human development to raise productivity and put in place a comprehensive social security system with redistribution.

In India the government adopted Inclusive Growth as a policy goal in its 11th FYP (2007-11), and it has remained a key component of the approach in the 12th FYP (2012-17). The Indian government views Inclusive Growth as a means to ensure that the poorest groups in society, especially those below the poverty line, benefit from growth. In the implementation of an Inclusive Growth agenda, the government aims to achieve a broad-based improvement in the living standards of all, and rapid growth is considered essential for this outcome. However, the government also wants to ensure that the benefits of growth are widely spread in a geographic sense and in terms of the income distribution, and are adequately shared by the poor and weaker sections of society.

India's approach is pro-poor. During the 11th FYP, Inclusive Growth was pursued via subsidised food programmes, alongside a range of other subsidy programmes and an initiative to provide guaranteed employment to rural workers. The cost-effectiveness of these redistributive programmes is the subject of debate, as they cost 2.4% of GDP to the government budget in fiscal year 2013/14 (Indian National Accounts Statistics, 2014), and yet have a poor record for reaching their intended population targets.

In China Inclusive Growth is a relatively new addition to the language of economic policy making (first appearing in a speech by former President Hu Jintao at the November 2009 17th APEC Leaders' Meeting in Singapore). From a Chinese perspective, while speeding up the transformation of economic growth patterns and maintaining stable and relatively fast economic growth are essential, the ultimate purpose of Inclusive Growth is to spread the benefits of economic globalisation and development among all regions and people and to realise balanced economic and social progress. According to this view, the government must ensure that everyone has equal access to development opportunities; put in place a system for guaranteeing social equity with a focus on ensuring fairness in rights, opportunities, rules and distribution; and remove obstacles that keep people from participating in economic development or sharing in the fruits of economic development. Aiming to attain greater levels of productivity and prosperity and a better environment, Inclusive Growth is seen as requiring a high level of human resources development and full employment. Following on from economic development, the government intends to build a social security system covering both urban and rural residents, and ensure its coverage is broad, basic, multi-tiered and sustainable.

Source: Outlays from Ministry of the Finance (2014), the Expenditure Budget, New Delhi; Central Statistical Office (2014) GDP data from Estimates OF Gross Domestic Product for the First Quarter, MOSPI, New Delhi.

The OECD approach to Inclusive Growth recognises that economic growth is important, but not sufficient to generate sustained improvements in welfare, unless the benefits of growth are shared among individuals and social groups. Recent OECD work has emphasised that, in addition to income and wealth, people's well-being is shaped by a range of non-income dimensions, such as their health,

education and employment status.[58] The level and distribution of these well-being outcomes – not limited to income but also extending to these non-income dimensions – are therefore key aspects of Inclusive Growth, making it a multidimensional concept.

Based on this approach, the OECD has developed a new framework for measuring the inclusiveness of growth. An integral part of the framework is a measure of "multidimensional living standards" that accounts for the *health status of the population* and the *risk of unemployment* facing workers as the key dimensions to be considered alongside *household income*. Inclusive Growth is defined as *a rise in the multidimensional living standards affecting different income groups in society* (see **Annex 1** for a detailed discussion).

For the purpose of computing multidimensional living standards for China, the health and jobs dimensions are assessed as follows. Life expectancy at birth is a conventional indicator of the health status of the population and has been selected for the purpose of computing multidimensional living standards. The difference between the actual life expectancy in China and that in Japan (the comparator country with the highest life expectancy in the OECD area) has been multiplied by the estimated value placed on one additional year of life. The jobs dimension – people's active participation in economic production as a characteristic of inclusiveness – is captured by the unemployment rate. In particular, the change in the unemployment rate from a base year is multiplied by the estimated value placed on experiencing less risk of unemployment. The indicator places monetary weights on the health and jobs indicators so that they can be aggregated with income, the standard measure of living standards.

Gross household real disposable income has been chosen as the relevant measure for the income dimension of living standards. To illustrate the effects of growth on different social groups, the multidimensional living standards indicator is computed for two segments of the income distribution: the median household (defining the middle class) and the lowest decile (the bottom 10% of the income distribution, defining the poor), although other target groups can be considered. Multidimensional living standards are computed in three steps. First, an *income-based* living standard is computed at the level of each decile of the population. Second, average measures of health status and of the risk of unemployment are expressed in income terms[59] and added to the income value of each decile of the population. Finally, the resulting 'equivalent income' measure is aggregated across all deciles of the population.

Of course, the selection of dimensions to be considered in the computation of multidimensional living standards, as well as their indicators, is open to debate. For example, the population's education status and the environmental conditions to which they are exposed are surely relevant for their well-being. It is difficult, however, to establish credible measures of their value (or 'shadow price') that would allow integrating them in the computation of a monetary measure of multidimensional living standard.

Moreover, some of the effects of education and of environmental conditions on welfare are captured in the multidimensional living standards indicator (as richer and healthier individuals are also those more educated and less exposed to a polluted environment). Regarding the environment, health effects of pollution are explicitly addressed below (see **Annex 2** for additional discussion). In addition, access to higher education engenders broader prosperity in the sense that it yields higher income, lowers the risk of unemployment and is associated with longer longevity. However, the absence of

[58] The OECD Better Life Initiative defines people's well-being at a point in time in terms of 11 dimensions pertaining to both their material conditions and to their quality of life. Outcomes in these 11 dimensions are monitored through a range of monetary and non-monetary indicators, See OECD (2013), *How's life? 2013 – Measuring Well-Being,* OECD Publishing, Paris.

[59] Shadow prices of non-income components are measured by regressing household survey data on life satisfaction against income, life expectancy and unemployment variables. The regression coefficients provide an implicit valuation of income relative to life expectancy and unemployment.

available data in which income, unemployment and longevity would be broken down by level of education, prevents the calculation of the effect of education on welfare. Actually, even when limited to the three dimensions included in the analysis, incomplete comparability in the available statistics between China and OECD countries may affect the estimates reported in this chapter.[60]

2.2 How inclusive has growth been in China? Trends in multidimensional living standards

The multidimensional living standards of the Chinese middle class have steadily risen since 1995

Between 1995 and 2012, the multidimensional living standards of the Chinese middle class improved much faster than for their counterparts in OECD countries (**Figure 2.1**).[61] In fact, living standards for the median household in China increased by as much as 9% per year, against slightly less than 3% on average among OECD countries, during this period (**Figure 2.2 and Table 2.1**). This largely reflects much stronger growth in household disposable income, which increased almost 6 times faster in China than in OECD countries (about 8.6%[62] versus 1.4%). The second main contributor has been a steady rise in longevity, which accounts for 1.6 percentage points of the growth in the multidimensional living standards of the Chinese middle class. However, ambient pollution has taken a toll on the evolution of life expectancy in China.

Inequalities, and to a lesser extent, unemployment have held back improvements in the multidimensional living standards of the Chinese middle class. The largest negative impact came from rising income inequality, which subtracted about 1 percentage point per year from the growth of multidimensional living standards for the median household in China, a much stronger effect than that observed for OECD countries over the same period (0.1 percentage point). Finally, the modest rise in unemployment has implied a decrease in the multidimensional living standards of the Chinese middle class of 0.3 percentage points per year.

More recently, the multidimensional living standards of the Chinese middle class improved by over 11% per year during 2012-13. This reflects an acceleration of the growth in living standards that began after 2005. This faster increase has been mainly due to growth in household disposable income as well as to a reduction in inequality, counter-balancing an increase in the unemployment rate.

---

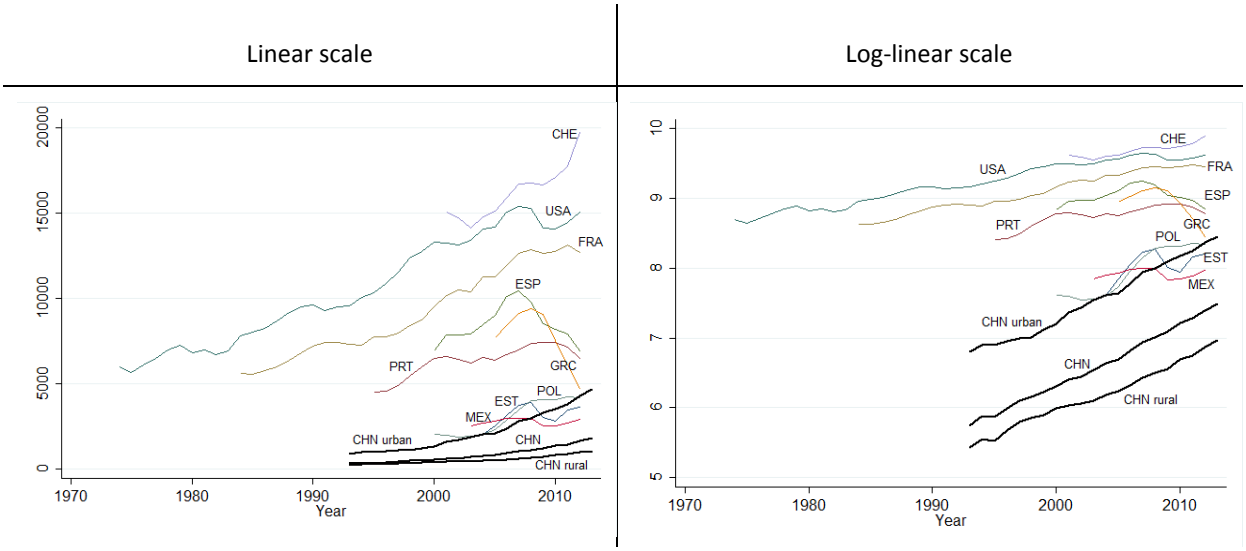
60 Data on the distribution of household income for China, comparable to those available for OECD countries in the OECD Income Distribution Database, are not currently available; the estimates used in this chapter are those described in Box 1.2. Official series on China's unemployment rates are also not internationally comparable (see also footnote 12).

61 The year 1995 is chosen as a starting point because measures of multidimensional living standards for most of the OECD countries covered in the analysis are available only since that time. . In all tables and Figure in this chapter, percentage changes are computed as differences in the log variables.

62 The exact measure depends on the choice of the deflator for household income. The baseline calculations use the deflator of private consumption in the national accounts. When using the consumer price index to deflate household income, the growth of real income measure is estimated to average 9.4% per year.

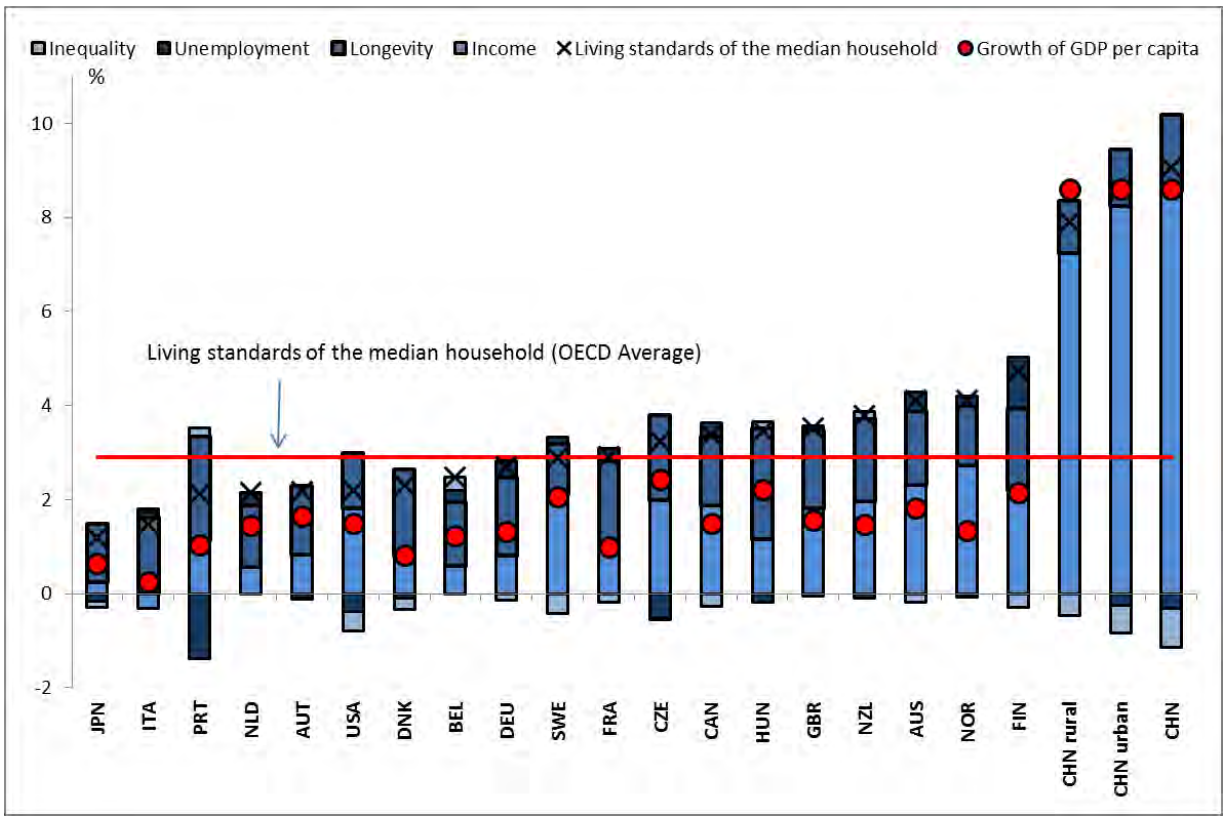
Figure 2.1. Evolution of the multidimensional living standards of the median household in selected countries

USD per capita at 2005 prices and PPPs



Source: OECD calculations based on Inclusive Growth Database.

Figure 2.2. Growth rate of multidimensional living standards of the median household by contributing factors 1995-2012



Source: OECD calculations based on Inclusive Growth Database.

Table 2.1. Decomposition of the growth rate in multidimensional living standards 1995-2012

	ECONOMIC GROWTH 1995-2012	GROWTH OF LIVING STANDARDS 1995-2012									LIVING STANDARDS ACROSS COUNTRIES 2012		
	Per capita GDP growth, in percentage points	Growth of living standards (percentage points)			Living standards contributions of annualised growth in: (percentage points)						Inequality's negative contribution to living standards as a share of disposable household income (2012, in percentage points)		
					Average household income	Longevity	Unemployment	Inequality*					
Country		Average (τ=0)	Median (τ=1.5)	Bottom decile (τ=50)				Average (τ=0)	Median (τ=1.5)	Bottom decile (tau=50)	Average (τ=0)	Median (τ=1.5)	Bottom decile (τ=50)
Australia	1.8	**4.3**	**4.1**	**4.0**	2.3	1.6	0.4	0.0	-0.2	-0.3	0.0	20.2	59.9
Austria	1.7	**2.2**	**2.2**	**2.5**	0.8	1.5	-0.1	0.0	0.0	0.3	0.0	13.0	50.8
Belgium	1.2	**2.2**	**2.5**	**3.9**	0.6	1.4	0.3	0.0	0.3	1.7	0.0	11.6	46.0
Canada	1.5	**3.6**	**3.4**	**3.0**	1.9	1.5	0.3	0.0	-0.3	-0.6	0.0	18.0	57.0
China	8.6	**9.9**	**9.1**	**9.1**	8.6	1.6	-0.3	0.0	-0.8	-0.8	0.0	26.5	51.5
China rural	8.6	**8.4**	**7.9**	**8.5**	7.2	1.1	0.0	0.0	-0.5	0.1	0.0	20.7	45.2
China urban	8.6	**9.2**	**8.6**	**8.5**	8.2	1.2	-0.3	0.0	-0.6	-0.7	0.0	16.5	50.0
Czech Republic	2.4	**3.3**	**3.2**	**2.6**	2.0	1.8	-0.5	0.0	0.0	-0.7	0.0	9.3	38.2
Denmark	0.8	**2.5**	**2.3**	**1.7**	0.8	1.8	-0.1	0.0	-0.2	-0.8	0.0	10.0	41.9
Finland	2.2	**5.0**	**4.8**	**4.1**	2.2	1.7	1.1	0.0	-0.3	-0.9	0.0	10.9	43.5
France	1.0	**3.1**	**2.9**	**2.7**	1.1	1.7	0.3	0.0	-0.2	-0.4	0.0	14.8	49.6
Germany	1.3	**2.8**	**2.7**	**2.6**	0.8	1.6	0.4	0.0	-0.1	-0.3	0.0	13.9	50.3
Hungary	2.2	**3.3**	**3.5**	**3.4**	1.2	2.3	-0.2	0.0	0.1	0.0	0.0	7.6	29.0
Italy	0.2	**1.4**	**1.5**	**1.5**	-0.3	1.6	0.1	0.0	0.1	0.1	0.0	18.8	58.8
Japan	0.7	**1.3**	**1.2**	**1.1**	0.2	1.2	-0.2	0.0	-0.1	-0.2	0.0	23.9	70.0
Netherlands	1.5	**2.1**	**2.1**	**1.8**	0.6	1.3	0.2	0.0	0.0	-0.3	0.0	14.4	51.9
New-Zealand	1.5	**3.6**	**3.8**	**4.0**	2.0	1.8	-0.1	0.0	0.1	0.4	0.0	16.9	53.5
Norway	1.3	**4.2**	**4.1**	**3.6**	2.7	1.3	0.2	0.0	-0.1	-0.6	0.0	12.5	54.7
Portugal	1.0	**1.9**	**2.1**	**2.4**	1.1	2.2	-1.4	0.0	0.2	0.5	0.0	14.9	42.7
Sweden	2.1	**3.3**	**2.9**	**1.7**	2.1	1.1	0.1	0.0	-0.4	-1.6	0.0	12.9	50.1
United Kingdom	1.6	**3.6**	**3.5**	**3.1**	1.8	1.7	0.1	0.0	0.0	-0.5	0.0	18.2	54.1
United States	1.5	**2.6**	**2.2**	**1.4**	1.8	1.2	-0.4	0.0	-0.4	-1.2	0.0	21.8	53.4
Average of the 19 OECD countries	**1.4**	**3.0**	**2.9**	**2.7**	**1.4**	**1.6**	**0.0**	**0.0**	**-0.1**	**-0.3**	**0.0**	**14.9**	**50.3**

Note: The table shows GDP per capita growth (first column), growth of multidimensional living standards for various income groups in the population, namely households with average income (second column), households with median income (third column) and households with income in the bottom 10% of the population (fourth column). Growth rates are logarithmic growth rates. Multidimensional living standards growth can be decomposed in average household income growth (fifth column), longevity growth (sixth column), unemployment growth (seventh column) and change in inequality. The latter is equivalent to zero when the focal point in the income distribution is the average household income (eighth column) as in this case there is a zero penalty for income inequality. When the focal point in the income distribution is the median household income, the inequality component of the multidimensional living standards (ninth column) measures the difference between the growth of the average household income and that of the median household income. When the focal point in the income distribution is the bottom 10% of the income distribution, the inequality component of the multidimensional living standards (tenth column) measures the difference between the growth of the average household income and that of the household in the bottom 10% of the income distribution. Finally, the last set of three columns show the welfare losses induced by inequality (calculated as the difference between the level of the average household disposable income and that of the median or bottom decile households), expressed as a percentage of average household disposable income. See Annex 1 for more details on the methodology.

* Based on disposable income only. Further, income distribution measures rely on surveys and comparability with national accounts income data is incomplete.

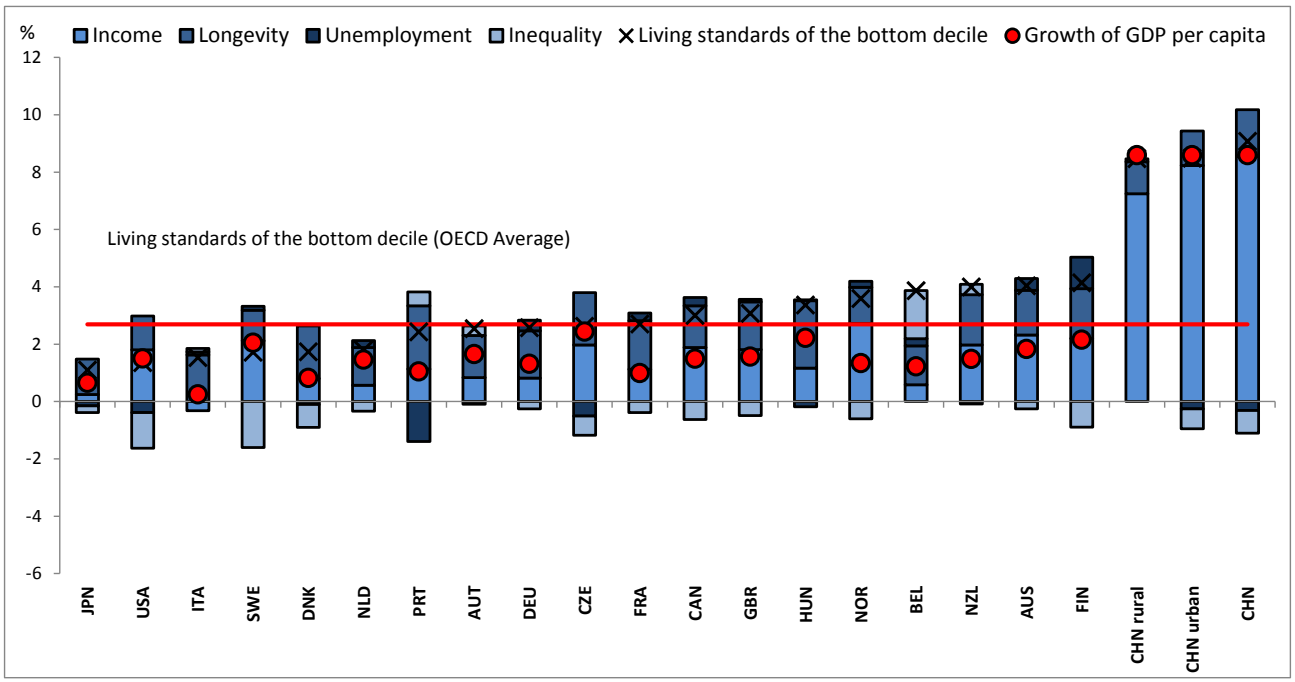
Source: Authors' calculations based on data from the China National Bureau of Statistics.

Multidimensional living standards have improved for all, although the richest have captured a greater share of the benefits of growth

Multidimensional living standards have also improved rapidly for the Chinese poor, defined as the households with income in the lowest 10% of the distribution. Growth of living standards has been much stronger for the Chinese poor than for their counterparts in OECD countries, again reflecting much stronger growth in household income in China (**Figure 2.3 and Table 2.1**). Indeed, multidimensional living standards have risen at about the same pace for the poor and for the middle class (median household), and income inequalities have not widened in the lower half of the distribution.

However, multidimensional living standards have risen faster for the rich, defined as those households with income at the top 10% of the distribution. This reflects an increase in income inequality in the upper half of the Chinese distribution, with a widening of income gaps between the rich (top 10% of the income distribution) and the middle class (median) or the poor (bottom 10%). This can also be seen by the fact that both the median and bottom 10% income households are losing ground in relation to the average, a trend also observed in many OECD countries.[63]

Figure 2.3. Growth rate in the multidimensional living standards of the poor (households with income in the lowest decile) by contributing factors – 1995-2012



Source: OECD calculations with based on Inclusive Growth Database.

Multidimensional living standards have improved in both urban and rural areas

Multidimensional living standards have improved most for the rich in urban areas and for the poor in rural areas.[64] While for both the average and median income households living standards grew faster in urban than in rural areas over 1995-2012 (+0.8 and 0.7 percentage points respectively, as shown in **Table 2.1**), in rural areas the living standards of median households grew less strongly than those of the bottom decile (7.9% versus 8.5%). Accordingly, in urban areas economic growth has

[63] The present measure of multidimensional living standards only reflects the inequality effects that arise from the income distribution. Insofar as life expectancy evolves differently between socio-economic groups, a more complete measure of inequalities (in particular in health outcomes) might show a different picture. Accounting for inequality in health and in employment prospects on top of income inequality is currently being developed for France and could, in time, be extended to other countries.

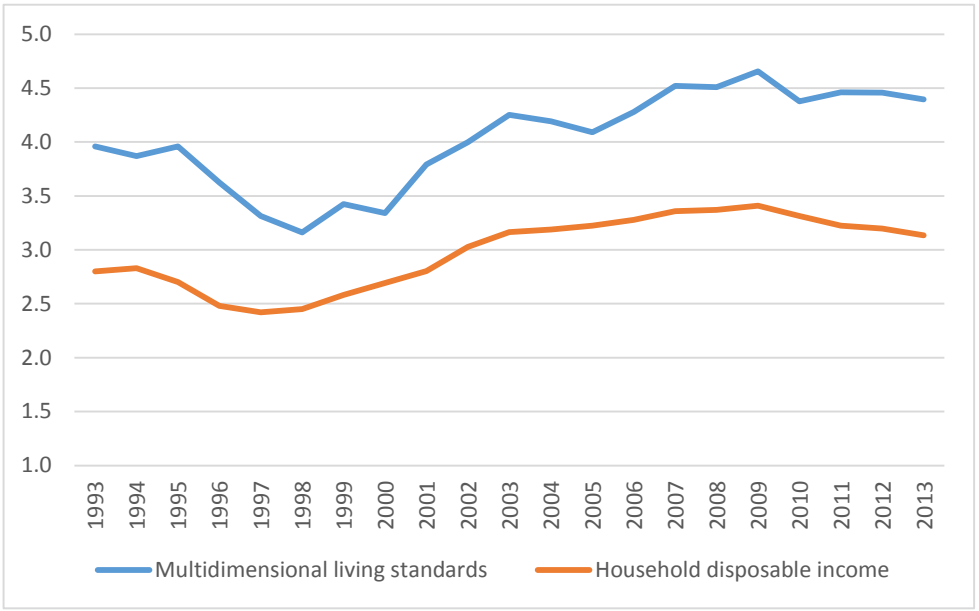
[64] Strong reallocation effects among urban and rural populations are at play and explain why the growth rate of country-wide multidimensional living standards exceeds the growth rate of both the urban and the rural living standards. The same holds for real income growth. As workers migrate to urban areas, economy-wide growth benefits from the fact that an increasing share of workers has moved to higher-income urban occupations. Furthermore, the urban-rural breakdown should be interpreted very cautiously as income data cannot be broken down along the urban and rural populations in the same way as longevity and unemployment: migrants are typically working in urban areas but are registered as urban population in the Census. As a consequence, both the average urban and rural incomes are overestimated due to the allocation of migrants to the rural subgroup.

mainly benefited the higher-income groups, followed by the middle class and the poor, while in rural areas the poor have benefited comparatively more from economic growth, and in particular more than the middle class.

The median rural household benefited from the rise in living standards by more than the median urban household until around 1998, but this trend reversed in the years from 1998 to 2009, stabilising thereafter (Figure 2.4). This suggests that the evolution of living standards has not been even throughout the period considered, especially when looking at subgroups of the population. Additional evidence on how growth in multidimensional living standards differed across population groups and over time is provided by Table 2, which looks at developments in the sub-periods before and after 2003 — a year that is close enough to China's accession to the World Trade Organisation.[65] Indeed, between the first (1995-2003) and the second sub-period (2003-12), multidimensional living standards accelerated for the middle class in both rural and urban areas, while they slowed for the poor in rural areas (**Table 2.2**). The growth of multidimensional living standards of the middle class increased from 8.5% to 9.6% between the first and the second period, with both rural and urban middle class households sharing this growth acceleration, which sharply with the change recorded for the rural poor, whose growth of living standards fell from 10.3% to 6.8%. In contrast, poor people living in urban areas saw their living standards grow faster after 2003.

Overall, the measures of multidimensional living standards show that the differences in urban and rural areas in China are even more pronounced when non-monetary factors are taken into account. While people living in rural areas are assumed to face no risk of unemployment due to their ability to rely on a small income from their farms, the impact of poor health and hence lower life expectancy is much larger in rural areas than in urban areas. Finally, the impact of inequality is greater for rural households, as farm incomes per person in different parts of the country vary to a much greater extent than urban incomes, due to varying qualities of land and climate.

Figure 2.4. Ratio of urban to rural multidimensional living standards



Source: OECD calculations based on the Inclusive Growth Database

[65] China has been a member of the WTO since 11 December 2001, with the effects of accession on export growth and construction investment in urban areas unfolding in the following years.

Table 2.2. Decomposition of the growth in multidimensional living standards by sub-periods

	Median income			Bottom decile		
	1995-2003	2003-2012	1995-2012	1995-2003	2003-2012	1995-2012
Australia	4.9	3.3	4.1	5.3	2.9	4.0
Austria	2.1	2.2	2.2	3.2	2.0	2.5
Belgium	2.7	2.3	2.5	5.6	2.2	3.9
Canada	2.9	3.7	3.4	2.4	3.5	3.0
China	8.5	9.6	9.1	10.5	7.8	9.1
China rural	7.1	8.6	7.9	10.3	6.8	8.5
China urban	8.0	9.1	8.6	7.9	9.0	8.5
Czech Republic	2.3	4.1	3.2	1.6	3.6	2.6
Denmark	2.7	1.9	2.3	2.3	1.2	1.7
Finland	5.8	3.6	4.8	4.8	3.3	4.1
France	3.6	2.2	2.9	3.6	1.8	2.7
Germany	1.9	3.4	2.7	1.8	3.2	2.6
Hungary	6.9	0.2	3.5	6.6	0.2	3.4
Ireland	..	-0.1	..	..	-1.3	..
Italy	3.2	-0.2	1.5	4.5	-1.2	1.5
Japan	0.7	1.7	1.2	0.4	1.8	1.1
Mexico	..	1.4	..	..	0.1	..
Netherlands	3.3	1.0	2.1	3.1	0.6	1.8
New-Zealand	4.0	3.5	3.8	3.3	4.6	4.0
Norway	4.3	3.9	4.1	4.3	2.9	3.6
Poland	..	8.7	..	..	10.4	..
Portugal	3.9	0.5	2.1	3.8	1.1	2.4
Spain	..	-1.5	..	..	-3.1	..
Sweden	3.7	2.1	2.9	3.0	0.5	1.7
Switzerland	..	3.7	..	..	4.3	..
United Kingdom	5.9	1.3	3.5	5.6	0.7	3.1
United States	3.2	1.3	2.2	2.2	0.6	1.4
Average of the 19 OECD countries included above with data for the entire period	**3.6**	**2.2**	**2.9**	**3.5**	**1.9**	**2.7**

Source: Authors' calculations based on China National Bureau of Statistics.

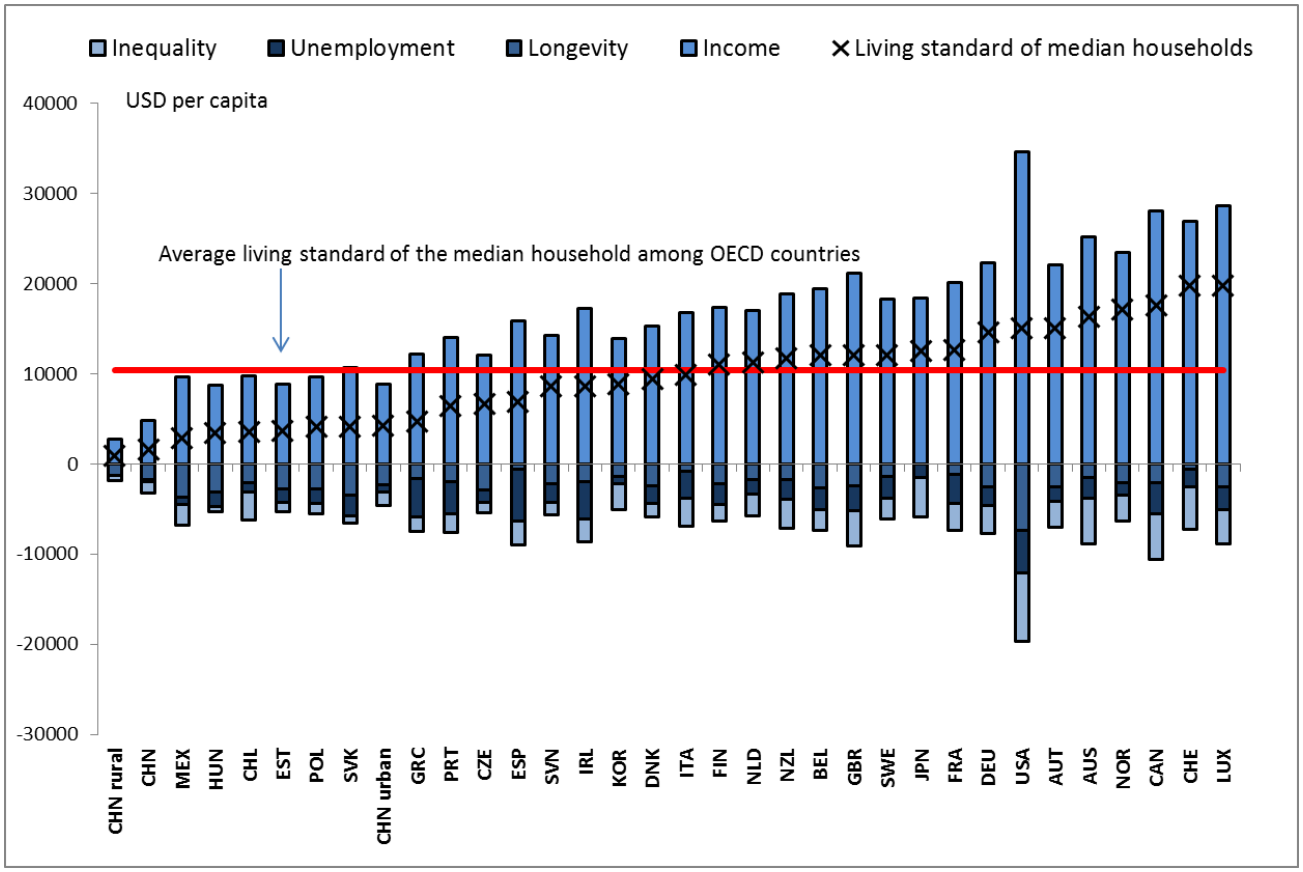
Note: The table shows growth of multidimensional living standards for various income groups in the population, namely households with median income (first, second and third columns) and households with income in the bottom 10% of the population (fourth, fifth and sixth columns). Growth rates are logarithmic growth rates.

Despite major improvements, China still trails behind OECD countries in the level of multidimensional living standards

Despite significant gains, multidimensional living standards in China remain far below those in OECD countries, mostly due to lower household disposable income. Despite rapid convergence, China as a whole has not yet caught up with OECD countries in relative living standards, and there is a wide gap in the growth and levels of living standards within China across rural and urban populations (**Figures 2.2 and 2.5**). The multidimensional living standards of urban China have reached those observed in some Latin American or some European OECD countries. By contrast, in absolute terms, the levels of living standards of poor Chinese households (those in the bottom decile) are the lowest of all countries under study, representing only 10% of the living standards of the bottom 10% in the OECD (**Figure 2.6**). This outcome points to the persistence of extreme poverty in China, particularly in rural areas where the equivalent income of the poorest households is less than USD 1 per day.

Figure 2.5. Level of multidimensional living standards for the median household by contributing factors

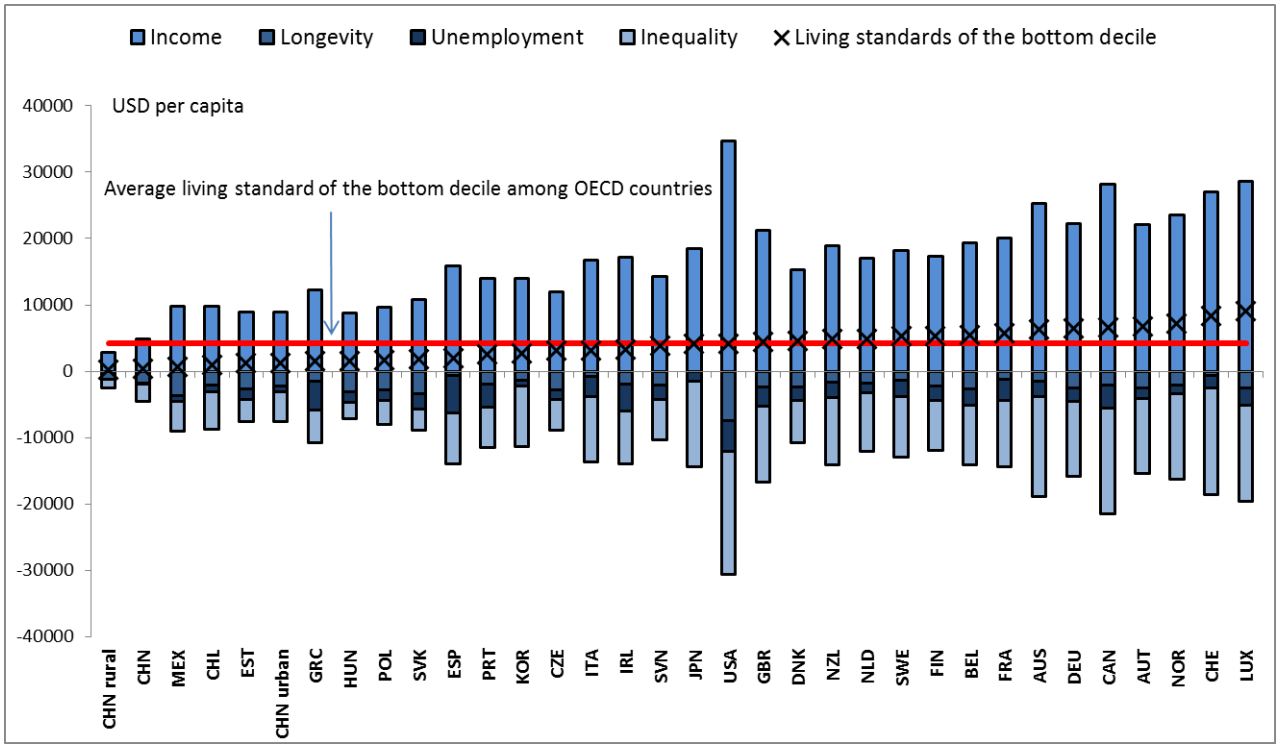
In 2012, USD per capita at 2005 prices and PPPs



Source: OECD calculations based on Inclusive Growth Database.

Figure 2.6. Level of multidimensional living standards for the poor (households with income in the bottom decile) by contributing factors

In 2012, USD per capita at 2005 prices and PPPs



Source: OECD calculations with based on Inclusive Growth Database.

Inequality has a large impact on the level of living standards, in particular for median income households (Table 2.1 and Figure 2.5). In 2012, the equivalent income (or multidimensional living standard) of the median household in China was USD 1 633,[66] i.e. only 33% of the average household income (USD 4 895). This is lower than in any of the sampled OECD countries, suggesting that there is scope for improving living standards through improvements in non-income dimensions, and particularly by reducing inequality. By comparison, living standards of the median income household among OECD countries amounted to USD 10 429 on average, corresponding to 59% of the average household disposable income of USD 17 793. In the OECD area, the negative contribution of inequality to the level of multidimensional living standards is only half of that observed in China, when expressed as a share of household disposable income. On the other hand, the welfare loss due to unemployment is considerably lower in China, as it represents only 4.8% of household disposable income as compared to around 14.4% among OECD countries; the small negative contribution of unemployment to multidimensional living standards may however reflect the 'low' estimates of China's unemployment rates used in this chapter.[67]

[66] Measured at 2005 prices and 2005 PPPs consistent with the 2011 ICP benchmark.

[67] Estimates of China's unemployment rate used in this chapter are drawn from the Annual Population Sample Survey (APSS) and are based on the assumption that the unemployment rate in rural areas is zero (i.e. farmers with land are not counted as unemployed even if the person did not work on the farm during the reference week). Un-official estimates also show higher unemployment in urban areas as well as for migrant workers.

The positive impact of improved health status on multidimensional living standards has been limited by environmental ills

As mentioned previously, environmental degradation and pollution are major issues in China, and there is evidence that the rate of growth of life expectancy in China has been below potential due to higher environmental degradation. **Figure 2.7** compares the growth rates of actual and expected life expectancy: the latter is computed as the growth in life length that would have been expected given a certain GDP per capita growth and taking into account the 1995 level of actual life expectancy.[68] China is among the countries where actual life expectancy has lagged most behind expected life expectancy. Accordingly, actual life expectancy was about 1.4 years below potential in 2012, a gap that can be explained in part by environmental effects.[69] If life expectancy were at its expected level, multidimensional living standards would be 6% higher in China, everything else being equal.[70] Further work is nevertheless needed to assess the combined impact of different factors on health outcomes. Moreover, health outcomes, economic activity, income and ambient pollution are inter-related, so that the net effect of health on multidimensional living standards is difficult to quantify. It is also important to take into account inequalities in health outcomes, insofar as the available data allow. Evidence from other countries points to large inequalities in life expectancy between different income groups. For example, in the case of France, considering both income and health inequalities doubles the welfare losses from inequality for the median household.

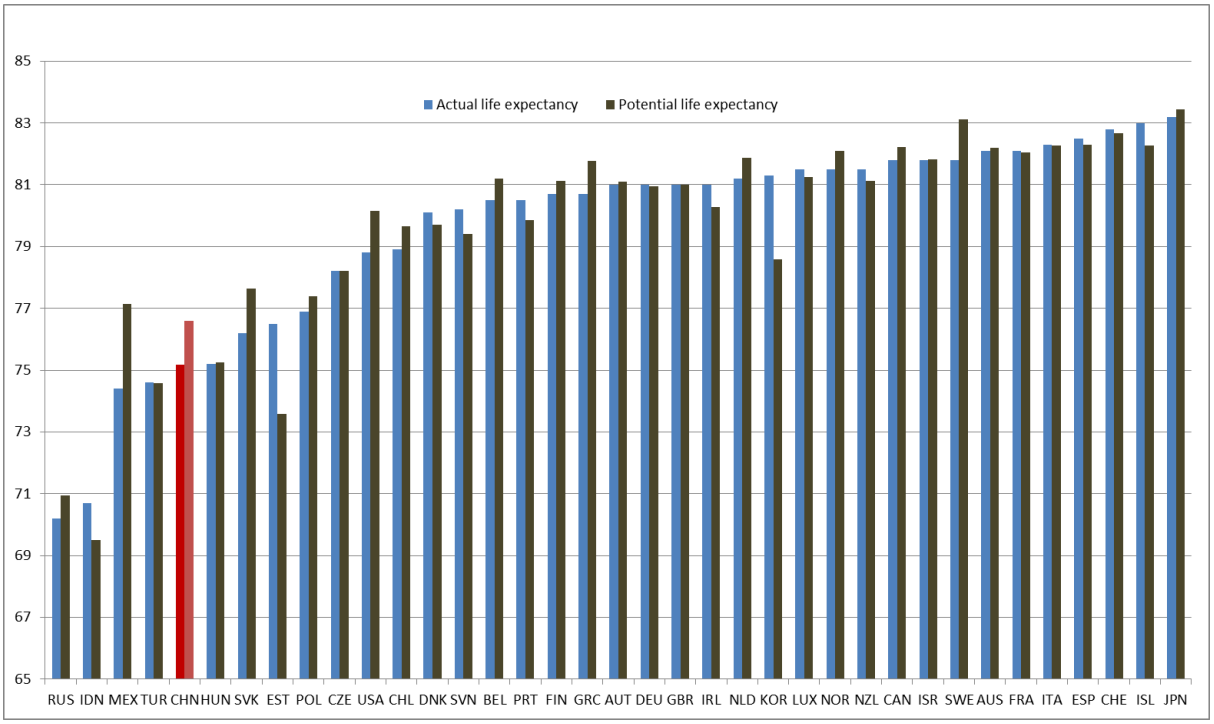
[68] This regression intends to capture a structural relationship at macroeconomic level, which may reflect an indirect influence of economic growth on life expectancy through environmental pressure, e.g. higher pollution therefore higher ambient burden of disease, or through higher spending in infrastructures/water/sanitation or health because of higher GDP.

[69] Another calculation sheds a more direct light on the effects of air pollution. It rests on the estimated number of life years lost as published by the Institute for Health Metrics and Evaluation (2013) that reports a total number of about 25 million life years lost per year for China due to ambient air pollution. This translates into a reduction from a potential life expectancy of 75.6 years to an actual life expectancy of 75.2 years.

[70] OECD (2014), The Cost of Air Pollution, OECD Publishing, Paris) shows that, in China, the economic cost of deaths due to ambient pollution is roughly equivalent to 10% of average household income. These estimates are obtained by multiplying the value of statistical life at age of birth by the number of deaths. Here the economic cost of ambient pollution is calculated by multiplying the number of deaths by the value of statistical life at death, which leads to a lower estimate of the economic cost of ambient pollution.

Figure 2.7. Actual and potential life expectancy

1995-2012



Note: Potential life expectancy: based on regression of life expectancy growth on GDP/capita growth and life expectancy in 1995.

Source: OECD calculations with based on Inclusive Growth Database.

2.3 Trends in multidimensional living standards and evolving policy priorities

The evolution of multidimensional living standards reflects changes in policy priorities between successive FYPs (**Table 2.3**). The transition from a poverty reduction to an Inclusive Growth agenda in the various FYPs (**Box 2.2**) has been reflected in the evolution of multidimensional living standards.[71] Indeed, multidimensional living standards grew fastest after 2005, and the highest growth rates for median households were recorded between 2005 and 2010, during the 11th FYP. This mainly stems from higher income growth. Also, the components of multidimensional living standards have changed over time, with a gradual reduction in the contribution of longevity. The contribution of unemployment has fluctuated over time. The divergence of income across rural and urban areas during much of the 2000s triggered a strong rise in inequality, with the living standards of the middle class and of the poor falling behind those of more affluent social groups.

[71] The mapping between FYPs and the evolution of the multidimensional living standard measure is only indicative, as it ignores the significant lags between policy preparation, decisions, implementation and results. As a result, outcomes over a given period may reflect policies implemented under a previous FYP.

Box 2.2. China: From poverty reduction to Inclusive Growth

China's poverty reduction programmes have gone through a number of phases. The programmes have focused on helping rural areas to develop because, while relief payments are essential for survival in some cases, it is only development that leads to income growth. In the view of the government, relief should be temporary, whereas development is permanent.

Prior to the mid-1980s, poverty reduction was a by-product of the process that ended the collectivisation of farms and instituted a policy under which farmers were free to manage their own production. From the mid-1980s to 2000, policy focussed on place-related approaches, with the idea of focussing aid on certain areas and improving their infrastructure. Efforts were focused on 592 counties in the so-called 8-7 programme, two-thirds of which were in the Western provinces. These counties benefited from special poverty transfers that amounted to 0.2% of GDP between 1994 and 2000. Initially, the impact of this programme was small: GDP per capita grew 0.5 percentage points above the national average, and household income grew 3 percentage points faster than the national average. Its impact was felt to a much greater extent in the second decade of its operation, between 2001 and 2010, when GDP per capita in these areas grew at an average pace of 17%. Around 90% of the population was provided with basic infrastructure (roads, electricity, telephone and hygienic toilets), though performance in supply of tap or well water only reached 60%.

The spatially concentrated nature of the poverty programmes did lead to drawbacks. The scale of transfers to the counties was extremely large compared to their own fiscal resources. Accordingly, counties whose economic situation improved lobbied very hard to avoid being taken off the list. Secondly, control over how local authorities managed their budget was weak. For instance, in the county-level city of Hailun in Heilongjiang province, it was reported that the local government built offices costing CNY 1 billion while applying for poverty relief funds.

In the first decade of this century, policy objectives became more inclusive. The 10th FYP introduced the concept of social development alongside that of economic development for poor areas. A number of reforms were introduced that focussed on institutions and people. Compulsory nine-year education was introduced with free textbooks and no tuition fees. A number of social benefits started to be introduced, especially rural medial insurance and rural pensions. The realisation that the poor generally lived in areas subject to above-average natural disaster frequency and that people in extreme poverty were often only poor for a limited period of time led to the introduction of a minimum subsistence allowance in rural areas.

Further programmes designed to improve the inclusiveness of growth were introduced during the 11th FYP. The extent to which the provision of social benefits was restricted to urban areas was markedly reduced. The minimum subsistence guarantee was spread across most of the country as were the new rural medical and pension schemes. In urban areas, medical care was instituted for those not working (children, student and people out of the labour force). All of these policies were aimed at making growth more inclusive, but were not targeted specially at the poor. In addition, they all relied on sustained and rapid growth of the national economy.

Source: Weiping Tan, 2010; Wang Guoliang, 2008; World Bank Institute, 2004; Government of China, 2011; Global Times, January 2nd 2014.

Some patterns of multidimensional living standards differ between rural and urban populations across FYPs. Households living in rural areas have seen their living standards increase the most during the 9th FYP (1995-2000), especially for the poor, while median households have recorded a similarly good performance during the 9th and 11th FYPs. For urban households, the 11th FYP (2005-10) has been the period with the strongest performance for all income groups, with a further acceleration for the urban poor during the first three years of the 12th FYP.

The composition of multidimensional living standards has also changed across FYPs for both urban and rural populations. Both populations recorded a higher contribution of longevity during the 9th and 10th FYPs (1995-2005) than during the 12th FYP (2010-13), a sign that longevity growth may have stalled for both groups recently. The major difference in the composition of living standards growth arises from inequality patterns. In rural China there has been a reduction of inequalities (particularly for the poor) during the 9th FYP (1995-2000), but the trend was reversed in subsequent periods as inequality increased. In urban China, the most favourable trend for income inequality occurred between 2010 and 2013 (particularly for the poor) showing that the poor and the middle class have caught up with richer groups at the very end of the period.

Table 2.3. Decomposition of the growth in multidimensional living standards in China across FYPs

			Median income					Bottom decile				
			Growth of living standards	Living standards contributions of annualised growth in: (percentage points)				Growth of living standards	Living standards contributions of annualised growth in: (percentage points)			
				Average household income	Longevity	Unemployment	Inequality		Average household income	Longevity	Unemployment	Inequality
China	1995-2000	9th FYP	8.90	7.53	1.99	-0.90	0.28	13.87	7.53	1.99	-0.90	5.25
	2000-2005	10th FYP	7.80	7.89	2.08	0.38	-2.55	5.69	7.89	2.08	0.38	-4.66
	2005-2010	11th FYP	10.35	10.31	1.07	-0.57	-0.45	9.10	10.31	1.07	-0.57	-1.70
	2010-2013	12th FYP[1]	9.46	8.20	0.96	0.01	0.30	6.61	8.20	0.96	0.01	-2.55
	1995-2013	Overall period	9.08	8.51	1.58	-0.31	-0.71	9.05	8.51	1.58	-0.31	-0.73
China rural	1995-2000	9th FYP	9.31	7.03	1.30	0.00	0.97	15.61	7.03	1.30	0.00	7.28
	2000-2005	10th FYP	4.74	4.45	1.95	0.00	-1.66	3.23	4.45	1.95	0.00	-3.18
	2005-2010	11th FYP	9.32	9.40	0.33	0.00	-0.41	8.25	9.40	0.33	0.00	-1.47
	2010-2013	12th FYP[1]	8.95	9.14	0.54	0.00	-0.72	5.59	9.14	0.54	0.00	-4.09
	1995-2013	Overall period	7.98	7.32	1.09	0.00	-0.42	8.46	7.32	1.09	0.00	0.05
China urban	1995-2000	9th FYP	6.10	6.97	1.89	-1.88	-0.88	4.90	6.97	1.89	-1.88	-2.08
	2000-2005	10th FYP	8.70	8.05	1.02	1.36	-1.73	9.46	8.05	1.02	1.36	-0.96
	2005-2010	11th FYP	10.67	9.96	1.12	-0.64	0.22	10.46	9.96	1.12	-0.64	0.01
	2010-2013	12th FYP[1]	9.09	7.28	0.42	0.39	1.00	10.51	7.28	0.42	0.39	2.42
	1995-2013	Overall period	8.56	8.15	1.17	-0.26	-0.50	8.62	8.15	1.17	-0.26	-0.44

1. The 12th Five year plan spans the period 2010-2015.

Source: Authors' calculations based on China National Bureau of Statistics.

Chapter 3. Policies for Inclusive Growth

3.1 Reducing the income gap between urban and rural residents

The 13th FYP would do well to boost rural incomes and thereby reduce urban-rural inequality. To this end, policy efforts could be focused on promoting agricultural productivity and economic activities outside agriculture. Beyond traditional rural development, action is needed to reform agricultural land rights, ensure that all citizens have equitable access to high-quality education, and develop a more balanced fiscal structure that supports Inclusive Growth in both urban and rural areas.

Improving productivity and reforming land rights in rural regions will drive reductions in the urban-rural income gap

Raising agricultural productivity is key to improving rural incomes and making growth more inclusive. The productivity gap between agricultural and non-agricultural activities is at the root of the differences between rural and urban incomes. At 4.9 in 2012, the ratio of non-agricultural to agricultural sector productivity was high by international comparison.[72] Partly due to the land assignment practices of village collectives that own farmland, China has a high proportion of small, highly fragmented agricultural operations. Consolidation of land holdings is indispensable to boosting agricultural productivity, and will benefit from increasing the ability of smallholders to trade farmland operation rights so that more productive farmers can scale up their operations.

Improving farm-level productivity will be aided by government reforms to promote technical training for farmers and improve farmers' access to credit. While farmer-support services are well developed in China compared with many other middle-income countries, training programmes that improve skills and speed up the dissemination of new technologies are essential. For the same purpose, the establishment of farmer associations should continue to be encouraged. Improving access to finance for agricultural operations is also essential. At present, access to finance and thus investment are constrained by rural financial underdevelopment and the inability of farmers to collateralise collectively-owned land. The government is currently undertaking pilot schemes in which contracted land-use rights and farmers residential property rights can be used as collateral. The People's Bank is experimenting with programme that allows the use of a derivative of the land-use right as collateral, but rural land mortgages currently violate several of China's laws, in particular the Property Law, the Guaranty Law, and the Land Administration Law.[73] In this context, fundamental reforms in the underlying laws are called for to encourage commercial banks to lend to small-scale farmers and promote the establishment of credit rating systems that allow better consideration of risk.

Continued government investment in public infrastructure and basic R&D will also contribute to raising agricultural productivity. Further spending on rural infrastructure such as roads and ports may enlarge the market size for agricultural producers and improve the accessibility of inputs for farmers. As agricultural wages continue to rise, the importance of indigenous innovation capacity in the agricultural sector as a source of international competitiveness will increase. To encourage innovation, the authorities should fund basic R&D relating to agriculture, while being careful not to "crowd out" private R&D investment.

Actions to reduce price distortions in agricultural markets should be combined with reforms to decrease the market power of upstream firms. Farmer incomes have been actively supported by government

---

[72] Though Cuba, Poland and Slovenia display a similar gap. (OECD analysis of labour productivity in the agricultural sector based on data in the World Development Indicators Database).

[73] See an October 2014 interview with the Director of the Office of the Leading Group for Rural Work. http://huxiu.me/post/102446011581/peoples-bank-of-china-experimenting-with-rural.

subsidies and intervention in agricultural markets through government stockpiling. As such policies can lead to distortions in agricultural production decisions and slow productivity gains, the authorities are promoting reforms to move towards more market-based pricing. To offset their adverse effects on farmer incomes, reforms could be implemented at the same time as measures to reduce the market power of retailers and distributers of farm products that commonly squeeze farmers' profits due to a lack of competition.

Further development of markets for the trading of farmland operation rights, longer tenure periods and better enforcement of entitlements are needed to enable more productive farmers to scale up their operations. A market for the rental of the operation of rural farmland has developed, and covered 23% of arable land by June 2013.[74] The income derived from rent may either help farmers migrate, facilitate the transition into non-agricultural employment or supplement wages for those that choose to take skilled jobs in the agricultural sector. Nevertheless, such markets are limited in many areas and poorly defined land-use rights continue to limit the desire of some farmers to rent out land as well as reduce the incentive for farmers to undertake agricultural investment.[75] Recent studies have highlighted some potential costs to the rental of farmland operation rights, such as reduced investment in sustainable farming practices on rented land.[76] Longer leases may be one way to minimise such consequences at the same time as providing the legal framework for the sale, leasing and mortgaging of agricultural land. In this regard, the tenure of land contracts should be extended from 30 to 70 years, to be consistent with the length of contracts for residential land in urban areas. At the same time, land-use rights should be better defined through intensifying efforts to provide documentation to farmers and the completion of the national cadastre of land rights. These reforms will be an important precursor to any measures that seek to promote the full sale of land use rights between farmers.

The leasing of farmland operation rights can also benefit the expansion of the urban workforce, helping to reduce the upward pressure on urban wages relative to those in rural areas. As documented in Chapter 1, the upward pressure on urban wages in recent years has come in part from the transitory nature of migration from rural to urban areas, which sees migrants remaining in urban areas for an average of only seven years. Hence, along with reforms to the *hukou* registration system (see Section 3.2), measures that improve the ability of smallholders to rent-out (or eventually sell) farmland could promote more permanent migration of workers to urban areas, helping to reduce the urban-rural income gap.

Beyond agriculture: promoting economic diversification in rural areas

China's transformation from an agricultural society into a moderately prosperous country bears many of the hallmarks of the earlier transitions in other East Asian countries. The government's objective is to move 100 million people out of the agricultural and rural sectors of the economy into the non-agricultural urban sectors by 2020 (Figure 3.1). About 85% of these people would have been working in the agricultural sector of the rural economy. China would thus follow the path of East Asian economies, and the share of the labour force in agriculture will decline to just below 20%, similar to what was achieved in Japan in 1967, Chinese Taipei in 1981 and Korea in 1989. This would contribute substantially to reducing the urban-rural income gap.

---

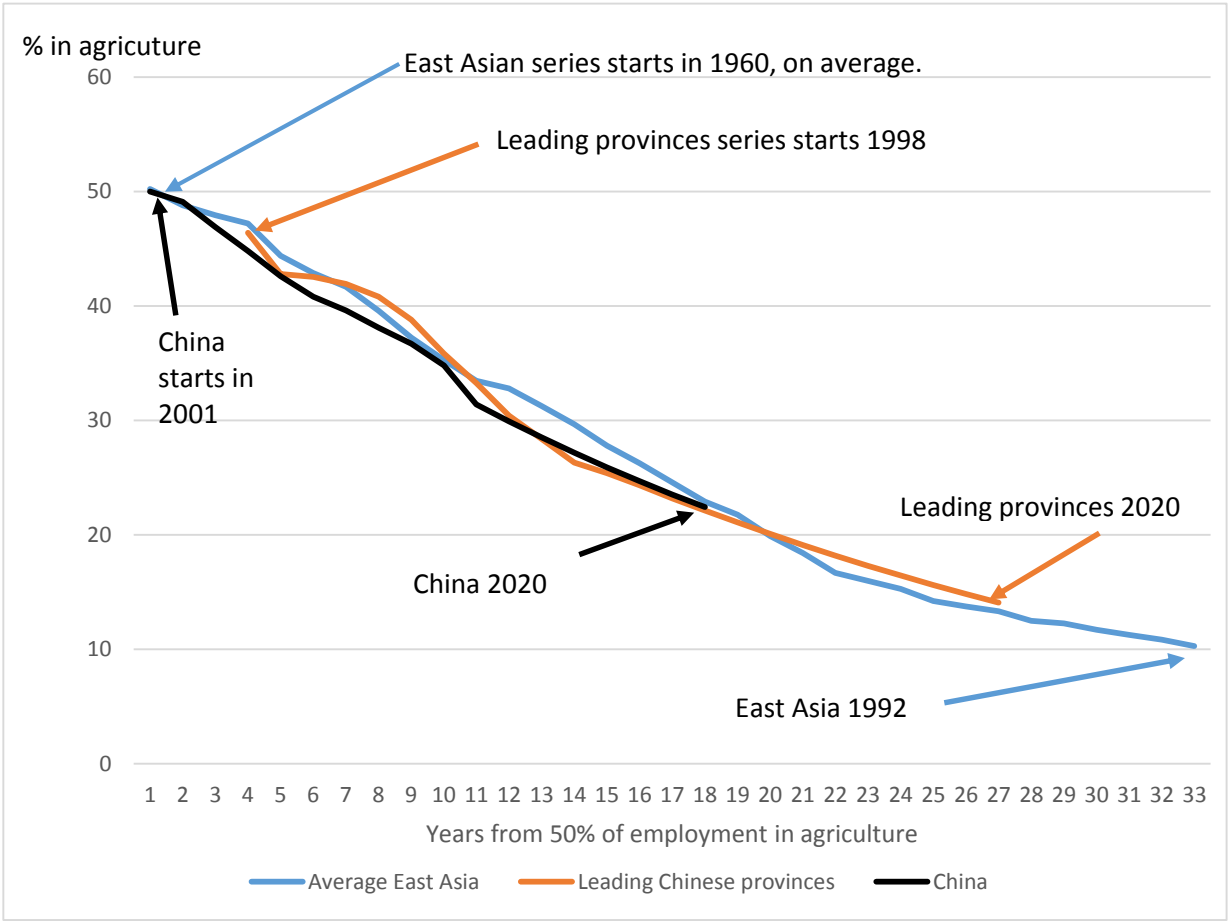
74 Statement of Minister of Agriculture Han Changfu at a press conference on " Increasing Food Production, Raising Farmer Income and Thoroughly Practicing the Spirit of the 3rd Plenary Session", State Council Information Office website, December 6, 2013.

75 Prosterman, R., K. Zhu, J. Ye J and J. Riedinger (2011), "Farmers' Land Rights in Today's China： Results from a Seventeen-Province Survey", in the *Rule of Law Blue Book*, Chinese Academy of Social Sciences (in Chinese). An English summary is availble at www.landsea.org.

76 Gao, L., J. Huang and S. Rozelle (2012), "Rental markets for cultivated land and agricultural investments in China", Agricultural Economics 43, pp. 391-403.

Figure 3.1. China aims to follow other East Asian economies in shifting employment out of agriculture

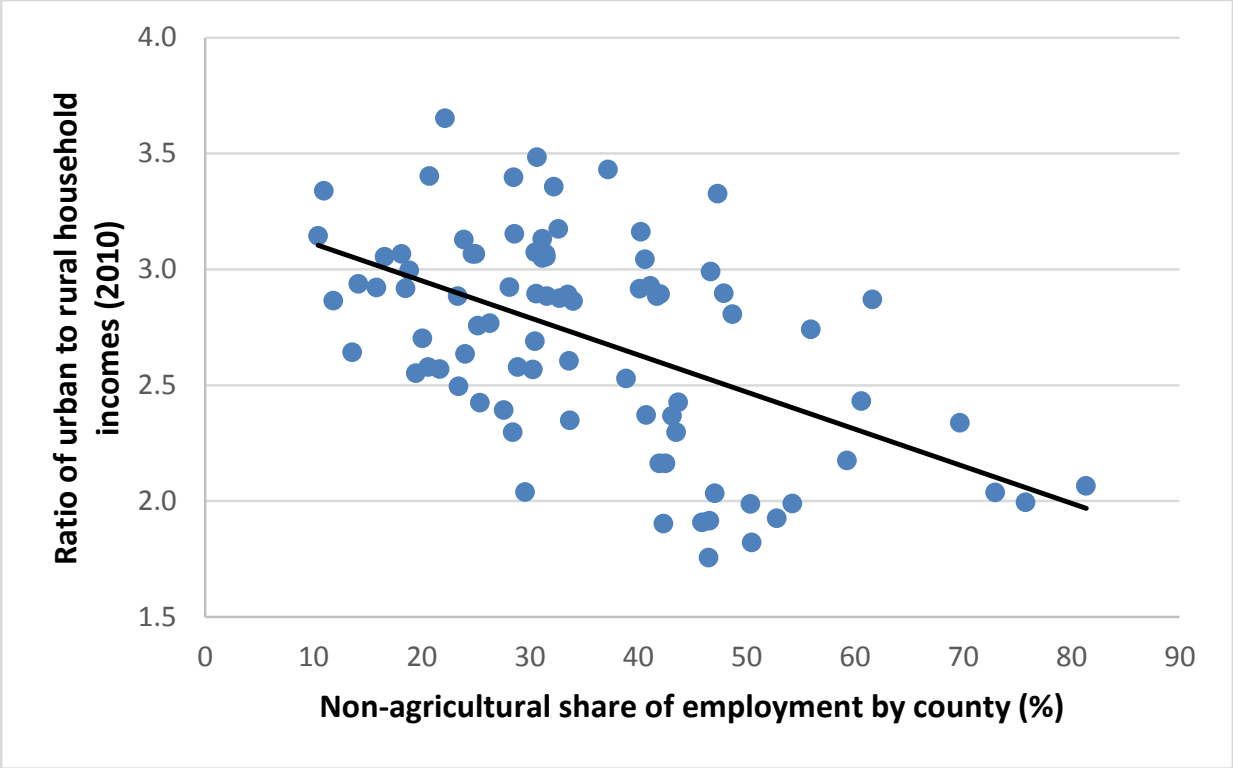
Agricultural employment as a share of total employment (2010-2020)



Source: OECD estimates based on data from national statistical offices for East Asian economies and from the State Council Opinion on revising the household registration system.

The positive effects of the move out of agriculture can already be seen in the leading provinces of China. In the Eastern coastal province of Shandong there is considerable variation in the extent of non-agricultural employment across counties (**Figure 3.2**). When the proportion of non-agricultural jobs in a county increases the urban-rural wage differential falls, as workers are able to commute shorter distances in search of better paid employment opportunities. A reversal of the agricultural and non-agricultural shares of total employment, from 80% agricultural to 80% non-agricultural, is associated with a fall in the urban-rural household income ratio from three to two, making for a much more inclusive local economy. A similar picture emerges when the variation of the urban-rural income gap is compared to the proportion of the population of each county living in urban areas, presumably because non-agricultural activities are mainly found in urban areas.

Figure 3.2. In the province of Shandong, there is considerable variation in the extent of non-agricultural employment across counties



Source: Tabulations of the 6th National Census National Bureau of Statistics and CEIC.

Greater diversification of rural economic activities will be enabled by a policy environment that encourages entrepreneurship and the growth of new industries. This includes government policy settings that encourage the entry of new firms and allow growing sectors of the rural economy to attract the necessary resources. Policy measures that foster greater access to finance in rural areas may be particularly important for young firms, such as those businesses aiming to produce higher value added products utilising the primary products of the local agriculture and forestry industries.

Other potential growth sectors in rural areas include tourism and renewable energy production. China has many rural communities living in areas with natural endowments that could form the basis of localised tourism industries. Tourism development strategies could focus on engaging the local population and supporting the establishment of related businesses in the rural area. Where possible, these strategies may be designed to benefit poorer communities. Such an approach was recently adopted in Guizhou, where the provincial tourism administration established routes linking major tourist sites with relatively low-income ethnic minority villages. There is also the potential for growth in the production of renewable energy industries given rural China's substantial natural resources relating to geothermal, solar and wind power in particular. However, renewable energy is very capital-intensive and relies on significant government subsidies. In addition, the wind energy sector in China has one of the lowest levels of productivity in the world due to poor connectivity with the national grid and long distances from centres of consumption. Careful design of new projects will be needed to generate sustainable development in this sector.

Improving access to quality education in rural areas can help close the urban-rural income gap

Focussing education policy on deprived rural areas will promote Inclusive Growth by investing in human capital and opening up opportunities to all. As highlighted in Chapter 1, in 2010, people living in urban areas had spent on average three years longer in education than those living in rural areas. The government has recognised that action needs to be taken, acknowledging in the plan for educational development to 2020 that both the structure and geographical distribution of education resources have not yet been put on an even keel.[77] Targeting remedial measures and resources at deprived rural areas will help ensure that rural residents have the same opportunities as their urban counterparts to benefit from and contribute to economic growth, reducing the urban-rural income gap.

To improve the quality of education in rural areas, the funding of urban and rural schools needs to be put on an equal footing. The central problem with rural education is a lack of consistent quality of teachers at the primary and lower-secondary school levels, which to a large extent reflects lower public spending in rural areas.[78] Further efforts are therefore needed to ensure appropriate financing for education in rural areas, because international experience shows that inequity in the allocation of material resources is associated with weaker education outcomes.[79]

Efforts to help poorer children from rural areas succeed in education should focus on reducing malnutrition in the poorest villages. Poverty in many regions leads to inferior health outcomes and hinders the accumulation of human capital. The incidence of medical problems is extremely high in the poorer parts of China. Indeed, the China Development and Research Foundation (CDRF) found that there was a lack of micronutrients, particularly iron, vitamin A, iodine, calcium and zinc in the food of young children. This stunts their growth and weakens their cognitive development and immune system. When micronutrients are given to pregnant women and special soy additives to young children, the extent of stunting and anaemia is reduced significantly.[80] A pilot programme has been launched to provide such nutrients in 100 poor counties but needs to be expanded to cover all 600 poor counties, though the effort might better be targeted at poor villages whether or not they are in poor counties.[81] Without a better start in life, stunted anaemic children will be unable to fully benefit from subsequent schooling.

There is also a need to continue raising the standard of nutritional provision in rural schools. Boarding schools were established in rural areas for primary age children unable to make the daily commute and often provide better education than rural schools. Nationwide, around 13% of rural children attend boarding schools, yet only 15% of primary boarding schools included in a study of schools in Shaanxi Province provided three meals every day, leaving most young children responsible for their own meals. Those that did provide meals typically failed to provide an adequate diet. A survey by the CDRF found similar results in the Guangxi Autonomous Region.[82] These reports led to the implementation of a pilot programme to give adequate meals to children. However, there is still evidence that the programme is inadequate, with reports suggesting schools serve low-quality meals.[83] A 2011 survey of the nutrition of students in rural areas suggested that, despite marked improvement in students' nutritional outcomes, the

---

77 Ministry of Education (2010), *Outline of China's National Plan for Medium and Long-term Education Reform and Development (2010-2020)*, Beijing.

78 Wang, X. and R. Herd (2013), "The System of Revenue Sharing and Fiscal Transfers in China", Economics Department Working Paper 1030, OECD Publishing.

79 OECD (2013), *What Makes Schools Successful? Resources, Policies and Practices – Volume IV.*

80 Huo, L. and M. Li (2012), "Development and Pilot Application of an Integrated Support Model for Disadvantaged Young Children in Poor Rural China", *International Journal of Child Care and Education Policy*, Vol. 6.

81 Lu, M. (2011), "Poverty Eradication in China : A New Phase", China Development Research Foundation, Beijing.

82 China Development Research Foundation (2011), *Rural School Meals and the Need to Improve Student Nutrition: An Assessment Report*, Beijing (in Chinese).

83 Caixin (2013), "Spoon half full for China's rural school kids", 21st June.

prevailing allowance of CNY 3 per school day for each student is insufficient to meet students' basic nutritional needs, and provision of meals and food at local and school levels needs to be improved to provide the maximum nutritional gains for students.[84]

Measures to improve access to education in rural areas need to consider affordability. School fees at secondary level have a significant impact on enrolment in developing countries.[85] China has one of the highest levels of fees at the upper-secondary level in the world, with a national average of USD 285 in 2011.[86] Clearly, rural children and their families are at a disadvantage to their wealthier urban counterparts, which reinforces a cycle of lower educational attainment followed by lower incomes in rural areas. In order to reduce the urban-rural income gap, China has much to gain from eliminating fees for regular high schools and ensuring universal access to secondary education in the 13th FYP.

Reforming public finances to increase funds available for rural areas

Unfunded spending mandates reduce sub-national governments' ability to provide basic public services.[87] All taxes and tax rates in China are set by the national government and sub-national governments have few sources of revenue of their own. Local authorities do have significant revenue from land sales, but the profit from this source still only covered one-sixth of total expenditure in 2013 and was restricted to funding infrastructure rather than other basic public services. As a result, in addition to their own revenue, sub-national governments also receive a portion of shared taxes and transfers from the central government. In federal tax-sharing systems such as India or Australia, national taxes are allocated to the state governments through formulas based on population and needs. In the case of China, tax sharing is based on a provincial government passing on a fixed proportion of the taxes raised in its jurisdiction to the central government, and keeping the remainder. In turn, each level of government has similar arrangements with the levels of government under its control. The proportion of the local tax yield that is retained locally varies according to the tax. Given the high level of spatial inequality in income, such a system necessarily means that there are large differences in tax revenue per capita across the country. Indeed, on a population-weighted basis, local tax revenue across prefectures is distributed with about the same degree of inequality as economic activity.[88] In 2010, the extent of the inequality in regional tax yields was about double that found amongst regions within OECD countries. In the 1990s and even at the beginning of the 2000s this gave rise to significant expenditure inequalities and problems for some local governments in meeting centrally-determined mandates, especially in rural areas.[89]

China's intergovernmental transfer system has become markedly more redistributive over time. Central government tax receipts rose much faster than those of sub-national governments due to the relative buoyancy of the taxes accruing to central government. Transfers increased from 4.7% of GDP in 1995 to 8.2% of GDP in 2014. As a result of this and other forms of transfers, the Gini coefficient of per capita expenditures across provinces was reduced from 0.25 in 2000 to 0.18 in 2010. Inequality, however, remains large relative to advanced-economy unitary states. Yet, rural areas have been the main beneficiaries. Indeed, transfers have also largely reduced inequalities at the county level, which includes most rural areas. By 2009, transfers were reducing fiscal inequality among counties within a province by 70%, as reflected in

---

84 China Development Research Foundation, "Report on Assessment of the Nutrition Improvement Program for Compulsory Education Students in Rural Areas".
Available at: http://www.cdrf.org.cn/uploads/soft/PDF/20130521/yingyangjihuapinggubaogao.pdf.

85 Bhalotra, S., K. Harttgen and S. Klasen (2014), "The Impact of School Fees on Educational Attainment and the Intergenerational Transmission of Education", background paper prepared for the *Education for All Global Monitoring Report 2013/4,* UNESCO, Paris.

86 NBS (2013), China Statistical Yearbook.

87 Unless otherwise specified information in this section is drawn from Wang, X. and R. Herd, op cit.

88 The Gini coefficient of the distribtion of GDP per capita across prefectures was 0.33 in 2010 while that for tax revenue was 0.31.

89 Tsui, K. (2005), "Local Tax System, Intergovernmental Transfers and China's Local Fiscal Disparities", *Journal of Comparative Economics*, Vol. 33.

the negative relationship between transfers as a share of local GDP and the level of GDP per capita (**Figure 3.3**). In some of the 600 counties targeted for poverty reduction, fiscal transfers are extremely large, with many counties receiving transfers of over 100% of local GDP in 2009.

Figure 3.3. Poorer counties are more dependent on intergovernmental transfers, 2009

Source: OECD calculations and Ministry of Finance (2011a), 2009 Fiscal Statistics of Prefectures, Cities and Counties.

Efforts are being stepped up to enhance equalisation of expenditure capacity. A new plan was introduced in 2012 to equalise access to basic public services between rural and urban areas by 2020. The plan sets the scope, standard and mechanism to deliver services in the areas of education, labour and employment, social security, social services, health care, population and family planning and housing, as well as those related to culture and sports. However, even with common standards it is difficult to stop wealthy families spending ever more on special classes and after-school tutoring as long as the advancement system to higher education is based on exams that require knowledge beyond what can be acquired at school. By the same token, free employment services may be of limited help if most and the best jobs are not advertised through such agencies.

3.2 Making urbanisation more inclusive

Urbanisation policies can become more inclusive by reforming land ownership rights, implementing urban planning policies to foster growth, and improving the integration of migrants in cities. Rapid urbanisation over the past ten years has brought many economic benefits, but issues as diverse as congestion, increasing land prices, and the limits placed on migrants' access to education and social welfare, have meant that the gains from urbanisation have not always been distributed equitably. The 13th FYP would do well to address all of these issues and put the financing of metropolitan authorities on a more sustainable footing in order to raise living standards and extend opportunities to all city denizens.

Further reforming the household registration system will help integrate migrants into cities

Restricting urban household registration (*hukou*) and its associated social benefits has failed to curb the growth of major cities. Between 2000 and 2010, large and mega cities accounted for almost two-thirds of urban population growth, and just over half of all migrants lived in such cities. In contrast, small and medium-sized cities accounted for a very small share of population growth, with only 24 million migrants living in these types of cities (14% of the total).[90]

Considerable progress has been made in improving migrants' access to services and welfare, particularly in smaller cities, but much more remains to be done. The July 2014 reforms announced by the State Council will remove the distinction between the urban and rural *hukou*, replacing it with a national household registration system and permanent residence permit. The reforms will allow rural migrants acquiring urban residence to retain their rural land rights, helping to facilitate the settling of an additional 100 million migrants in cities on a more permanent basis. These reforms constitute a positive step, but in larger cities the practical distinctions between migrants and non-migrants will remain in place, as acquiring a residence permit will become more difficult as city size increases. The variable geography of residency criteria will grant rural migrants almost automatic residence in cities with a population under 500 000, whilst making it virtually impossible to obtain a permanent residence permit in mega-sized or large cities, where more than half of all migrants currently live.

Exemptions for larger cities should be gradually removed with a view to fully liberalising the household registration system. The July 2014 reforms are a milestone on the path towards full liberalisation of the household registration system, but they do little to improve conditions for migrants in larger and mega cities, maintaining the link between registration status and access to certain essential services. Under the new reforms mega cities will introduce a points-based system for residency. However, the pilot use of such a system in Guangdong indicates that the manner in which points are assigned will mean that most rural migrants are unable to qualify. In practice this may be equivalent to exempting mega cities from the reforms, meaning that the benefits of urbanisation continue to be spread unevenly. To ensure that all city dwellers gain from urbanisation, further reform needs to be undertaken to liberalise access to permanent registration permits in large and mega cities, and greater recognition given to the role of the market in determining city size.

One of the central aims of household registration reform should be to phase out residence-based distinctions in access to public services. The underlying problem remains the gap between rural and urban citizens' access to essential public services, but breaking the link between household registration status and access to education, health care and social protection will benefit *all* rural dwellers, not just migrants. Such changes would need to be allied to improved portability of benefits, with a view to ultimately unifying the urban and rural systems of social protection and pension provision. The government has already declared its intention to gradually eliminate

[90] Tabulations of the 2010 Census.

restrictions on obtaining residence permits and to facilitate the access of migrants to services. Indeed, several provinces are already enforcing the rights of all workers to join unemployment insurance schemes, as stipulated by the 2008 Labour Contract Law. Strict enforcement of such rights should be observed across the country to allow migrants to access services under the same conditions as urban residents.

Cross-cutting reforms are a key accompanying aspect of the plan. The Ministries of Health and Education, as well as the Family Planning Commission, have announced that planning for local facilities under their control will be based on the actual number or residents (including migrants), rather than the registered population. In addition, the Ministry of Finance will also progressively move to using the actual population of a city when making central to local transfers.

Recent reforms to improve migrant Children's access to education will help to bolster inclusiveness. Major strides have been taken in helping the children of rural migrants access education in urban areas, but progress has been lopsided and further reforms must aim to enhance access to academic education. In 2013 the Ministry of Education announced a five-point programme which set out to comprehensively improve education for migrant children. Two of its principal aims were to promote free secondary vocational education for migrant children and remove residency restrictions on sitting university entrance examinations. Further efforts to increase the inclusiveness of the education system were announced in September 2014, when the State Council indicated forthcoming reforms to make the recruitment processes of higher education institutions more transparent and to introduce the allocation of quotas in Eastern provinces for students from less developed Central and Western regions. In addition, major colleges under the provincial governments will have to allocate quotas for able rural students from remote, poor and minority areas. At the primary and middle school levels, entrance exams will be abolished and children will be admitted by catchment area.

Further action to give the children of migrants equal access to high-quality education is particularly urgent. The 2013 five-point plan has one significant drawback, in that it pushes migrant children towards vocational schools without increasing access to fee paying academic schools. Unless academic schools are completely opened to migrant children, allowing students to take university entrance examinations locally will have little discernible effect. While the cost of improving educational opportunities of migrant children may seem daunting, the long-term costs to China of failing to do so could be staggering, as it will substantially reduce the human capital endowments of future generations.

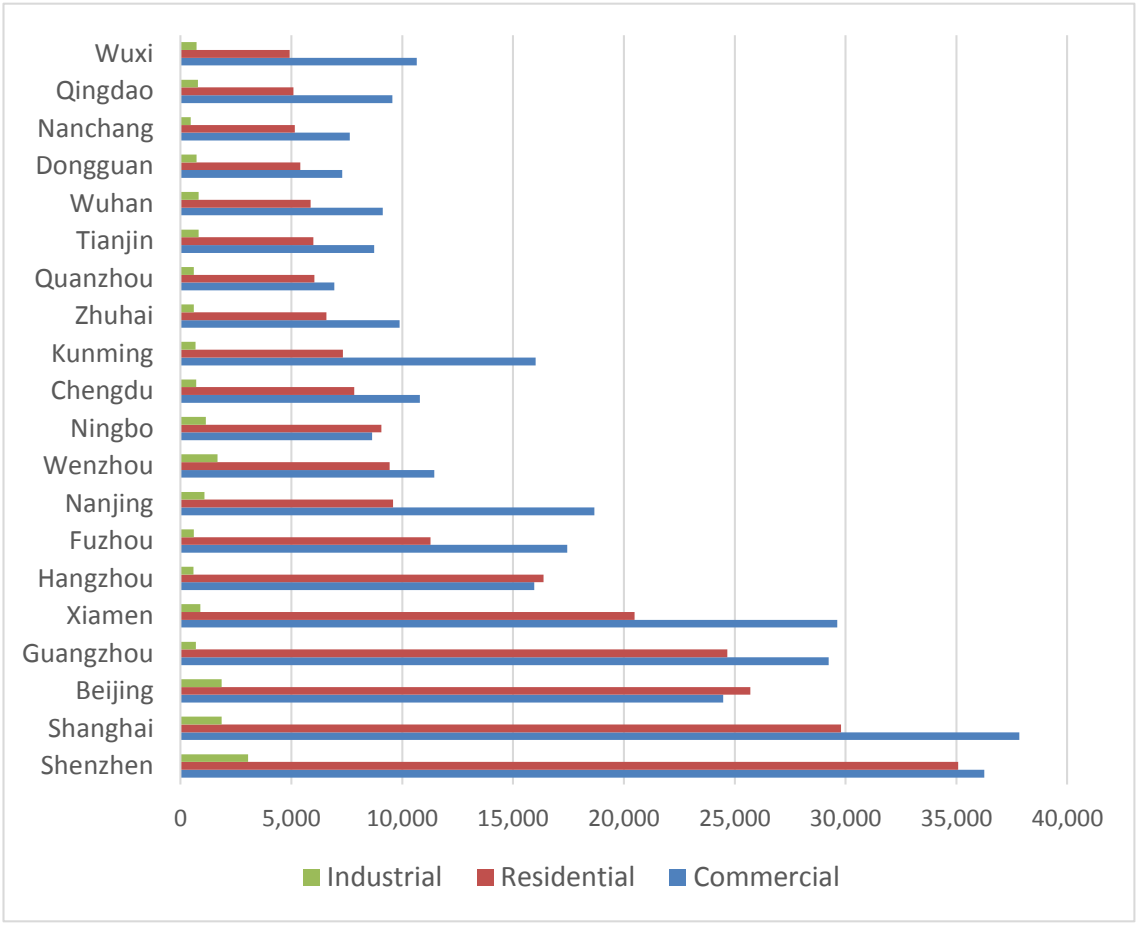
Land reforms could help poorer individuals access accommodation and generate more sustainable urban development

Making urbanisation more inclusive will require significant reform of rural land management, to ensure the supply of adequate, affordable housing. The Land Management Law gives local governments considerable scope to requisition rural land for urban purposes. The compensation paid to farmers who lose their land is often low[91] and, around large cities, can be as little as 2.6% of the land-use rights subsequently sold by local governments.[92] The actions of local government in relation to land management are heavily affected by the desire of cities to expand and increase their tax base. The sale of land-use rights can generate significant income, amounting to 7.3% of GDP in 2013. In practice, well over half of land sales revenue goes towards compensation and the costs of land improvement. Appetite for expansion has fed both the scale and the character of the spatial growth of Chinese cities, as local governments have sold industrial land development at very low prices compared to the price of residential and commercial land (Figure 3.4). Local authorities already obtain taxes on property, but they are mainly transaction-based, so diminishing turnover in the secondary housing market. The sale of land for industrial use is a reflection of the desire of local governments to focus on GDP growth rather than improving the living conditions of people living in their jurisdictions.

[91] Compensation varies but the usual ceiling for farmland is 130 times the gross annual yield of the land in agricultural use.
[92] OECD (2013), OECD Economic Surveys: China, OECD Publishing, Paris.

Figure 3.4. Local governments favour industrial land development over housing

Land prices in major Chinese cities 2014, first three quarters) Yuan per m^2

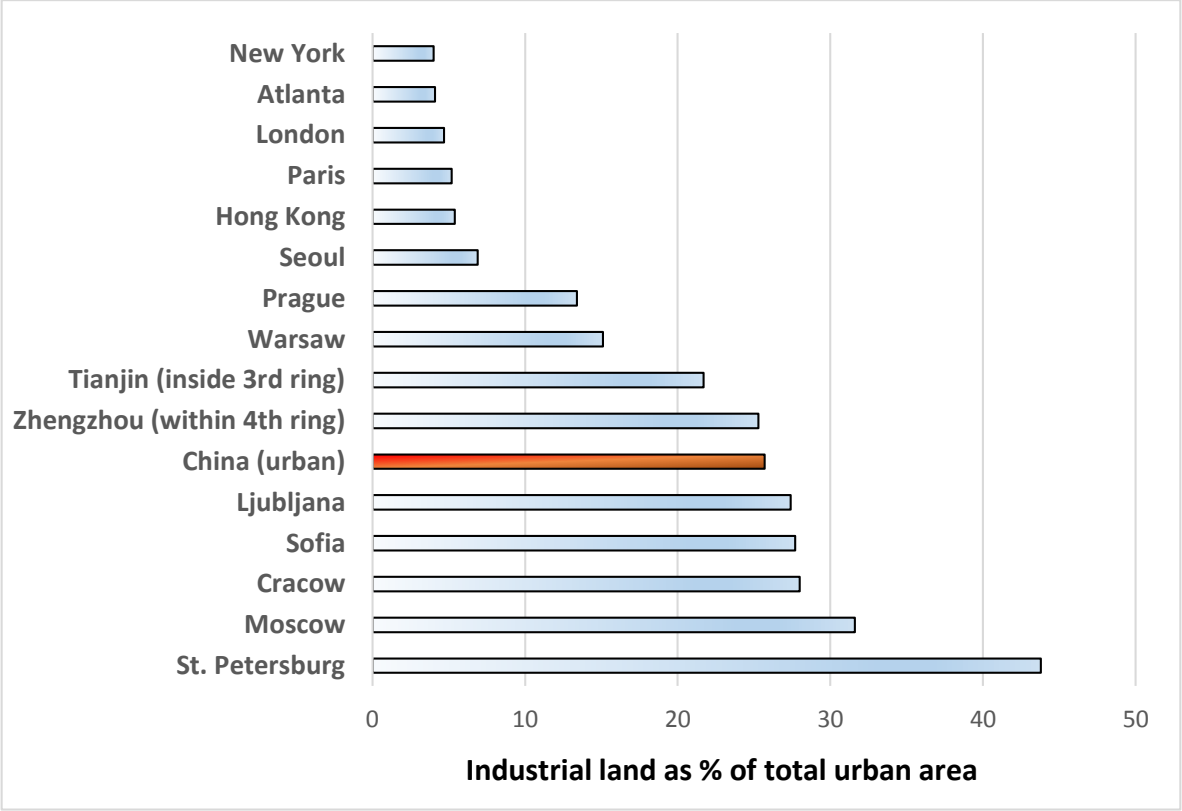


Source: Ministry of Land and Natural Resources, CEIC.

Current practices contribute to a wasteful use of prime urban land for industry, poor urban planning and abusive expropriation of rural collective land. Many Chinese cities combine very high density with extremely inefficient use of land for industrial development. This pattern of use reflects the absence of an integrated land market in China where land was granted to SOEs at no cost or, more recently has been sold at low administered prices. As a result, the amount of land used for industrial purposes is five times larger than in cities with integrated property markets (Figure 3.5). On the other hand the share is similar to that found in other formerly centrally planned countries. Property bubbles have emerged in some cities, together with the construction of "ghost towns" in others, notably in smaller tier 3 and tier 4 cities, where prices are now falling due to oversupply.[93] The differential treatment of land use has important consequences for inclusiveness, as it has put upward pressure on house prices and hindered affordability in the rental market as discussed in the 2015 Economic Survey of China. Indeed, if the proportion of land used for industry in urban areas fell to that typical of advanced countries, the land available for housing would increase by 70%. This shortfall disproportionately affects migrants and the poorest city dwellers. Indeed, migrant workers are typically concentrated in employer-provided dormitories, "urban villages" and housing constructed by rural collectives without proper authorisation for rent or sale to migrants or even local urban residents – in short, to tenants or buyers whose *hukou* is not registered in the corresponding rural collective. Such developments are often characterised by poor quality construction, poor infrastructure and poor amenities.

[93] Ren, Y., C. Xiong and Y. Yuan (2012), "House Price Bubbles in China", China Economic Review 23, pp. 786-800.

Figure 3.5. Industrial land use in market-oriented and formerly centrally-planned countries



Source: Bertaud (forthcoming), Order without Design.

Farmers in peri-urban areas should receive a higher proportion of the revenues generated by their land after it has been developed for commercial or residential purposes. Measures should also ensure that the rest of the revenue generated is used in a more transparent manner and geared towards making urbanisation more inclusive. In addition, local authorities would need to lower the proportion of land zoned for industrial use and so increase the supply of residential land.. Without such reforms, local governments will be threatened by land reform and may well thwart it. However, if land use is aligned with people's needs, China could make great progress in improving the lives of its migrant population, improving the quality of new urban development, and shoring up local public finances.

Allowing rural collectives to develop land for rental purposes will foster inclusiveness, giving migrants and citizens on lower incomes access to affordable accommodation. Presently, most rental housing on collectively-owned rural land is illegal, lacking infrastructure or without access to public services. However, experience in some of the Pearl River Delta cities, like Guangzhou, Shenzhen, Foshan and Dongguan, shows that local farmers and village collectives in peri-urban areas can profit from urbanisation and provide more affordable housing options to migrants and urban residents alike. Often, the original villagers have established companies that manage the development. Since local governments cannot control development in these areas, as they are not considered legally as urban areas, plot densities are often twice that allowed in legal urban locations. Moreover, public spaces are almost non-existent and roads are very narrow, in contrast with the wide boulevards often found in urban areas, further increasing the effective plot ratio. In Shenzhen, "rural farmers" have been able to develop their construction land and have provided accommodation for around 5 million people in 2009.[94]

[94] Pu H. (2012), *Spatial evolution of urban villages in Shenzhen*. Utrecht University.

Subject to zoning and planning requirements, limits on the use of agricultural land for development and housing should be relaxed, and farmers should be allowed to deal directly with developers. In Shenzhen, rural collective land has been sold at market value since 2013, with farmers being able to choose between developing it as a company, selling it, or retaining an interest in land development. The reforms pioneered in places like Shenzhen should be extended and deepened. Allowing rural collectives on the urban fringe to legally develop their own construction land for rental purposes would increase the supply of affordable, adequate housing for millions of internal migrants, as well as providing urban fringe communities with a new source of income and government with an additional revenue source. By boosting the value of collateral and the ability for repayment, such reforms would also enable rural collectives to obtain easier access to finance. In Shenzhen, the sale of land has contributed to local government budgets, with around 70% of the auction price in the first land sale in 2013 going to the authorities, and the remaining 30%, along with one-fifth of the developed floor space, going to the farmers.[95]

A significant increase in the effective supply of land could be achieved by reforming land use. First, the procedures by which local authorities allocate the rights to use state-owned land should be standardised and made both more market-oriented and more transparent. In particular, there is a need to end their use of monopoly power on the land market to restrict the supply of land for residential and commercial purposes while engaging in a "race to the bottom" competition for industrial investors. Tax and regulatory changes can be used to encourage the development of currently idle industrial land for non-industrial purposes; at present, too much high-value land in urban areas is under-used or not used at all.[96]

Better urban transport planning will help to link individuals to opportunity

Better urban planning can ensure that development is more inclusive, linking it to urban transit networks and facilitating access to employment opportunities and services, whilst reducing congestion and pollution. China has made great strides in the development of public transport infrastructure, but provision remains below the level seen in many advanced countries. One of the key problems generated by the fast growth of China's megacities is the capacity of urban centres to keep up with transport demand. The growth of cities like Beijing and Shanghai is already causing major increases in commuting times, especially for households which cannot afford to live close to the city centre. Close co-ordination between public transport and land-use policies will play a vital role in ensuring more equitable and efficient accessibility within cities.

Promoting greater density around transport hubs would help to reduce the numbers of people commuting by private car. There is a clear trend towards expanding suburban areas, which encourages car usage for daily commuting.[97] This is often due to the remoteness of new expansion areas and the lack of sufficient public transport services.[98] This pattern is reinforced by the separation of residential suburbs from industrial and commercial areas, so enlarging the daily commuting distance and reducing job market access for lower-income groups. Various policies can be implemented to address this situation. In particular, measures should seek to promote greater density around metro stations and multi-mode transport interchanges.

---

95 South China Morning Post (2013), "Shenzhen's first sale of rural land", December 21st, Hong Kong.

96 Floor-area ratios in industrial districts are often 0.3-0.4; Tao (2013) estimates that raising Allowing land to be developed with a plot ratio of them to 0.6-0.8 would release as much as 667km^2 in urban construction land every year, enough to house over 4 million people annually if two-thirds of the land were used for apartments and the density were set at 10,000 people per km^2; See Tao R. and F. Su (2013), "Reviving China's Growth: A Roadmap for Reform", Upfront The Brookings Institute Policy Blog, Washington D.C.

97 *Ibid.*

98 Zhao, P. (2010), "Sustainable Urban Expansion and Transportation in a Growing Megacity: Consequences of Urban Sprawl for Mobility on the Urban Fringe of Beijing", *Habitat International* 34.

To foster inclusiveness, urban transport planning needs to look beyond private motor vehicles to focus on establishing integrated networks of multiple-mode public transport. While the majority of people in Chinese cities rely on public or non-motorised transit,[99] investment policy in urban transport has long focused on facilitating access for motor vehicles. Data from the fiscal budget for urban transport construction in 2011 shows that 18% of total government expenditure in that year was allocated to public transport, while 82% was allocated to road and bridge construction.[100] This emphasis on motor vehicles hinders inclusiveness, as motor vehicle ownership is the preserve of higher-income groups, and the ability of poorer individuals to access employment, education and other services is stymied by the comparative inadequacy of public transportation. In the 13th FYP this calls for a general shift in funding from infrastructure that facilitates access to private vehicles towards public transport and non-motorised facilities.

Many Chinese cities could focus on the potential of bus rapid transit (BRT) to meet their evolving public transport needs. China's growing cities need sustainable mobility solutions that are cost-effective, can be expanded rapidly and are flexible enough to adapt to shifts in demand in rapidly changing urban environments. BRT systems may have much to offer, particularly on the urban periphery. While the spatial requirements of BRT systems are similar to those of surface rail-based transport modes, they are more cost-effective and flexible on other grounds. First, the right of way is generally far cheaper than an assemblage of rails, power supplies and signals. Secondly, bus routes can be more easily adapted as traffic patterns change – which is what one would expect in a rapidly expanding city. This is an advantage of BRT over metros, at least during phases of very dynamic growth. Thirdly, BRT can also use local streets when beyond the limits of its dedicated right of way, getting passengers close to their destinations even in fringe areas. Finally, the market for buses worldwide is far more competitive than that for rail cars, making it easier for cities to acquire fleets adapted to local needs.

Developing inclusive transport networks requires a coherent, effective institutional framework capable of linking decision making and aligning it with social inclusion goals. Such a framework must also facilitate co-ordination of national, local and private financing; provide clear criteria for fund allocation among modes and across jurisdictions; and measure operators' performance. Much of the institutional framework is presently in place in China, as can be observed from the co-ordination of national financing, where the Hong Kong Metro already runs a subway line in Beijing and several in Shenzhen. The major institutional obstacle, in the case of China, is the high level of fragmentation of transport and land-use policy planning across levels of government. Better co-ordinated urban planning and transportation policies could be created with clearer government guidelines focussed on this goal. Shenzhen and Beijing are important exceptions where the urban transport bureau has been granted larger co-ordinating powers. Granting the same powers to other cities would increase the capacity of urban China to align policies towards Inclusive Growth objectives.

Reforms to the funding of local government will help to foot the bill for more inclusive urbanisation

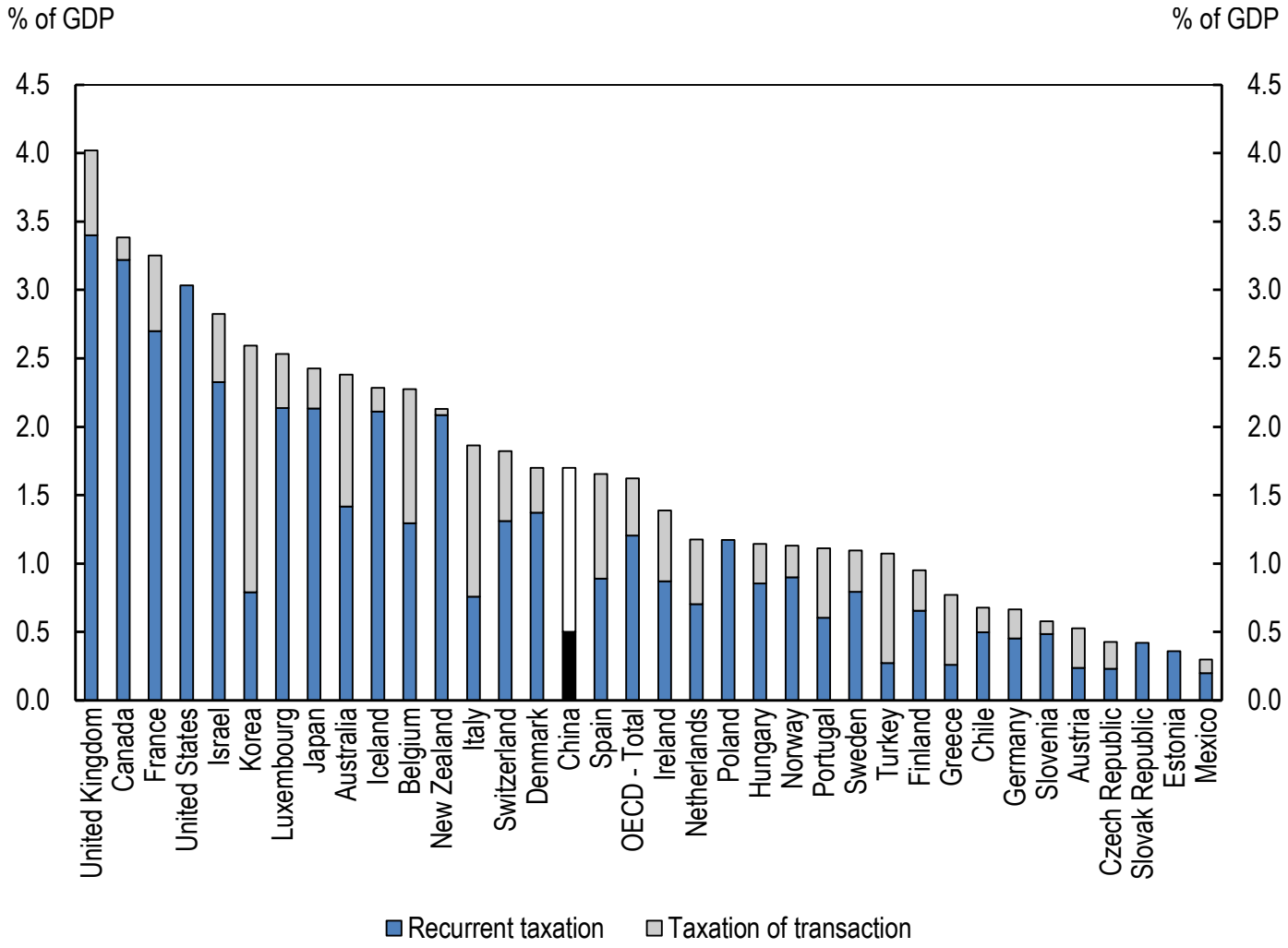
To help local governments meet the costs of inclusive urbanisation, efforts should be made to enlarge the local tax base and reduce dependency on land leases. One of the biggest issues for urbanisation in China is the question of how it can be financed. Sub-national governments are responsible for investments in infrastructure to support economic growth, but they are assigned limited tax revenue. In order to raise revenues, more taxation needs to be put on a recurrent basis. The experience of OECD countries suggests that recurrent taxes on immovable property are the most appropriate for sub-central governments, as they are the most decentralised and provide an ongoing source of revenue. At present, although the overall

[99] Non-motorised transit refers to travelling by foot and by bicycle (both electric and non-electric).
[100] China Urban Construction Yearbook 2011.

level of property taxes in China is similar to that in the OECD area, most of the yield comes from taxes on transactions (Figure 3.6), meaning there is scope to increase the share of recurrent taxes. Pilot property taxes in cities like Chongqing and Shanghai indicate that China is already moving in this direction, although such pilot taxes may ultimately prove insufficient, as they only apply to very high value properties and raise very little revenue.

Figure 3.6. Tax revenues from property in China are more reliant on transactions than in OECD countries

Property taxation in China and other countries



Source: Wang X. and R. Herd (2013)

3.3 Improving the health status of individuals

The 13th FYP must build upon the vast improvements in the healthcare system over the past five years, to ensure that the gap between potential and actual life expectancy narrows from the 1.2 years in 2011 (See Chapters 1 and 2). The main contributors to poor health in China cannot be treated by remedial medical means alone, but also require broader preventive societal intervention. Three groups of underlying causes of ill health are responsible for 64% of the burden of disease (including both prematurely lost years of life and the disability associated with the diseases): air pollution; consumption of tobacco, alcohol and salt; and

treatable medical conditions like high blood pressure, diabetes and high cholesterol.[101] Avoiding a quarter of premature losses would reduce the gap between the Chinese life expectancy and the reference life expectancy[102] used in the calculation of multidimensional living standards. The precise reduction cannot be quantified due to the fact that even if such a reduction were made, an individual may die prematurely from another cause at a later date, though still before their assumed maximum life expectancy.

The 2013 provincial coal caps will help reduce pollution, but also raise equity and efficiency issues

The introduction of the provincial coal caps in 2013 marks a major policy breakthrough towards reducing ambient air pollution. Prior to the 2013 Airborne Pollution Prevention and Control Action Plan, emissions targets were based on reductions relative to GDP growth. The 2013 plan is a significant change of direction, mandating provincial governments to introduce caps on the use of coal, with the aim of cutting total coal consumption to below 65% of total primary energy use by 2017. The caps will have a major impact on coal consumption and could result in a reduction in CO_2 emissions of around 230 million tons, i.e. about 2.3% of global emissions in 2012.[103] So far, 8 provinces, accounting for 30% of total consumption, have introduced targets. Another four provinces have indicated that consumption will fall without a specific cap, while a further 17 will shortly be producing a plan. For the 8 provinces with specific targets, the plans have a set a cap on 2017 consumption that is on average 11% below actual consumption in 2012. These caps appear to be working as coal consumption fell in 2014 despite a rise in energy consumption of 2.6%

Despite being a move in the right direction, provincial coal caps are not the most efficient or equitable means of reducing pollution. By focusing solely on coal, provincial caps may end up boosting the use of other carbon-intensive primary fuels excluded from the cap, such as natural gas and oil. Depending on the resulting fuel mix, this could offset the potential climate benefits associated with capping coal alone.[104] There are also equity and efficiency issues with allowing provinces to set coal caps, as the scope for reducing coal consumption varies considerably across provinces. Ultimately this means that the impact of limits will be unequally felt between provinces, placing a greater burden on the economies and households of those provinces that already face high marginal costs of abatement, like Guangdong and Jiangsu (which may be the reason why neither presently has specific coal targets).[105]

The government should review its plan to build gas plants to produce methane from coal. A coal-to-gas plant has been built in Inner Mongolia to supply gas to Beijing, which will allow Beijing to stop using coal. However, even if air pollution in Beijing is reduced, overall CO_2 emissions may increase, as the practice of producing methane from coal is particularly CO_2 inefficient. This is environmentally counter-productive and inefficient. It is also inequitable as it will cause disproportionate ecological degradation in the, admittedly sparsely populated, region of Inner Mongolia. So far 21 such plants have been approved, mainly in provinces that have yet to introduce coal reduction targets. At the very least, such plants need to be included within the scope of the coal caps.

---

101 Yang G., Yu Wang, Y. Zeng, G. F. Gao, X. Liang, M. Zhou, X. Wan, S. Yu, Y. Jiang, M. Naghavi, T. Vos, H. Wang, A. D. Lopez, C. Murray (2013), "Rapid health transition in China, 1990–2010: findings from the Global Burden of Disease Study 2010", The Lancet, Vol.381.

102 Japan's life expectancy in 2011

103 OECD analysis based on the the share of coal in CO_2 emissions in China and assuming that the power stations that are closed in the next five years have an average efficiency.

104 Zhang, D., V. Karplus, S. Rausch and X. Zhang (2013), "Analyzing the Regional Impact of a Fossil Energy Cap in China", Tsinghua – MIT China Energy & Climate Project, Joint Program on the Science and Policy of Global Change, Report No. 237, Cambridge, Mass.

105 *Ibid.*

Greater use of market mechanisms and effective regulation would support efforts to reduce pollution and improve health

The 13th FYP should set national emissions targets based on market mechanisms to replace sectoral subsidy programmes. Current policies aimed at reducing carbon emissions focus on sectoral policies, such as: the coal cap; mandates for the purchase of electric cars; generating gas from coal plants; and feed-in tariffs for wind and solar energy. China is currently implementing seven pilot emissions trading systems and is planning to have an economy-wide emissions trading system in place from 2016. To avoid sub-optimal outcomes, these sectoral policies should be replaced by a uniform, economy-wide, carbon price. Strengthening price signals that reflect the social cost of pollution, through a tax or trading scheme, would improve efficiency by incorporating all carbon emitting fuels and allowing emission rights to be bought and sold. This would also ensure that the market directs investment into those areas where the reduction of emissions is the greatest.

Sectoral policies are inefficient and may ultimately prove counter-productive. The July 2014 plan to develop the electric vehicle industry[106] mandates that in each province electric cars or plugin hybrids account for 10% of all new car purchases in 2014, 20% by 2015, and 30% by 2016.[107] On the face of it, this marks a positive step towards reducing harmful emissions, however, there are strong reasons to doubt whether such measures will lead to environmentally, or economically, optimal outcomes. In terms of costs, OECD work suggests that the durably high cost of batteries may limit the prospects for mass produced electric vehicles.[108] In 2014, the cost of the average automotive lithium-ion battery fell to around USD 680 per Kwh, meaning that a battery pack equivalent to a 60 litre tank of gasoline containing around 320kwh of energy, would cost approximately USD 200 000.[109] To justify such high prices electric cars need to offer substantial value through the reduction of emissions. Yet in China, energy for electric cars is produced by a grid dependent on coal-fired power stations, meaning that the lifetime CO_2 emissions of an electric vehicle may be up to 27% higher than those from a diesel internal combustion engine.[110]

Setting a uniform carbon price would also ensure that green technologies are developed at competitive prices. The slow rate of capital turnover in the green technology industry means that it is important that public policies provide predictable signals to the markets, so that they attract private sector investment, and minimise the need for public involvement in technology deployment.[111] This can only be achieved by setting a uniform carbon price and abolishing feed in tariffs and subsidies. The clean energy push needs to be sustained by unlocking private financing to meet the 2020 emission intensity targets of a 40-45% cut from 2005 levels. A 2013 report to the NDRC, estimated that USD 243 billion of additional funds per year will be needed by 2020 to support low-carbon development.[112] A review of wind policies is also needed, as currently the productivity of Chinese wind farms is only half that in the United States and 40% less than that in Denmark, and in 2010, the feed-in tariff for wind was equivalent to a carbon tax of CNY 280 per tonne of carbon dioxide.

---

106 "Roadmap for the purchase of new energy vehiocles by government agencies and public institutions." China government offical portal, http://www.gov.cn/xinwen/2014-07/13/content_2716563.htm

107 In the Beijing/Tianjin/Hebei area, the Yangtze River Delta, and the Pearl River Delta, this quota will instead begin at 15% in 2014

108 OECD (2011) Studies on Environmental Innovation Better Policies to Support Eco-innovation, p195-196.

109 Longden T. (2014), "Light Duty Vehicle Battery Costs" Review of Environment, Energy and Economics, Milan.

110 Hawkins T.R., B. Singh, G. Majeau-Bettez and A. H. Strømman (2013), "Comparative Environmental Life Cycle Assessment of Conventional and Electric Vehicles", Journal of Industrial Ecology, Vol.17.

111 Cárdenas Rodríguez, M., Haščič, I., Johnstone, N., Silva, J. and A. Ferey (2014) "Inducing private finance for renewable energy projects: Evidence from micro-data" OECD Environment Working Paper (forthcoming).

112 The Climate Group and the Central University of Finance and Economics of China (2013), Shaping China's Climate Finance Policy. See: thttp://thecleanrevolution.org/_assets/files/Shaping-Chinas-Climate-Finance-Policy.pdf.

Beyond a uniform carbon price, ensuring that regulations are properly enforced will be essential to preventing further environmental degradation. The new emission discharge regulations for both SO_2 and NO_X that come into force in 2015 for all thermal power stations, regardless of age, are amongst the strictest in the world. But ambitious targets for cutting emissions will do little if they are not strictly enforced. Ensuring that the new emission discharge regulations are properly enforced will require creating sufficient monitoring infrastructure and mechanisms, such as real-time remote monitoring of emissions at central data centres, and making extensive use of on-site verification by inspectors. There is also scope to create performance incentives for senior officials by directly linking performance assessment criteria to levels of NO_X emissions.

In the major polluting industries such as iron, steel, and petrochemicals the level of permitted emissions of local pollutants needs to be reduced. In the case of NO_X limits need to be introduced, and monitoring started. Once an effective monitoring system has been introduced a trading system could be created to ensure further reductions in emissions of these gases. However, past attempts to test sulphur trading have ended in failure because of the underlying weak legal framework and poor governance. There would be many challenges in establishing a market for emissions trading, and any such efforts would need to address the issues of independent regulation, information disclosure, and public accountability.[113]

In urban areas, reducing emissions from new motor vehicles through enforcement of national standards, and retro-fitting old vehicles with cleaner technology, would improve air quality. Despite making up only 15% of total motor vehicles, trucks account for most road transport emissions (see Chapter 1). The introduction of ultra-low sulphur diesel, which is scheduled to take place during the 13th FYP, will be essential to reducing truck emissions, but should be complemented by the implementation of tests that better assess emissions from vehicles in normal use. For older trucks, diesel retrofit technologies should be used. Current retrofit technologies could reduce pollution from the existing diesel engine fleet by up to 90% for particulate matter, 75% for nitrogen oxides, and up to 90% for volatile organic compounds.[114] Diesel retrofit strategies are particularly important in metropolitan areas where high volumes of heavy-duty trucks are prevalent and/or major construction projects are underway for long periods of time. Such policies should focus on incentivising local governments to ensure that the truck fleet in their area is retrofitted. One example of such an initiative is the London Low Emission Zone, where trucks must be fitted with filters or pay a daily charge equivalent to one-fiftieth of the cost of a filter.[115]

Efforts to reduce pollution should also focus on using cleaner energy more efficiently in residential consumption. The prevalence of winter pollution peaks in northern China suggests that the use of coal for heating purposes is a key factor in pollution. Many of the small-scale district heating plants use coal, and these are present in around 300 cities. To reduce pollution, such plants should be converted to natural gas as soon as possible. An additional issue is the use of low-efficiency stoves in rural areas. Often the stoves in question either do not have a flue - in which case they produce indoor pollution - or they are inefficient – in which case they produce external air pollution. The loss of life expectancy due to indoor pollution is similar to outdoor pollution, but has been falling rapidly, as higher incomes families convert to less polluting fuels. To ensure that further progress is made on this front, the government should reinstate the programme to replace inefficient stoves.

[113] Tao, J. and D. n-y Mah (2009), "Between Market and State: Dilemmas of Environmental Governance in China's Sulphur Dioxide Emission Trading System", *Environment and Planning Control: Government and Policy*, Vol. 27.

[114] Dearnley E. (2013). Reducing Particulate Matter Emissions from Diesel Vehicles and Equipment, the Black Carbon Campaign, London.

[115] The London Low Emission Zone https://www.tfl.gov.uk/modes/driving/low-emission-zone.

Reducing pollution with measures to reform harmful subsidies and introduce environmental taxes can support equity and growth

Concerns about the distributional impact and affordability of climate policies are often a major barrier to policy action, or result in the introduction of inefficient exemptions or subsidies. Indeed in China, the amount of carbon emissions relative to household incomes in the lowest income decile is almost double that in the upper decile mainly due to the reliance on coal for heating by low-income families.[116] China has moved away from the subsidisation of fuel prices and chosen to shelter poor consumers from price increases by introducing increasing block tariffs for gas and electricity.[117] Although less economically satisfactory than a uniform cash transfer to poor families, the administration costs are almost non-existent. The government has also mandated that electricity companies nationwide offer their clients flexible time of day metering systems, enabling the reduction of electricity bills through off-peak consumption.[118] Harmful fossil fuel subsidies need to be eliminated. Despite often being introduced to help the poor, applying them universally is ineffective, inefficient, and ultimately unequal as they tend to disproportionately benefit the rich.[119] For example, in Indonesia, 40% of subsidies benefit the richest while less than 1% reach the poorest decile of households.[120] Similarly in India, the estimated implicit oil subsidies have been seven times higher for the richest than for the poorest decile of households.[121] Indonesia's government plans to distribute cash to the poorest households to remedy the effect of price increases.[122] Such a policy could be considered in the event that a uniform carbon price is introduced in China.

China has further scope to increase environmental taxes and reduce the consumption of carbon-intensive fuels without harming growth. Despite increasing since 2000, China's current rates of environmentally related taxes remain below those of most OECD countries (Figure 3.7). The introduction of environmental taxes can go hand in hand with promoting growth and equity, as in the case of taxes on harmful motor vehicle fuels, where higher-income groups will contribute more in taxes than lower-income groups who rarely own cars. In 2015, the government should focus on raising the consumption tax of gasoline and diesel as regulated petroleum prices are lowered in line with world prices. Taxes on heating fuels are more problematic, but the government could consider making heating fuel consumption tax free up to a certain limit, set lower than the average consumption of lower income groups, so that at the margin they would face a positive tax rate. Rather than tackling a regressive impact with universal applications of exemptions or subsidies, compensation measures should be provided for low-income households or separate social security systems. A full assessment of the income distributional effects of environmental taxes should include their indirect effects, such as price increases on taxed products and the employment effects of using environmental tax revenues, alongside the associated environmental benefits.

---

116 Golley J., D. Meagher and X.Meng (2008), "Chinese urban household energy requirements and CO2 emissions" in L.Song et al., eds. (2008), China's Dilemma: Economic Growth, the Environment, and Climate Change. ANU Press Canberra.

117 Zhang Z. (2014), "Energy Prices, Subsidies and Resource Tax Reform in China", CCEP Working Paper 1406, Australian National University, Canberra. and Zhang X. (2010) NRDC Proposes Stepwise Residential Power Tariff , NRDC, Beijing.

118 NDRC (2013), On Improving the Increasing Block Tariff, Price Department Notice 2533, http://www.ndrc.gov.cn/xwzx/xwfb/201312/t20131225_572894.html.

119 OECD (2013), *Effective Carbon Prices*, OECD Publishing, Paris.

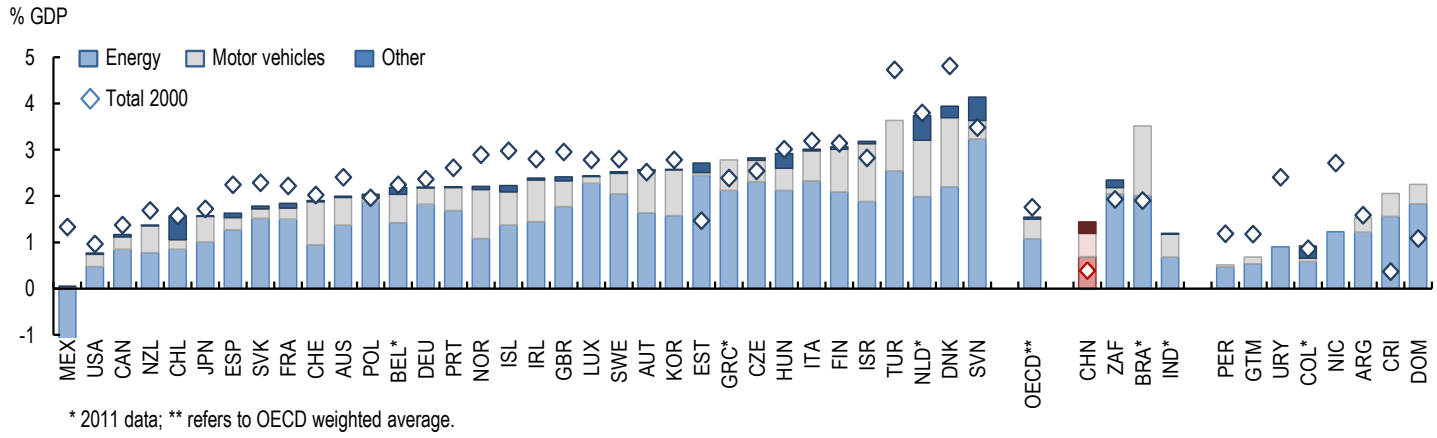
120 OECD (2014, forthcoming), Economic Survey of Indonesia, OECD Publishing, Paris.

121 OECD (2014, forthcoming), Economic Survey of India, OECD Publishing, Paris.

122 US Energy Information Administration (2014), Country notes: Indonesia: http://www.eia.gov/countries/analysisbriefs/Indonesia/indonesia.pdf.

Figure 3.7. Revenues from environment-related taxes in China are below the OECD average

(percent of GDP in 2000 and 2012)



Source: OECD/EEA database on taxes, charges and other instruments used for environmental policy.

Implementing policies to combat water pollution can improve health

Introducing a price mechanism for water would help to overcome shortages and increase access to safe water supply and sanitation, which is important for health. In China, water pollution is exacerbated by water scarcity, with 43% of inland rivers unsuitable for human use.[123] Access to water, also has an inherent equity dimension as the poor are most affected by water pollution and the lack of resilience of freshwater systems. By 2030, water consumption will be capped at 700 billion cubic meters, against consumption of around 600 billion cubic meters in 2012. In the North of the country 80% of consumption comes from groundwater stocks which will be exhausted by 2030. To cope with this, the South-North water transfer programme system is being built. The first section of the project started to deliver water to Beijing in December 2014. This transfer programme should be complemented with the introduction of a price mechanism to reduce water consumption amongst farmers, who use 61% of the water supply, but are currently charged on the basis of irrigated surface area, rather than the water than they consume.[124]

Implementing market mechanisms and transferring water rights would help to improve the efficiency of water usage in the Yellow river basin, and direct water to higher value-added uses. There is a need to ensure coherence when setting water quotas and food quotas at the provincial level. The objectives of food security and self-sufficiency have to be balanced against the need for water resources for industrial and urban development, while leaving enough water to meet ecological needs. The most effective and efficient way of addressing these trade-offs is, once again, through the use of a pricing mechanism for water consumption , as pricing water can promote efficiency and discourage low-value uses. The water allocation regime can be reformed to promote water efficiency, innovation and investment. Pilot projects of water rights transfer have been implemented in the Upper-Yellow river basin in the autonomous regions of Ningxia and Inner Mongolia from 2003, aiming to improve efficiency of water use. These projects allowed coal miners and heavy chemical companies to reduce water transmission losses and use the water saved in higher value-added processes.[125] The success of such projects means that they could be replicated in other affected regions, provided that the social and ecological dimensions are properly taken into account.

[123] Ministry of the Environment (2010), State of the Environment 2009, Beijing.

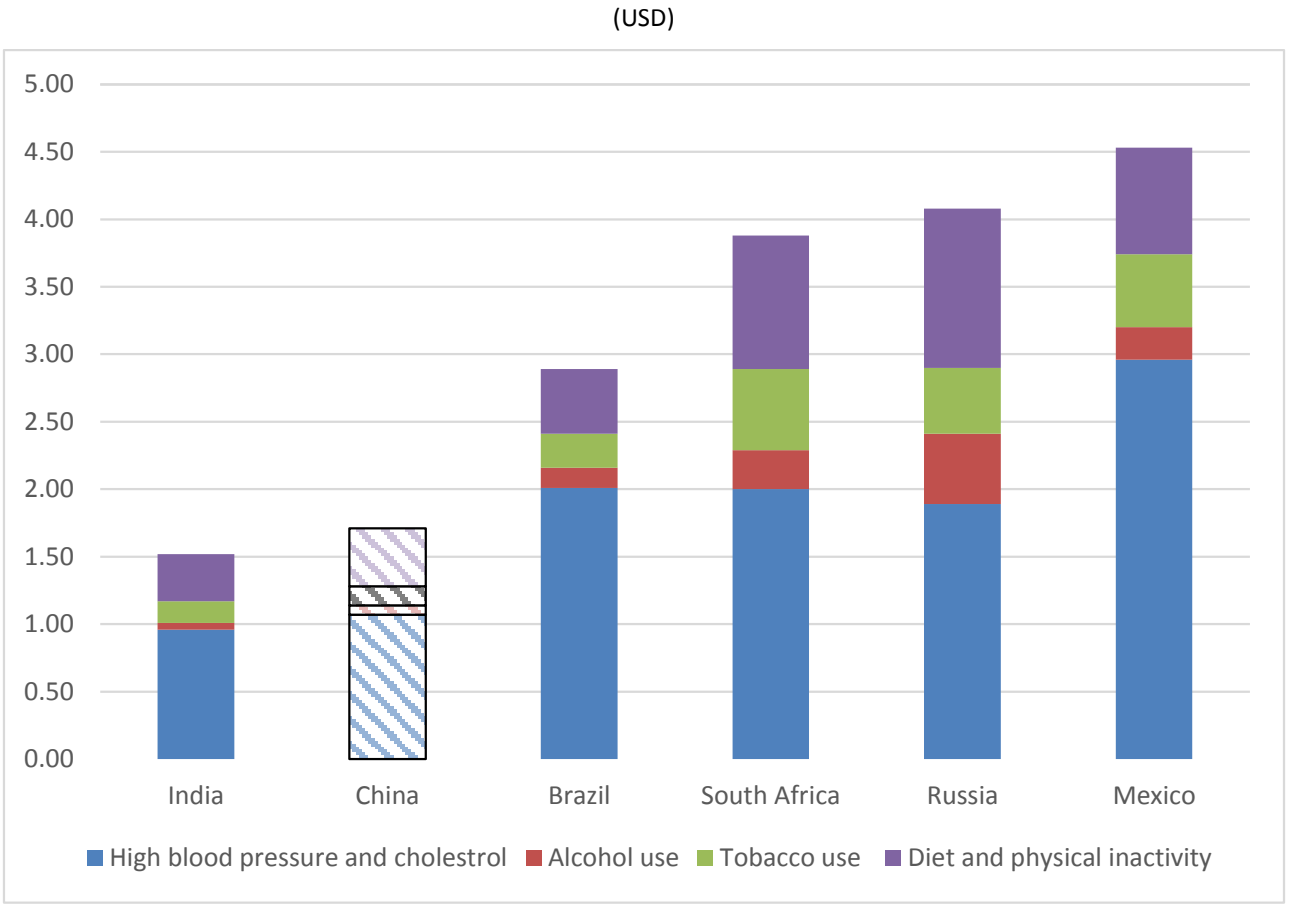
[124] Turner J.L. (ed) (2013), *Special Review Of Water-Energy Nexus Challenges In China,* China Environment Series, The Wilson Center, Washington D.C.

[125] Cenacchi N., Y. Xue, X. Fu and C. Ringler (2010), "Water Rights and Water Rights Trading: Option for the Yellow River Basin?", International Food Research Institute, Washington D.C.

Preventive measures to tackle unhealthy behaviour can lower healthcare expenditure and benefit the disadvantaged

Further action to prevent chronic diseases would decrease health expenditure. The OECD and WHO have calculated that policy packages including mass media campaigns, food taxes and subsidies, nutritional labelling, and marketing restrictions would reduce chronic diseases linked to an unhealthy diet and physical inactivity.[126] In the case of China, it is expected that such actions would produce a yearly gain of up to 975000 life years, or, in other words, the average person would live 20 days longer after this intervention.[127] The cost of this package in China would amount to USD 0.43 per capita per year (**Figure 3.8**), much less than in other large middle income countries, with the exception of India. The initial outlay for such an investment would be completely offset in the medium term (15-20 years) by the savings from reduced major non-communicable diseases.

Figure 3.8. The cost of a prevention package for chronic diseases in China is lower than in other emerging-market economies, except India



Source: Cecchini M, Sassi F, Lauer JA, Lee YY, Guajardo-Barron V, Chisholm D. Tackling of unhealthy diets, physical inactivity, and obesity: health effects and cost-effectiveness. Lancet. 2010; 376(9754):1775-84.

[126] Cecchini, M. et al. (2010), "Tackling of Unhealthy Diets, Physical Inactivity, and Obesity: Health Effects and Cost-Effectiveness", *Lancet*, Vol. 376/9754.

[127] Cecchini M, Sassi F, Lauer JA, Lee YY, Guajardo-Barron V, Chisholm D. Tackling of unhealthy diets, physical inactivity, and obesity: health effects and cost-effectiveness. Lancet. 2010; 376(9754):1775-84.

Lower socio-economic groups may benefit most from prevention policies. Different socio-economic groups have different risk profiles - with people in lower socio-economic group usually bearing a higher burden of chronic diseases - and may be more or less likely to respond favourably to prevention programmes and comply with health promotion messages. OECD and WHO analyses on a number of OECD countries show that the implementation of a comprehensive prevention strategy would deliver more favourable health outcomes for people with lower socio-economic status.[128] Hence, the implementation of such a prevention package in China would likely reduce health inequalities across population sub-groups.

Incentive structures should be put in place to encourage healthcare clinics to undertake detection and treatment of key non-communicable diseases. Even with the current relatively low levels of medical education, community health centre staff are well-placed to undertake preventive medical treatments. The detection of illnesses such as diabetes, high blood pressure and high cholesterol is relatively straightforward, as is treatment in the early stages. Given that these three sets of clinical conditions are responsible for a significant proportion of all premature loss of life, a comprehensive system of detection and treatment needs to be upshifted. To that end, every health care clinic should be incentivised to undertake preventive treatment, following the payment system used for family doctors in the United Kingdom.

Preventive public health campaigns should focus on reducing the prevalence of smoking. Deaths from smoking now represent the fourth largest source of premature loss of live, having risen by 63% between 1996 and 2012. Smoking should be banned in all public places, including offices and factories.[129] The tax on cigarettes should be raised from 11% to 75%, in line with WHO recommendations. There is also a need for high-intensity public awareness campaigns, and severance clinics ought to be made available to the public. Simulations suggest that such a policy package would prevent around 400,000 premature deaths per year by 2040.[130] The 13th FYP should incorporate specific objectives for the reduction of smoking, and could conceivably cut smoking rates from their 52% level in 2010 to around 33%, if the policies currently under discussion where implemented.[131]

The institutional structure of the tobacco industry should be reformed to ensure proper separation of commercial and public health interests. At present, the tobacco industry is a state-owned monopoly run by the China National Tobacco Company, and supervised by the State Tobacco Monopoly Administration (STMA). In reality, the two institutions function as one with the STMA controlling industry policy through its local offices in 1800 counties. This causes a serious conflict of interests between the STMA's role as national regulator and originator of the national anti-smoking effort, and the commercial objectives of the China National Tobacco Company. These distinct interests should be fundamentally separated with the responsibility for anti-smoking campaigns, prevention, and severance being removed from the STMA and given instead to the Ministry of Health.

Healthcare reform should build upon the transformation of the past five years to improve health outcomes for all

Recent reforms have vastly improved access to treatment, but have not reduced the frequency of illness. The focus of heath policy in the past five years has been to make access to healthcare more equal by rolling out government-subsidised insurance for groups whose previous access to health care had been limited by inadequate finance. Between 2010 and 2012, the number of outpatient visits rose by 25% while the number of inpatient cases rose by 34%. Increased demand has gone hand-in-hand with increased supply. In

[128] OECD (2009), "Improving Lifestyles, Tackling Obesity: The Health and Economic Impact of Prevention Strategies", OECD Health Working Papers, No. 48, OECD Publishing, Paris, http://dx.doi.org/10.1787/220087432153; and OECD (2010), "Obesity and the Economics of Prevention – Fit Not Fat", OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264084865-en.

[129] Levy, D., R. L Rodríguez-Buño, Hu T-W and A. E. Moran (2014), "The Potential Effects of Tobacco Control in China: Projections from the China SimSmoke Simulation Model", BMJ, Vol. 348.

[130] *Ibid.*

[131] *Ibid.*

the same period, the number of hospitals rose by 11%, the number of beds by 20% and the number of doctors by 8%. The proportion of healthcare expenses paid for by the individual is now only 33.4%.[132] In short, policy has been successful in helping more people receive treatment for illness, but not necessarily in reducing the occurrence of illness.

Reform of the hospital sector should seek to match fees more closely to the cost of production and should provide incentives to increase the quality of healthcare services. Greater efficiency could be achieved through the introduction of competition between providers and through strategic purchasing of services from both public and private providers of healthcare. Several OECD countries have recently successfully implemented efficiency savings in the health sector. In Denmark an ambitious reform has encouraged the specialisation and rationalisation of the hospital sector, through the closure of small hospitals and the concentration of certain "specialised" hospital services into a handful of major hospitals across the country.[133] Many OECD countries have also begun moving towards case-based payment systems, using diagnostic related groups or procedure-based payments, often combined with a total budget.

Efforts should promote efficient use of pharmaceuticals by improving access to affordable and effective medicines and through centralised procurement. Pharmaceutical expenditure is substantial and is likely to increase further. Official data is not available, but taking into account medicines sold outside hospitals, pharmaceutical spending accounted for 1.7% of GDP in 2012, a similar proportion to that in the OECD area.[134] Ensuring the efficient use of pharmaceutical spending should be a priority for China. This can be partially achieved by assessing the overall cost-effectiveness of drugs, before deciding whether their use should be reimbursed from insurance schemes. In addition, the centralisation of pharmaceutical procurement at provincial level should be enhanced and co-ordinated with other reforms, such as payment for healthcare services, to avoid a drastic reduction of revenues for providers of healthcare services, and to prevent drug access issues.

3.4 Reforming the tax-benefits system for more equity and efficiency

The tax-benefit system needs to be reformed to further promote inclusiveness. In 2011, total government revenues rose to 27% of GDP with incoming funds from tax amounting to 24% of GDP, slightly below the average seen in other emerging and Asian economies (Colombia, Chile, Korea, Mexico, South Africa and Russia).[135] In June 2014, the Politburo announced that the overall level of taxation would be stabilised in the period to 2020, whilst the tax system would be modernised. Reforms to the tax system should focus on enhancing the redistributive character of the fiscal system. In its present form it raises most of its revenue from consumption and income taxation, which is biased towards labour income, taxing income from capital at lower rates. This limits the progressivity of the tax system as a whole, as income from capital is concentrated amongst the wealthiest parts of society. As the economy matures there will be less need for saving and greater scope to implement a more progressive income tax system and promote inclusiveness. A modern and redistributive tax system would also help China to develop an extensive system of social transfers to meet the objective of covering all residents in urban and rural areas.

[132] NBS (2013), China Statistical Yearbook.

[133] Calikoglu, S., R. Murray and D. Feeney (2012), "Hospital pay-for-performance programs in Maryland produced strong results, including reduced hospital-acquired conditions", Health Affairs, Vol. 31/12, pp. 2649–2658; OECD (2014), "An overview of payment systems in OECD countries", OECD Publishing, Paris.

[134] OECD (2012), *China in Focus: Lessons and Challenges*, OECD Publishing, Paris.

[135] OECD national accounts database.

The Chinese tax system should contribute more to income redistribution

In contrast with most OECD countries, the tax system barely reduces income inequality. The before and after-tax Gini-coefficients in China are expected to be relatively similar,[136] a situation typical of emerging economies.[137] The low revenues from direct taxes, in particular from the personal income tax (PIT), and their low degree of progressivity constrain the redistributive impact of the Chinese tax system.

China should increase the share of direct taxes, especially on personal income, and strengthen progressivity. In 2010, only around 38% of total tax revenues stemmed from direct taxes, in contrast to an average of 60% in OECD countries.[138] Like in other emerging economies, the share of indirect taxes in total tax revenues is much larger in China than in OECD countries, with taxes on goods and services accounting for more than half of China's tax revenues. Whilst some indirect taxes, like the "consumption tax" on luxury goods, are progressive, the scope for redistribution through indirect taxation is generally lower than for direct taxes. High levels of indirect taxation provide governments with revenue for redistributive social programmes, but raising more revenue through direct taxes could enhance the tax system's progressivity. However, reforms should avoid the potentially distortive effects of direct statutory tax rate increases on labour supply, entrepreneurship, skills, and saving, and instead focus on broadening the tax base.

Reforms should aim to increase personal income tax revenues. Currently, personal income tax cannot play a significant role in transferring resources from richer to poorer households. Despite a relatively high top marginal tax rate of 45%, personal income tax in China accounted for only 6% of tax revenues in 2010, against an average of 25% in OECD countries. The limited PIT revenues reflect a high basic allowance, which means that the majority of workers do not pay personal income tax, and broad tax brackets, with the top rate levied only on income of about 30 times the average wage and over in 2010.

Several others reforms can also be introduced to enhance progressivity. They include lowering the PIT exemption threshold, improving the taxation of non-cash benefits, lowering the income threshold at which the top tax rate is levied and gradually increasing the effective tax rates on the return on savings (i.e. interest, dividends and realized capital gains) at the personal level. Additionally, all types of labour incomes should be taxed under the same progressive tax rate schedule and the basic allowance should be re-designed to take into account family circumstances. Currently, China taxes different forms of employment income under separate rate schedules, which distorts choices by favouring particular types of labour activity, and lowers progressivity by taxing some forms of labour income at proportional rates. Moreover, since efficiency and progressivity are negatively affected by tax administration weaknesses, personal income tax administration ought to be strengthened.

Reforming social contribution schemes can benefit low-income workers and limit incentives to work informally

China's social security contributions weigh heavily on wage income. Tax wedges reflect the overall tax burden on wage income by measuring the difference between the labour costs faced by the employer and the employee's net take-home pay. A Chinese worker who earned the average wage faced a tax wedge of 34% in 2013, so took home about 66% of what he/she cost to the employer (**Figure 3.9).** While this was comparable to the OECD average tax wedge for average-wage earners, it is high given China's less advanced social security system. Indeed, having tax wedges comparable to those seen in the OECD implies that there will be limited scope to increase funding for the social security system through higher social security contributions.

---

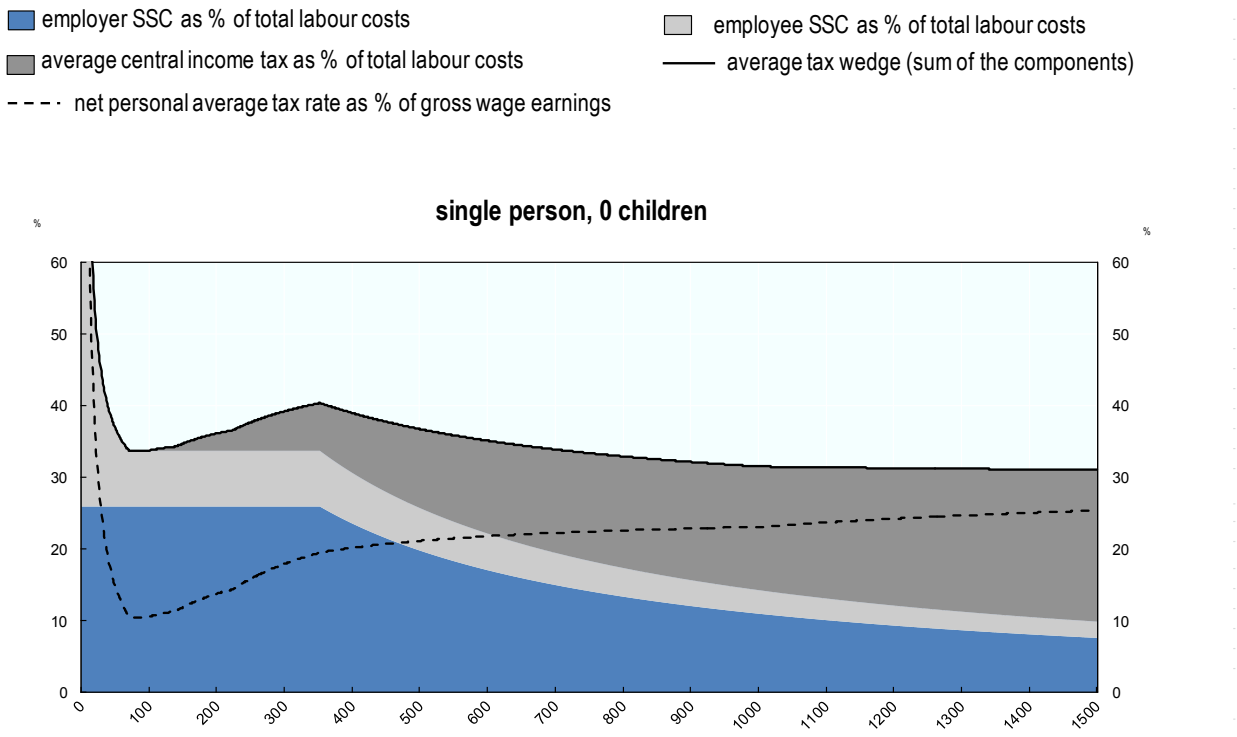
136 Recent and accurate statistical information on before and after-tax Gini coefficients for China is not available.

137 Bird, R.M. and E.M. Zolt (2005), "Redistribution via Taxation, the Limited Role of the Personal Income Tax in Developing Countries", *UCLA Law Review*, Vol. 52

138 Brys, B. et al. (2013), "Tax Policy and Tax Reform in the People's Republic of China", OECD Taxation Working Papers, No. 18, OECD Publishing, http://www.oecd-ilibrary.org/taxation/tax-policy-and-tax-reform-in-the-people-s-republic-of-china_5k40l4dlmnzw-en

Figure 3.9. High social security contributions impose a large burden on wage income

Average tax wedge, by level of gross earnings expressed as a % of the average wage (2013)



Note: The Average Wage reflects the average full-time adult gross wage earnings that a worker earns on average in the private sector in China in 2010 (see Taxing Wages, 2014 for more information on the methodology applied).

Source: Brys, B. et al. (2013), "Tax Policy and Tax Reform in the People's Republic of China", OECD Taxation Working Papers, No. 18, OECD Publishing.

China's social security contributions penalise low-wage earners and reinforce inequalities. China imposes a minimum employee social security contribution calculated on the basis of a minimum level of income that has to be paid irrespective of workers' actual income. This makes social security contributions under a certain income threshold highly regressive and may discourage low-income workers from working in the formal sector, leading to greater informality. At present, social security contributions are levied at a flat rate for people earning below a lower threshold which is set at 60% of the local average wage in the previous year. For pensions, the flat rate contribution is set at 8% of the lower threshold. In Beijing, for instance, the minimum wage is only 45% of the lower threshold. As a result, for a person earning the minimum wage, the flat rate contribution for pensions represents 18% of their earnings.[139] In addition, contributions for health insurance and unemployment benefit are also calculated on a flat rate basis. This brings the overall flat rate contribution for person earning the minimum wage to the equivalent of 25% of their earnings, as against a contribution of 11% for a person earning an amount equal to the lower threshold.

Several OECD countries, including France and Belgium, have adopted the opposite approach, introducing reduced contributions for low-income workers. To avoid penalising low-income workers and strengthen their incentives to work in the formal sector, social security contributions should be levied as a percentage of wage income earned. This would also enhance the progressivity of the tax and benefit system as low-income workers would contribute less for the benefits they receive.

[139] Average earnings in Beijing were CNY 5793 per month in 2013. From June 2014, the lower threshold for contributions was 60% of average earnings (CNY 3476) and the flat rate contribution for people earning less than this amount was CNY 382 per month. In 2014, the minimum wage in Beijing was CNY 1560. Thus, the flat rate contribution represented 25% of earnings at the minimum wage level.

Towards a universal and sustainable welfare system

Social expenditure in China has risen rapidly in the past decade, but remains low in comparison to advanced economies. In advanced economies greater income redistribution generally occurs though the use of public expenditure in the form of transfer payments. Such forms of public expenditure remain under-developed in China. Even so, since 2006, public social spending has risen rapidly in China and by 2013 stood at 9% of GDP, exceeding the levels in some other emerging economies like Mexico and India, but still below the OECD average of 22%.[140] The bulk of the increase in expenditure has gone towards extending the coverage of different forms of social protection, in particular contributory social schemes, and the public health system is now effectively universal.

Major reforms have been engaged to create a universal and sustainable welfare system. A variety of reforms have been introduced, including: the extension of the minimum subsistence allowance to the countryside; the introduction of new medical insurance schemes for people with rural registration status, dependants of registered urban employees and students; and the introduction of a new pension systems. Consequently, public social expenditure is projected to rise faster than GDP in the coming years, and measures combining social insurance and assistance schemes are expected to contribute to establishing a social security system covering all residents in urban and rural areas by 2020.

Benefits can also help reduce inequalities between urban and rural areas. Targeting support to the poorest in rural areas can promote equity and help alleviate poverty. Going forwards the government should increase the rate of the rural minimum subsistence benefit. In 2013, it remained low, with an average benefit of CNY 111 per month in rural areas (less than USD 1 per day in PPP terms) and CNY 252 in urban areas, although migrants are not allowed to claim this allowance in urban areas. Correctly identifying people entitled to the benefit is difficult, yet it has helped reduce poverty. Minimum living standard assistance policy has under-achieved and can be strengthened by full coverage and delivery of the benefits, and by paying special attention to the most vulnerable subgroups.

The pension system should be further consolidated

Despite many reform initiatives in recent years, China's pension system remains segmented, with different regimes for the rural, urban and public sectors, as well as within each of them.[141] In February 2014, the government announced that the schemes for rural residents, including migrants to urban areas, and urban people not in the employees scheme were to be merged, and the financing would be transferred largely to the central government. Currently, the public pension system covers almost 85% of the population that is not in full-time education,[142] but in spite of recent improvements, benefits for the rural population remain relatively low.

Priority should be given to further consolidation of the various pension schemes, to support mobility and improve income protection in rural areas. The government is moving towards a national employee pension scheme that will greatly improve the portability of pensions across administrative boundaries. This will increase equity between people who move from one area to another and those who stay in one place, without necessarily raising costs. In 2013, there were 13 provincial-level pensions systems and more than 1000 at county-level.[143] As a result, there are 16 different contribution rates across the country, ranging from 10% to 22%. One third of the local schemes use basic pay to calculate the contribution, whereas the law specifies that they should use gross pay. Compliance with the new Social Security Law remains low, but has increased as penalties have been placed on a firmer legal basis. Looking ahead, the main objective for the government should be increasing participation.

[140] OECD (2013), OECD Economic Surveys: China, OECD Publishing, Paris.
[141] OECD (2014), China, Structural Reforms for Inclusive Growth, OECD Publishing, Paris.
[142] OECD (2013), Pensions at a Glance 2013. OECD and G20 Indicators, OECD Publishing, Paris.
[143] National Audit Office (2012), *National Social Security Audit,* Notice no 34, Beijing (in Chinese).

The new plan will allow migrant workers not covered by their employer to join the national residents' system. This reform has already been rolled out in a number of counties, with financing responsibility largely transferred to the central government. Implementing this reform on a national scale would ensure that all migrants can access some kind of pension, which is necessary because currently only 16% of migrant workers are enrolled in the employees' pension scheme, which is open to people with both urban and rural *hukous*. Even when migrants are in the employees scheme, they face a 15 year qualifying period for a pension which is problematic, as few migrants stay that long in one area and contribution records cannot yet be transferred across the country. More attention needs to be paid to the transferability of pensions from province to province once full provincial pooling has been achieved, and to reducing the overly long vesting period before a pension can be paid.

The low official pension age for covered workers diminishes the labour force and increases the support burden in a rapidly ageing society. Normal pension age for those who are members is 60 for men, 50 for female blue collar workers and 55 for female white collar workers. The normal pension age should be gradually lifted to 65,[144] and then linked to life expectancy. Increase of the statutory pension age could start by aligning the pension age for men and women. Many OECD countries have been, or are, implementing reforms along these lines to improve work incentives and cope with ageing populations. In Australia, Belgium, Italy and Poland the normal pension age for men and women has been, or has started to be, aligned. Several countries have also increased the general pension age for both genders, and some, such as the Netherlands and Italy, have also adopted rules to adjust the pension age in the future, in line with changes in life expectancy. As in most other countries, increases in the retirement age in China should be combined with measures to strengthen the position of older workers in the labour market, such as training and combating negative stereotypes and age discrimination.[145]

Harmonising health care insurance across China and increasing central government funding would foster greater equity

One of the major achievements of the past decade has been the creation of health care insurance for people outside the scope of the urban employee scheme. This reform has led to a major fall in the share of medical expenditure financed by individuals and a sharp increase in the number of hospitals and community health centres. Nonetheless, there are considerable differences in the benefits enjoyed by urban and rural residents, and many of the insurance schemes lack adequate insurance against catastrophic health care problems. The reforms have resulted in substantial improvements in insurance coverage and the use of hospital services for both urban and rural residents with chronic diseases. There was also an overall reduction in the urban-rural gap in the use of inpatient services. However, the gains were uneven: rural residents with chronic disease can now more readily access inpatient treatment but, due to the higher hospital co-payments they are subjected to, they are still far more likely to drop out of treatment than their urban counterparts.

Further health insurance reform should focus on harmonising benefits across schemes to improve fairness in financing and coverage. Important differences in benefits persist between rural and urban areas, though they have been markedly reduced by the introduction of the rural health insurance system. In 2011, public outlays per hospital stay for rural residents were half those of urban residents, up from one tenth in 2003.[146] Further efforts should be made to improve migrants' healthcare coverage, through tighter enforcement of social security laws that require all employers to enrol all employees in the medical

144 OECD (2014c), China, Structural Reforms for Inclusive Growth, OECD Publishing, Paris.

145 OECD (2014b), Ageing and Employment Policies – Working Better with Age, http://www.oecd.org/els/employment/olderworkers.

146 Fu R., Y. Wang, H. Bao, Z. Wang, Y. Li, S Su and M. Liu (2014), "Trend of Urban-Rural Disparities in Hospital Admissions and Medical Expenditure in China from 2003 to 2011", PLoS ONE volume 9, doi:10.1371/journal.pone.0108571, using the 2011 National Healthcare Reform Phased Assessment Survey and the 2003 National Health Service Survey.

insurance system. In 2013, only 18% were covered, but membership does not depend on *hukou* status. On the other hand, the residents' medical scheme (for children, old people, students and people not in the employees scheme) is still run separately between rural and urban areas. These schemes need to be merged into a nationwide scheme along the lines of the residents' pension scheme. The reform of the *hukou* system in small cities, where 14% of migrants live, will help migrants to affiliate to the residents system, but reforms should focus on granting all residents in urban areas the same access to local services. The prefecture of Suzhou successfully initiated such reforms in 2011, and by mid-2012 almost the entire migrant population was covered by the new policy.[147]

The central government should shoulder a greater proportion of the funding for health insurance schemes, and efforts should be made to increase administrative efficiency. Priority should go to improving the collection of funds, which are lower in poorer regions due to labour market informality, a lack of information sharing among funds, and insufficient use of ICT. The government has undertaken to integrate the collection of contributions for five social insurance programmes and make better use of ICT,[148] but should also pursue a higher level of integration and pooling of funds across insurance schemes. Relevant international experience in this area from Germany, the Netherlands and Switzerland, shows that risk-adjustment mechanisms can be created to share risks and associated costs equally across insurance schemes. Canada may provide a particularly good model for the inclusive development of China's healthcare system, as it is tax-funded and pools risks at the provincial level.

3.5 Promoting more inclusive labour markets

In light of demographic change and deeper global economic integration, China would benefit greatly from a range of inclusive labour market policies. Efforts would be particularly welcome to introduce a more comprehensive social safety net for the unemployed, while simultaneously fostering labour market flexibility. Policies should also be introduced to encourage the activation of the unemployed, whilst vocational education and skills policy need to be adapted to ensure a smoother transition from training to employment. Skill-biased technological change induced by deeper economic integration may exacerbate inequalities between low and high-skilled labour, with incomes becoming increasingly dependent on workers' ability to adapt to greater technology use. Therefore, promoting an inclusive labour market also means that a range of supportive policies needs to be developed so that all people of working age are helped and encouraged to move into productive, rewarding and high-quality jobs.

Employment protection law and unemployment benefits should be reformed to promote greater flexibility and security

Reforms to employment protection legislation should address the imbalance between the protection of permanent and temporary employees. As Chapter 1 highlighted, protection is much lower for temporary than for permanent contracts, which has created an incentive to use temporary labour. The use of dispatch workers has been restricted since 2013, following an amendment to the 2008 Labour Law, but key elements of the conditions under which temporary workers can be used are imprecisely defined in the legislation, meaning that the restrictions may not have the desired effect. Employment protection for those on temporary contracts has been enhanced, but continuous efforts are required to ensure that existing legislation on the use of temporary staff is enforced appropriately. Indeed, poor enforcement of labour laws is a general problem.[149] For permanent employees, there is a need for greater flexibility, which could

147 Koen, V. et al. (2013), "Policies for Inclusive Urbanisation in China", OECD Economics Department Working Papers, No. 1090, OECD Publishing, Paris.

148 ISSA (2013), "Social Security Coverage Extension in the BRICS: A Comparative Study on the Extension of Coverage in Brazil, the Russian Federation, India, China and South Africa", International Social Security Association, Geneva.

149 Herd R., V. Koen and A. Reutersward (2010), "China's labour market in transition: job creation, migration and regulation", Economics Department Working Paper no. 749, OECD Publishing, Paris.

be achieved through the reduction of severance pay, limiting compensation and reinstatement in the case of unfair dismissals, and giving firms more freedom in the selection of redundant workers. Combining these reforms would benefit the wider economy, encouraging employers to hire workers on longer-term contracts.

Expanding the coverage of unemployment benefits will be essential to building a more inclusive labour market and cushioning workers against transitory loss of income. Although national legislation requires urban employers to affiliate migrant workers to unemployment insurance schemes, it is often the case that local authorities interpret the regulation in such a way that excludes migrants. As a result, the unemployment benefit system covers less than half of the urban working population. This situation is nevertheless beginning to change, as provincial governments take more responsibility for social insurance from local city schemes. In Guangdong province, for example, rules have changed to allow migrant workers to be affiliated to the system. Expanding these reforms to the country at large - as part of the wider package of household registration reform advocated in earlier sections of this chapter - would buttress inclusiveness by protecting workers against poverty in the event of unemployment, and help them to search for new employment.

Reforms to unemployment benefits must be supported by activation measures

Provision of unemployment benefits should be made conditional on well enforced job-search requirements. However, there is a lack of coordination between the unemployment insurance system and the job placement service, which are run separately. As a result, the unemployment insurance system cannot assess the job-search effort of unemployment benefit recipients, which is an eligibility condition for unemployment benefit. An unemployed person can turn down a job offer with reasonable cause, but the definition of a reasonable cause is not clear. With a low degree of enforcement of eligibility conditions, many claimants draw benefits for the maximum period of time.[150]

China should also seek to develop effective activation strategies oriented towards facilitating job searches and improving the employability of workers. With a "mutual obligations" approach the government assumes a duty to provide jobseekers with effective re-employment services, counselling, training and financial incentives to enable them to find work. The beneficiaries, in turn, have to take active steps to find work or improve their employability, or else face the risk of moderate benefit sanctions. Employment services are at the core of this approach, as they have to maintain close contact with benefit recipients in order to deliver support services to them and monitor their job search behaviour so as to ensure constant efforts to return to work.

Policies to support activation will require better cooperation between local agencies to avoid long spells of unemployment. In the OECD area, institutional reforms have been a critical component of activation strategies (Box 3.1). The main objective of such reforms is to strengthen the links and co-ordination between the providers of different types of public transfers and the re-employment services, and to improve the effectiveness of these services through performance management. In China, employment service centres need to co-ordinate more effectively with benefit administration offices to allow for effective enforcement of eligibility requirements. This will necessitate co-ordination among local offices as well as a much clearer legal definition of what constitutes reasonable job search activity.

[150] Vodopivec, M. and M. Tong (2008), "China: Improving Unemployment Insurance", *World Bank SP Discussion Paper*, No. 0820.

Box 3.1. Institutional reforms have been a critical component of activation strategies in the United Kingdom and Turkey

Many countries aimed to provide 'one-stop shops' or 'single gateways' for different benefit recipients and jobseekers to simplify access to support services and, possibly, to exploit synergies between institutions. For example, since the 2002 Public Employment Service reform in the United Kingdom, benefit administration and employment services have been delivered through one single institution, *Jobcentre Plus*. Turkey has recently developed an integrated social assistance information system that is linked to relevant health and schooling records of claimant families, as well as to the public employment agency (*İŞKUR*). The objective of this initiative is to support more detailed profiling of target populations, and to customise activation strategies and service delivery. Providing customised packages of client support and obligations requires detailed information and adequate staff and other resources.

Statistical profiling can help exploit available information but is no substitute for intensive and face-to-face contact with individuals requiring support. Such contact is especially important in more difficult cases where clients face severe or multiple barriers to social or economic participation. For instance, in the United Kingdom, new jobseekers and their advisers set up a Claimant Commitment, which sets out in detail the actions they will undertake to find work (e.g. how many companies they will contact each week, whether they will use newspapers and magazines to find vacancies) and any agreed restrictions on the type of work sought (e.g. maximum journey time to a potential employer, caring responsibilities). Receipt of unemployment benefits is conditional on such individual action plans and compliance with them.

Source: OECD (2013), "Activation Strategies for Stronger and More Inclusive Labour Markets in G20 Countries: Key Policy Challenges and Good Practices", http://www.oecd.org/els/emp/G20-2013ReportActivation.pdf. OECD (2014g), Connecting People with Jobs: Activation Policies in the United Kingdom, OECD Publishing, Paris.

Government should ensure that all workers have the skills to succeed in the labour market

The current system of vocational education is problematic in a number of ways. The three-year vocational secondary system relies on close cooperation between employers and educational institutions. In many cases, the relationship appears to be of doubtful quality, as when undertaking work as interns, students often fulfil roles that bear no relationship to their field of study. In a few cases, schools provide first-year students as interns, which is a violation of the regulations governing vocational schools and of labour law, as the children would be under the legal age for employment.[151] Moreover, some employers even pay schools a commission for each student that is sent to their company.[152] Despite these drawbacks, evidence shows that vocational high schools are successful in placing their graduates in employment, with around 90% typically obtaining jobs quickly. However, a Ministry of Education survey found that the initial wages of the vocational school graduates were very low, with a quarter earning less than CNY 1000 per month, with the median pay standing at around CNY 1200 per month.[153]

China is now building a vocational training system that integrates training and learning. In June 2014, the government introduced its new plan for vocational education for the period to 2020, aiming to raise the number of senior vocational school students to 23.5 million by 2020, which constitutes about 53% of the age-group. However, the Ministry of Education acknowledges that many of the 13 600 vocational schools and colleges across China suffer from poor management and infrastructure, limited investment and a shortage of staff. It seeks to establish a more effective system so that more young people can acquire the skills they need to find employment in the hi-tech and creative industries; sectors that the government hopes to develop.[154]

[151] Administrative Measures for Internships at Secondary Vocational Schools (2007), Ministries of Education and Finance
[152] China Labour Bulletin (2012), "The mass production of labour", January, Hong Kong
[153] Original documented unavailable, reported in http://job.soxiao.com/ArNew_89148.html
[154] China Daily (2014), Interview with the head of the Ministry of Education's vocational education division, Ge Daoka, 22nd June.

China should aim to create a high-quality training system, with wide coverage, that appeals to both students and employers. China's labour training policy also aims to enhance the attractiveness and value of vocational training paths and seeks to strengthen the educational system and prepare students for the world of work.[155] It should also aim to increase completion rates for upper-secondary education through a reduction in dropouts, or by offering a second chance to those who fail. This would require an overall reform of vocational education institutions, ranging from the organisation of teaching and learning, to changing the way teachers are hired. In addition, there is also a need to restructure the curriculum and adopt new approaches to the assessment and evaluation of students. Such a reform programme would be very ambitious, involving the introduction of working methods that are completely different from current mainstream practice.[156] Lessons from OECD countries show that China should not limit the accessibility of training to specific age groups, and highlight the importance of facilitating the participation of disadvantaged youth. OECD evidence suggests that an effective apprenticeship system requires good governance to prevent misuse of funds and the movement of programmes away from their stated objectives (**Box 3.2**).

Box 3.2. Joint management of apprenticeships in Germany

In Germany, the social partners are closely engaged in the development and updating of training plans for each qualification that can be obtained through apprenticeships and/or vocational training. Such training plans regulate the duration of the apprenticeship, describe the profile of the profession, and set out final exam requirements and are formally issued by the Ministry of Economic Affairs and Technology. Apprenticeship salaries are determined through collective wage negotiations. The Economic Chambers are responsible for providing advisory services to participating companies and supervising company-based training. They also register apprenticeship contracts, assess the suitability of training firms and monitor their training, assess the aptitude of VET trainers, provide advice to training firms and apprentices, and organise and carry out the final exams.

The responsibility for funding vocational schools lies with the *Länder* (mainly teacher salaries) and local authorities (equipment, infrastructure), while companies bear the costs of training in the workplace. In some sectors, there is a general fund to which all companies pay contributions and through which the costs for the apprenticing institution are covered, while in other sectors each company bears its own costs.

In 2004 the Training Pact concluded between the central social partners and the German government committed employers to offering sufficient apprenticeship places to meet demand over the following three years: 60 000 new training places and 30 000 new training firms on average per year, as well as an additional 40 000 places annually for company-based introductory training.

By 2013, the number of people starting an apprenticeship had dropped to 525 300 - the lowest number since German reunification in 1990. The fall in the number of apprenticeships started in 2007, in part due to demographic changes, but also a growing number of young people choosing to go to university, which suggests a growing unpopularity of the vocational educational track. The progamme has been expanded to incorporate firm-based pre-vocational introductory training. Through this pre-vocational training, youth benefit from 6 to 12 months of work experience that they can then use to improve their chances of earning a placement as an apprentice.

Source: OECD (2014), Background Paper Prepared by the OECD for the OECD-EC-G20 Conference: Quality apprenticeships for giving youth a better start in the labour market, OECD, Paris April 9. Available at: http://www.oecd.org/els/emp/G20-OECD-EC%20Apprenticeship%20Conference_Issues%20Paper.pdf.

[155] OECD (2014), Country Information on Apprenticeships: Country Responses. OECD-EC-G20 Conference: Quality apprenticeships for giving youth a better start in the labour market, OECD, Paris April 9.
Available at: http://www.oecd.org/els/emp/Youth%20questionnaire%20country%20responses-Compilation1.pdf.

[156] Wang C. (2014), "Apprenticeships in China: Experiences, Lessons and Challenges", International Department of the National Institute of Education Sciences. Presentation to the G20-OECD-EC Conference on Quality Apprenticeships for Giving Youth a Better Start in the Labour Market, April, Paris.

Efforts are needed to engage employers at regional and sectoral levels to plan provision, agree curricula and support workplace training. At present, there are few quality standards for workplace training and few regional, sectoral or national bodies to engage employers and link them to the vocational education system. Experience from OECD and partner countries suggests that policy should focus on developing a standard agreement or contract for workplace training to confirm the rights and obligations of trainees and training firms (Box 3.3). Such a framework should be established in China, where a set of standards for workplace traineeships should be created in consultation with employers, so as to establish a framework that will encourage the provision of workplace training, and appeal to local associations of training firms to manage and support workplace training offers for vocational schools.

Box 3.3. Creating a legal framework to govern apprenticeship systems: examples from Italy and Brazil

Brazil's apprenticeship programme (*Aprendiz Legal*) is based on the Education Law enacted in 2000. It requires that mid and large-sized firms hire a number of apprentices as part of their workforce. The required number of apprentices hired should be at least 5% and at most 15% of the firm's workforce (in the calculation of the number of apprentices to be hired, those positions that require a higher-level degree, technical, management and trust positions are excluded).

A challenge of such a programme and legal framework is to ensure that all firms abide by the requirement to participate. Although complete supervision may be expensive and difficult to monitor, the success of the programme is suggested by the fact that the number of apprentices has grown consistently from 57 231 in 2005 to 335 809 in 2013. Nevertheless, this remains a small fraction of the youth population. Preliminary results of an evaluation suggest that after two years, 80% of participants receive a formal contract at the end of the apprenticeship. As apprentices in Brazil are required to remain enrolled in school, this programme may contribute to reducing dropout rates in as much as apprentices receive a salary, reducing the incentive to enter the labour force without finishing compulsory or secondary schooling.

The abuse of apprenticeship contracts merely as a form of cheap labour has been a constant concern in **Italy**. The labour reform introduced in June 2012 addresses this issue through two types of provisions. First, the apprenticeship contract must last a minimum of six months, under the assumption that shorter durations are incompatible with the completion of a meaningful training program. There is also a limit to the maximum duration of apprenticeships (3 years) to avoid that they are kept on even when their training has been completed. Second, employers are allowed to hire apprentices only if they have a record of hiring them. Specifically, they must have hired at least 50% of the apprentices they have successfully trained in the 36 months preceding any new hire.

Source: OECD (2014), Background Paper Prepared by the OECD for the OECD-EC-G20 Conference: Quality apprenticeships for giving youth a better start in the labour market, OECD, Paris April 9. Available at: http://www.oecd.org/els/emp/G20-OECD-EC%20Apprenticeship%20Conference_Issues%20Paper.pdf;

Efforts are also needed to improve coordination in the provision of vocational education across levels of government. At present, provinces manage some schools directly through the education commission, whereas others are managed through distinct government bodies such as the agriculture bureau, whilst many schools are also managed at the prefecture and county levels. This creates a co-ordination challenge. In addition to this administrative complexity, planning to meet labour market needs is often insufficient due to the lack of comprehensive demand-side data. The situation could be improved if the mix of vocational and educational training programmes better reflected both student preferences and employer needs.

The experience of OECD countries can provide useful insights into making apprenticeships valuable to students and employers. Government can ensure that apprenticeships are attractive and beneficial to students through the design of training that is useful across several occupations, like in the Netherlands. To encourage employers to take on interns, government can provide tax credits, as in Canada, or introduce direct subsidies, as in France and Germany. However, it is also essential to ensure that apprenticeships do not simply become a source of cheap and dispensable labour, as the ultimate purpose of apprenticeships is to lead youth into stable and fulfilling careers.[157] Evidence from across the OECD and partner countries shows that these limitations can be overcome by developing the legal framework for apprenticeships, involving employers as key stakeholders in programme development.

Allocating greater funds to vocational education would help to raise minimum standards in terms of equipment and teachers. Whilst there are national guidelines for school funding, they are not implemented where resources are not available. Overall expenditure on education, including vocational and educational training, should be increased, and as there are big regional discrepancies in available funding, extra resources should be allocated to the poorest localities in order to remove financial barriers to participation in vocational education and improve its quality. These objectives could be at least partially achieved by reform of the system of intergovernmental transfers discussed earlier in this Chapter. Such reform could take the form targeting funding support for upper-secondary education at the most disadvantaged areas. Efforts should also focus on establishing minimum quality standards for schools that all could reasonably aim to reach nationwide.

Policies which address inequalities in education and skills acquisition will make growth more sustainable and inclusive over the long-term

Human capital accumulation has played a large role in China's economic catch-up and is becoming even more crucial now, to bring about further improvements in living standards in the face of an ageing population.[158] Educational attainment levels have improved considerably, as has access to schooling, with Chinese students faring well in international standardised tests. However, in a number of areas the educational effort could be improved. Overall public spending on education is around 4% of GDP, well below advanced countries.

Early education can boost performance, but access is unequal. At age 15, educational outcomes in China are significantly above those in many advanced countries. Yet, there is room for further improvement. The PISA results for Shanghai, for instance, suggest that one year of pre-school education raises children's score by 60 points.[159] Access to good pre-school education is crucial for child development and the associated rates of return appear particularly high,[160] far greater than for higher education and particularly for poorer people, such as those living in China's rural areas.[161] Yet despite this, pre-school enrolment is much lower in rural areas (**Figure 3.10**).

[157] OECD-EC-G20 Conference (2014), *Op cit*.

[158] For a fuller discussion of the role of education in sustaining economic growth in China see OECD (2015), *Economic Survey of China*, OECD Publishing, Paris.

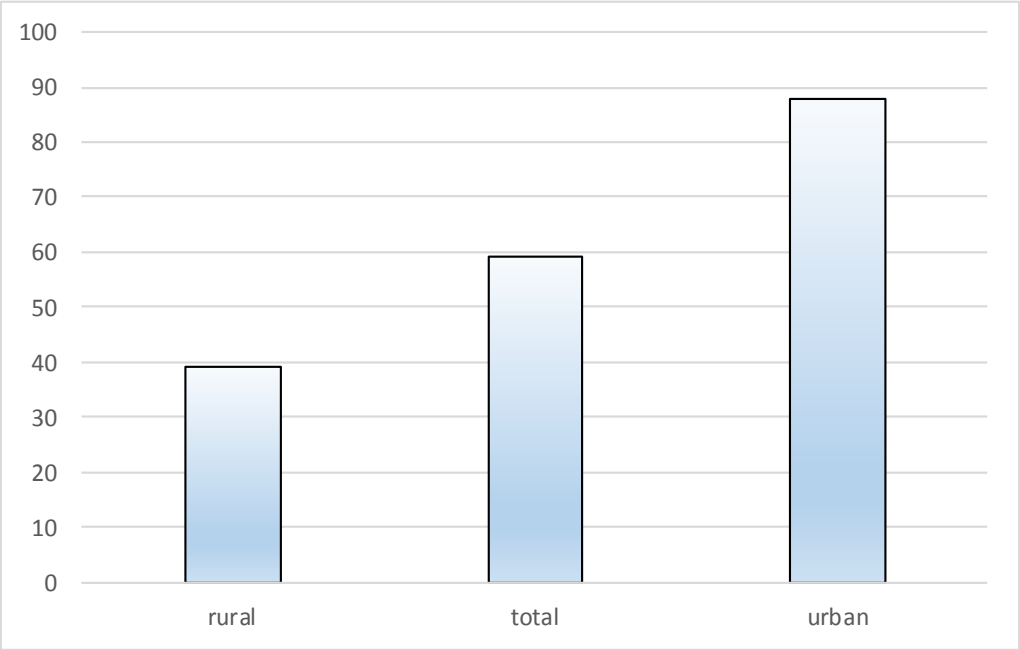
[159] Schleicher, A. (2010), Presentation on Programme for International Student Assessment (PISA) before U.S. Congress in Washington DC on December 7, 2010. http://pisa2009.acer.edu.au/.

[160] Carneiro, P., and J. Heckman, (2003). "Human Capital Policy." No 9495, *NBER Working Paper Series*, National Bureau of Economic Research, Cambridge, MA.

[161] For kindergarten education, see Reynolds A.J, J.A. Temple, B. A. White, D. L. Robertson and Suh-Ruu Ou (2011), "Age 26 Cost–Benefit Analysis of the Child-Parent Center Early Education Program", *Child Development, Volume* 82. For higher education, see OECD (2012), "What are the returns to higher education for individuals and countries?", *Education Indicators in Focus*, OECD Publishing, Paris.

Figure 3.10 Pre-school enrolment is much lower in rural areas

Enrolment rate in 2012 (%)



Note: The population of pre-school age children in 2012 has been estimated from the 2010 census data. An alternative would have been to use the 2012 Population Sample Survey. However, the NBS provides no sample scaling factors by age. The use of aggregate scaling factors would have shown the total age-group population to be 5% higher than if the Census data is aged, with the urban population being 15% higher.

Source: Education Statistics for 2012, Ministry of Education; Population and Employment Yearbook 2011, 2010 Census population aged 1 to 4 aged by two years.

Public spending for kindergartens needs to be raised, especially in rural areas. In 2011, total public expenditure on kindergartens was very low in China, at 0.07% of GDP against 0.5% of GDP in the OECD area.[162] While the share of children who spent three years in pre-primary education has increased rapidly in recent years, to 67.5% by 2013, it is still substantially lower than in OECD countries. [163]. The high level of fees means that the children of poorer parents are less likely to attend kindergarten. This is especially striking in rural areas where the proportion of children attending kindergarten is much lower than in urban areas, where it is in line with OECD countries. More of the financing of pre-school education needs to be shouldered by the central and provincial governments.

More generally, education spending remains biased in favour of urban areas. While the gap in spending between urban and rural areas is not as marked in education as in health, it remains large **(Figure 3.11)**. The national government makes significant transfers to the country's poorer areas. Nonetheless, the ratio between spending in cities and rural areas remained high in 2011 and had barely declined from a decade earlier. [164]Some provinces, notably the richer ones on the coastline, have come close to eliminating the difference in spending between urban and rural schools but much more needs to done in this regard outside coastal areas.

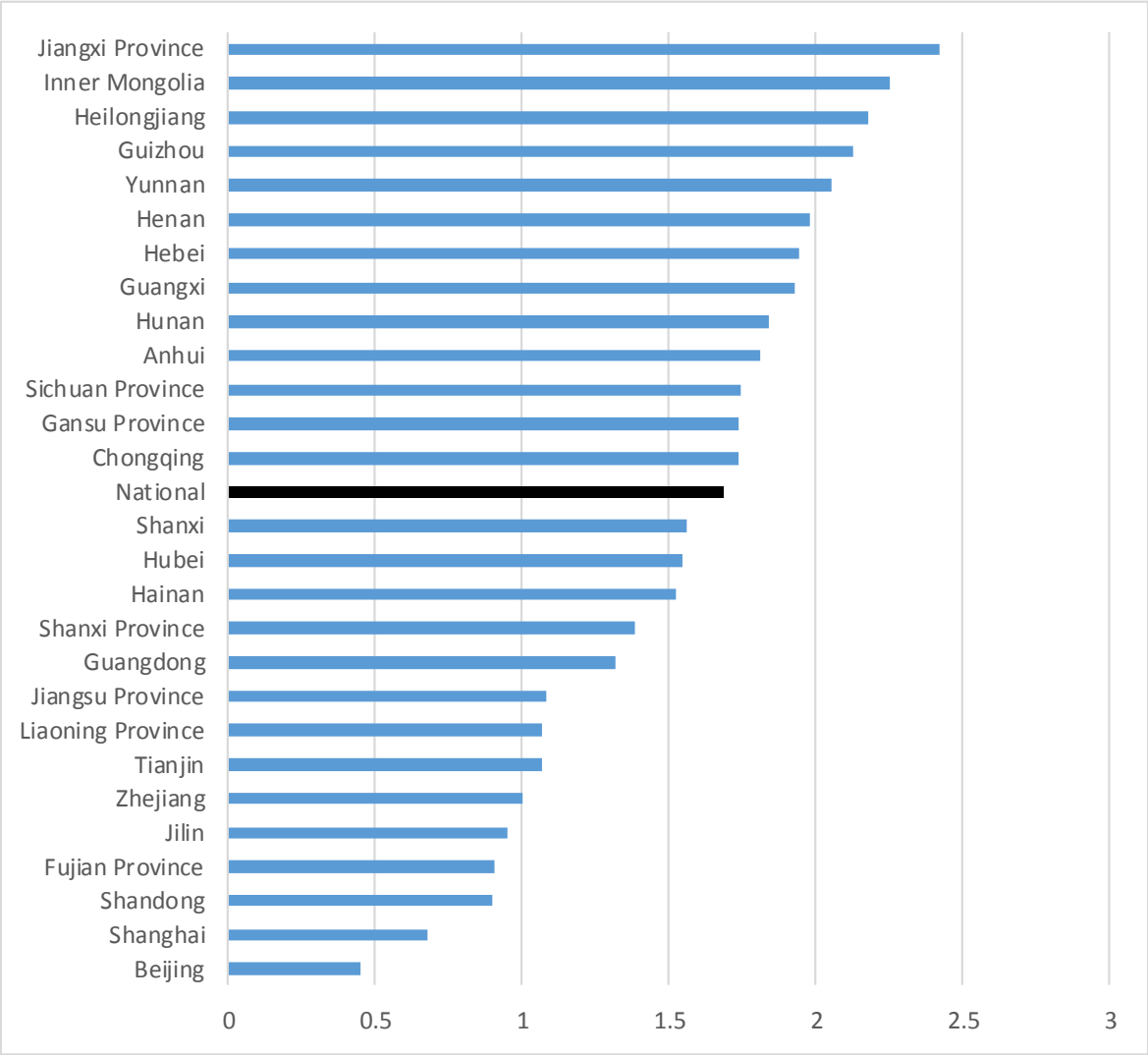
[162] OECD Education at a Glance 2014, China Statistical Yearbook 2014.

[163] OECD (2015), OECD Economic Survey of China, OECD Publishing, Paris.

[164] Moreover, the statistics from the Ministry of Education appear to classify many towns as being in rural areas whereas the National Bureau of Statistics would classify them as being urban. Thus the true difference between expenditure in cities and rural areas may be even greater, especially at the primary level.

Figure 3.11 Spending per pupil is much higher in urban than in rural areas

Ratio of urban to rural per pupil government allocations (2011)



Note: In the educational statistics, each province or directly controlled municipality is split into a city area and a rural area. Examination of the numbers involved suggests that the rural area includes towns as well as truly rural areas. This may be because many rural children are educated in towns, especially at the junior high school level.

Source: Educational Statistics for China, 2012 and Educational Finance Yearbook, Ministry of Education, Beijing. Data for Tibet and Qinghai have been excluded due to non-availability of data or an extremely large ratio.

Teachers are more qualified in urban than in rural areas. The academic quality of teachers has improved considerably over the past decade, though it is only possible to quantify this at the junior high school level. Nonetheless, the share of teachers with a four-year degree or higher remains 18 percentage points higher in cities than in rural areas. The government is introducing a policy of rotating teachers between urban and rural areas.

Migrant workers' children need better education opportunities. It is important to ensure that there is no discrimination in the education of migrant children in cities. In particular, they must be able to complete their education in senior high school where they live.

The major structural changes occurring in the economy imply a need to upgrade skills. Lifelong learning should therefore feature more prominently in the agenda for skill development. The government envisages doubling the number of adult participants in continuous education in the decade ending in 2020. In 2012, nearly 6 million adults participated in lifelong learning programmes at higher education institutions. The large number of adults enrolled in primary and middle schools, at nearly 2 million in 2013, suggests that

many need to strengthen their basic skills, particularly older women in rural areas. Integrating basic skills teaching such as numeracy or literacy with professional training appears to be more conducive to programme completion than remedial courses.

Workplace-based training and lifelong learning needs to be fostered to create a high-value added economy. Before this policy is implemented, though, careful evaluation of the rate of return is needed, especially relative to other forms of public education spending. Longitudinal studies suggest that the wage premium for on-the-job training is only 1%, and that it declines with age and disappears if the person changes employer after receiving the training, though benefits could accrue through lower unemployment after training and higher labour force participation.[165] For workers who have less frequent opportunities to receive employer-sponsored training it is likely to be difficult to target government policies focussing on employer incentives in an efficient way that ensures Inclusive Growth. Individual-based demand-side policies could play a role but they require the diffusion of information that such workers may find difficult to acquire. Overall, it seems that strengthening delivery of formal education emerges as an alternative policy instrument for lower-skilled people less likely to receive continuous education.[166]

Progress in tertiary education and research needs to translate better into innovation, a key for future growth. University education has expanded massively over the past decade. This has gone hand-in-hand with major improvements in the extent and quality of Chinese research, especially in science and engineering. R&D spending had risen to over 2% of GDP by 2013, above the EU average, and the target is 2.5% by 2020. Chinese innovation performance, however, is still weak in terms of international patenting and trademark registration.[167] China generates a large volume of knowledge, with most of the world's top 20 patenting universities being in China by 2008, but patents' utilisation rate is low, at 5%, and the bulk of university research is not relevant for business.[168] Furthermore, China is far behind countries at the technology frontier for patent citations.[169] A better research evaluation system at universities that strikes a balance between quantity and quality, including applicability of research, would encourage a greater focus on utilisation. More autonomy for national technology transfer centres to market patented technology could make them more effective at increasing the utilisation rate of university patents.

Further introduction of market mechanisms in labour markets, particularly in relation to SOEs, will contribute to shaping a more inclusive path to growth

Making pay in SOEs market-based will reduce inequality of opportunity. As highlighted in Chapter 1, employees of SOEs often receive higher salaries than their counterparts in the private sector. However, the wage differentials between the private and SOE sectors do not necessarily reflect a greater prevalence of higher levels of skills and qualifications in SOEs, but often result from other factors, including discrimination. A number of measures could help China to ensure that pay in SOEs is market-based. In particular, both efforts to reform administrative control over SOEs, and the introduction of stricter guidelines to govern the interchange of staff between the public administration and senior management positions in SOEs, could be particularly effective.

---

165 OECD (2004), "Improving Skills for More and Better Jobs: Does Training Make a Difference?", *OECD Employment Outlook,* OECD Publishing, Paris.

166 Bassanini, A. and W. Ok (2005), "How do firms' and individuals' incentives to invest in human capital vary across groups?", *Proceedings of the Joint EC-OECD seminar on "Human Capital and labour market performance: evidence and policy challenges*", Brussels.

167 See OECD (2015), *Economic Survey of China*, OECD Publishing, Paris.

168 Luan, C., C. Zhou and A. Liu (2010), "Patent Strategy in Chinese Universities: A Comparative Perspective", *Scientometrics*, Vol. 84.

169 Kwon, S., J. Lee and S. Lee (2014), "International Trends in Technological Progress: Stylised Facts from Patent Citations, 1980-2011", *Centre for Microdata Methods and Practice Working Paper*, CWP16/14.

The experience of several advanced economies can help China to improve the governance of SOEs. One key factor is the separation of administrative powers over a given SOE or set of companies. In particular, the roles of strategic policy setting, regulation, management and ownership need to be separated. The first role remains one for government while the latter is best achieved through an asset management company that acts as any other shareholder through its representative on the board. The responsibility for personnel management should remain with the board. A number of countries, such as France, Hungary, Sweden and the United Kingdom have introduced such structures.[170]

The appointment of government officials to SOEs would benefit from following OECD guidelines. This would involve clearly defining the circumstances, including the required authorisation procedures, under which a public official who is about to leave public office may negotiate an appointment or employment or other activity, where there is potential for a conflict of interest involving the organisation.[171] Poland has a one year "cooling-off" period before civil servants can be re-employed in companies with which they have had close relations. Canada and the United Kingdom have specific provisions to ensure that the post-service employment of civil servants should not involve any element of deferred reward, set out in the policy objectives of their respective control regimes of post-service employment for senior civil servants. This objective has to be balanced against the gain from putting limited human resources to good use, as is recognised in the codes of Australia and New Zealand.[172]

Considerable changes would be necessary to bring China into line with these practices. The transformation of SOEs under the direct control of government bureaux into SOEs with boards of directors has largely been achieved. However, many of the senior management executives of these companies hold senior administrative ranks, and so by law, must be overseen by administrative agencies.[173] Of the 115 central state-controlled companies, the CEOs of 52 hold vice-minister rank or higher, in the areas to which the government attaches the highest priority (**Figure 3.12**). These practices would need to change if the government is to leave commercial activities to the market.

---

[170] The workings of the French asset management company are set out by Girodelle J-L (2005), "The State acting as an Owner: The French Reforms", French Government Shareholding Agency www.oecd.org/daf/ca/corporategovernanceprinciples/34972374.ppt

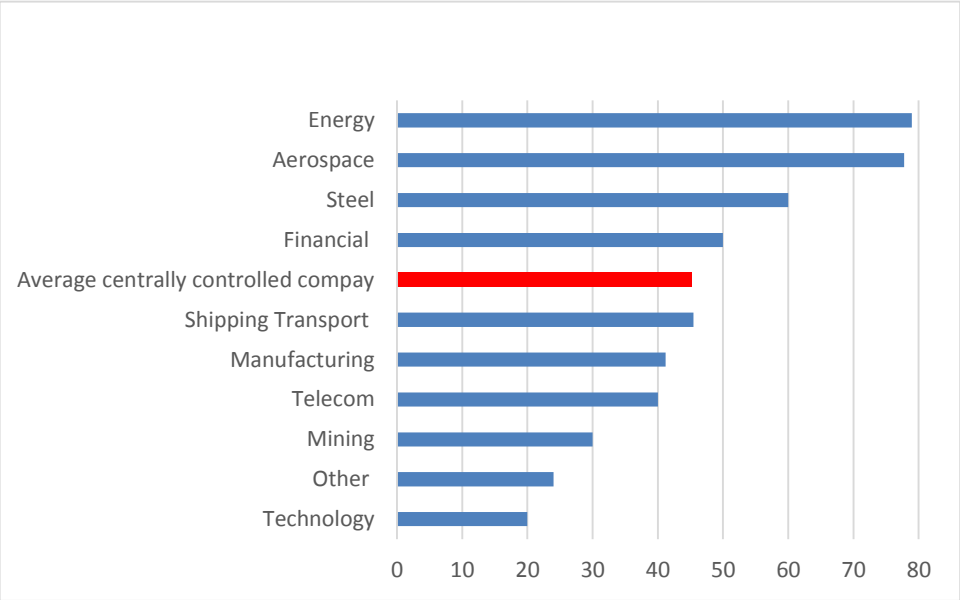
[171] OECD (2004). Managing Conflict of Interest in the Public Service. OECD Publishing.

[172] A discussion of the issues concerning post-service employment for civil servants, as perceived in Australia, Canada, France, New Zealand, Singapore, United Kingdom and the United States of America, can be found in the following publication: Government of Hong Kong, China (2009), Report on The Review of Post-Service Outside Work for Directorate Civil Servants.

[173] This section draws on Duan P. and T. Saich May (2014) "Reforming China's Monopolies" *Harvard Kennedy School of Government, Faculty Research Working Paper*, RWP14-023, Cambridge.

Figure 3.12 Several SOE managers hold senior administrative ranks

Proportion of CEOs of central state-controlled companies with vice-minister rank by sector



Source: KPMG (2013), China 360 State-owned entities: From centrally-planned origins to hybrid market competitors. KPMG International Cooperative, Amsterdam.

Annex 1. The OECD Inclusive Growth measurement framework

The OECD framework is conceived to be policy-actionable, allowing policymakers to better understand the trade-offs and complementarities that exist across policy areas and the tools that can be used to achieve improvements in both the level and distribution of welfare outcomes. In particular, the OECD approach to Inclusive Growth focuses on:

- *Multidimensionality* of the outcomes generated by economic growth. Building on an important strand of the literature that shows that people's welfare is not determined by income only,[174] the OECD framework identifies health and employment as two critical additional aspects that should be examined when assessing inclusiveness.
- *The distribution* of income and non-income dimensions of people's welfare, beyond averages or aggregate measures that refer to the economic system as a whole. There is a large body of evidence pointing to growing income inequality in the OECD and in emerging-market economies, as well as the existence of substantial disparities across the various dimensions of people's welfare. It is therefore important to look at inclusiveness as the extent to which various social groups, not only the average household and individual, are able to take part in and benefit from economic growth.
- *The impact of policy on inclusiveness.* Leveraging OECD expertise on policy determinants of people's separate dimensions of welfare (e.g., GDP per capita, jobs, health), the proposed approach develops a *policy-integrated* framework for examining the *joint* impact of several policies on the various dimensions of inclusiveness.

To support analysis, a measure of "multidimensional living standards" has been developed that accounts for income as well as selected non-income dimensions of well-being and their distributional aspects. The work at hand proposes *risk of unemployment* and *health status* as the key non-income dimensions to be considered along with *household income*. Thus, inclusiveness is captured by relating to three (income, jobs, health) rather than just one (income) dimensions of well-being and by taking into account distributions of outcomes along these dimensions across population groups. Due to lack of comparable data on inequalities in health status and unemployment, the inequalities in multidimensional living standards shown in this Chapter only reflect inequalities in the distribution of household disposable income.

Defining multidimensional living standards

The OECD definition of Inclusive Growth is *a rise in the multidimensional living standards of a target income group in society* (also referred to as "representative" household). For the sake of illustrating the method, the median household can be chosen as the target income group in society. However, the method is general and can be applied to all segments of the income distribution, to allow for country-specific preferences.[175] For example, the focus can be on lower-income households. In this case, a rise in the multidimensional living standards of the representative household would mean a rise in the average multidimensional living standards of the most deprived segment of the population. Therefore multidimensional living standards reflect outcomes in income and non-income components of well-being *and* their distribution across households.

[174] For example, OECD (2011), How's Life? Measuring Well-being, OECD Publishing, Paris; and Stiglitz, J. E., A. Sen, and J-P. Fitoussi (2009), Report by the Commission on Measurement of Economic Performance and Social Progress, www.stiglitz-sen-fitoussi.fr/en/index.htm.

[175] See, for example, Foster, J. and M. Székely (2008), "Is economic growth good for the poor? Tracking low incomes using general means", International Economic Review, Vol. 49, No. 4, December, pp. 1143-72.

Multidimensional living standards at aggregate level are computed in three steps:

- First, one needs to measure *income-based* living standards (captured for instance by consumption or real income) at the individual level.
- Second, it is necessary to bring one or several *non-income* dimensions into the analysis and measure these at the level of individuals or groups of individuals (depending on data availability) in order to combine them with measured income.
- Lastly, the broader living standard measure is aggregated across individuals or groups to obtain an overall measure of multidimensional living standards.

For measuring the **income dimension** of living standards, gross household real disposable income has been chosen as the relevant indicator. Disposable income is income that is available to households after payment of direct taxes and receipt of transfer payments (and thus ignores both benefits in kind and indirect taxes). Real disposable income is obtained by deflating nominal income by a consumption price index.[176] Thus, real disposable income reflects households' purchasing power. It is a better measure of households' command over resources than, for instance, GDP per capita. While the data on household disposable income meet the high statistical standards of the national accounts, they do not convey any information on how economic resources are distributed. To overcome this limitation, they have been combined with information on the distribution of household disposable income from household surveys, thereby assuming that the distribution of household disposable income in the national accounts perfectly matches the distribution in household surveys.[177]

The OECD Well-being framework has identified eight non-income dimensions that matter for the well-being of individuals and households.[178] For the measurement of multidimensional living standards, a sub-set of these **non-income dimensions** was selected, based on the following criteria: there should be testable empirical links between the well-being dimensions considered and specific economic policies; and there should be tested and reliable methods for measuring and comparing the relative contribution of these dimensions to people's overall well-being. . Empirical work on the determinants of subjective well-being shows that *income*, *unemployment and health* are highly significant factors.[179] These dimensions are also prominent in the public policy debate.

The *jobs dimension* – people's active participation in production as a characteristic of inclusiveness – can be captured in different ways. Focussing on unemployment has the advantage of reflecting differences in labour force participation, in addition to access to employment for those already in the labour market, which is particularly relevant to capture barriers to participation for certain groups. In addition, the unemployment rate is a strong determinant of subjective well-being; in particular, the move from employment to unemployment has been shown to exert a strong negative effect on people's subjective well-being. Unemployment is also the variable that has repeatedly been used in the literature on the measurement of living standards and well-being. Hence, the baseline analysis focuses on unemployment as a proxy for the jobs dimension.

---

176 In practice this report uses a deflator of private consumption from the national accounts (see also Box 2 in Chapter 1).

177 This is a strong assumption that does not hold in practice. The OECD has undertaken work to identify and reconcile some of these differences [Fesseau, M. and Mattonetti, M.L. (2013), "Distributional measures across household groups in a national accounts framework: Results from an experimental cross-country exercise on household income, consumption and saving", OECD Statistics Directorate working paper, No. 2013/4, OECD Publishing] but data availability, in particular over several years is still too limited to make full use of these results. Hence, for this report, distributional information from survey data has been benchmarked to aggregate information from the national accounts.

178 OECD (2011), How's Life? Measuring Well-being.

179 Boarini, R. et al. (2012), "What makes for a better life?: The determinants of subjective well-being in OECD countries – Evidence from the Gallup World Poll.

To measure *health*, life expectancy at birth has been selected as the relevant indicator. Mortality measures have the advantage of being widely available for most countries and long time periods. They are very well documented and available by age, gender,[180] and in some countries by educational attainment, which may allow in the future to extend the methodology used in this chapter to capture other types of inequalities (beyond those in income).[181] This is important, as there are large and persistent inequalities in longevity *within* countries that tend to be correlated with the socio-economic background of individuals. Furthermore, the socio-economic determinants of inequality in longevity, such as the education gradient of mortality, differ across OECD countries. The implication is that life expectancy is likely to play a significant role as a determinant of multidimensional inequality and as a driver of cross-country differences in the level and evolution of living standards. Sen (1998) draws a similar conclusion.

Other dimensions that would be relevant to include along the non-income components of multidimensional living standards include environment and education. However, this would complicate the analysis considerably. Moreover, income and health already pick up some of the beneficial effects of education and of environment quality on welfare (as richer and healthier individuals are also those more educated and least exposed to pollution). In addition, at the aggregate level, environmental effects on mortality tend to be limited in most OECD countries.[182] This is less so in China, however – as discussed below.

Once the basic components of multidimensional living standards have been identified and measured separately, one has to combine them into a single valuation function. Various theoretical approaches exist for this, mainly differing in the assumptions about the valuation of non-income factors.[183] The OECD framework uses the "equivalent income" method.[184] Equivalent income is defined as the *hypothetical income that would make an individual indifferent between her/his current situation in terms of non-income aspects of life and a benchmark situation.*[185] A crucial element in the calculation of equivalent income is therefore the valuation of the non-income components. This depends first on a reference or benchmark level to which individuals can compare their actual outcome in non-income components (e.g., the number of years of life expectancy above or below a benchmark level of longevity). In a second step, individuals' distance to the benchmark, measured in non-monetary units, is monetised and expressed in terms of equivalent income.

Monetisation requires the computation of 'shadow prices'. Evaluating these shadow prices of non-income components is a major practical challenge. Various methods exist to calculate them,[186] but under certain assumptions it is possible to reconcile results from various methods and obtain estimates that fall in a relatively narrow range.[187] The basic method for estimating shadow prices is presented in **Box A.1.1**.

---

180 "The existence of a strong gender bias against women (and against young girls in particular) has been much discussed in the development literature. Gender bias is, however, very hard to identify, since many of the discriminations are subtle and covert, and lie within the core of intimate family behaviour. Mortality information can be used to throw light on some of the coarsest aspects of gender-related inequality. Indeed, even the simple statistics of the ratio of women to men in the total population can provide insights into the long-term discrimination against women in many societies" [Sen, A. K. (1998), "Mortality as an indicator of economic success and failure"; The Economic Journal, Vol. 108, No. 446, January,p.11).

181 Sen, (1998), pp 1-25; and Mackenbach, J. et al. (2008), "Socioeconomic inequalities in health in 22 European countries", The New England Journal of Medicine, Vol. 358, No. 23, pp.2468-2481.

182 According to estimates of the environmental burden of disease, they are less than 0.02 disability-adjusted life years per person – i.e. 7 days of life lost because of either premature mortality or disability due to the bad quality of the environment (Institute for Health Metrics and Evaluation, 2013).

183 Fleurbaey, Marc (2009), "Beyond the GDP: The quest for measures of social welfare," Journal of Economic Literature, Vol. 47, No. 4, December, pp. 1029-1075.

184 Fleurbaey, M. and D. Blanchet (2013), Beyond GDP: Measuring Welfare and Assessing Sustainability, Oxford University Press, USA.

185 Typically this is the best possible or best realised outcome in non-income dimensions. For this report, the benchmark for life expectancy is Japan's life expectancy in 2011, and the benchmark for jobs a zero unemployment rate. Alternative assumptions could be used in the future.

186 OECD (2014), All on Board: Making Inclusive Growth Happen, OECD Publishing, Paris;

187 Boarini, R. et al. (2014), "Beyond GDP – Is there a law of one shadow price, for instance, show that life-satisfaction regression approaches tend to deliver a shadow price of 4.5% of disposable income for living an additional year of life and 1.5% of disposable income for reducing unemployment by one percentage point. This compares with 4.1% and 1.4% for shadow-prices estimates derived in model-based approaches.

Box A.1.1: Estimating shadow prices through life satisfaction regressions

Valuations of non-income components can be inferred from life satisfaction studies (e.g. Boarini et al., 2012).[188] By regressing life satisfaction scores on income and any other non-material determinants of life satisfaction, one obtains a measure of the subjective shadow price of the non-income components by dividing the coefficient of the latter variable by the income's coefficient. The subjective shadow price is an implicit expression of trade-offs among dimensions that affect life satisfaction. Shadow prices mainly serve to assess policy options. Therefore, one should guard against any individual, ethically questionable interpretation of shadow prices, in particular in the case of an extra year of life expectancy. Akin to the value of a statistical life, the shadow price depicts the average (across countries and over time) willingness to pay for reducing the collective risk of mortality.

Subjective shadow prices have been computed by running macro-level life-satisfaction regressions on (log) household disposable income, life expectancy and unemployment:

$$LS_{j,t} = a_j + b_t + \alpha \log y_{j,t} + \beta^T T_{j,t} + \beta^U U_{j,t} + \varepsilon_{j,t},$$

Where LS stands for average life satisfaction in country j at time t, y for household real disposable income, T for country-level life expectancy, U for the rate of unemployment and Ɛ for an error term. From the above regression, the "subjective" compensating income corresponding to one additional year of life or one additional percentage point of unemployment is given by:

$$\delta^S_{j,t} = y_{j,t}\left[1 - \exp\left(-\frac{\beta^k}{\alpha}\right)\right]$$

with $k \in \{T, U\}$.

In this framework, compensating differentials are a share of personal income that is common to all countries as the elasticities from the life satisfaction regressions are by assumption homogenous across the sample. Homogeneity is assumed for the sake of simplicity and because of the limited number of observations in the country-level regressions. Homogeneity is also supported by research showing that elasticities are relatively similar across countries. Regressions are run at country-level to correct for possible measurement error and unobserved heterogeneity in individual-level regressions (see Boarini et al., 2014).

In addition, the calculation of shadow prices of health and unemployment is not affected by cultural differences in the valuation of life in general (as regressions includes country fixed-effects that control for cultural differences when these are persistent over time), although they may be affected by temporal shifts in these cultural factors. Similarly, a country fixed-effects framework has the advantage of dampening the risk of having biased estimates due to multicollinearity problems. Introducing country fixed-effects is indeed equivalent to regressing the change in life satisfaction on the change in log income as well as on the changes in longevity and unemployment. In the sample of countries under study, there appears to be very low correlation (i.e. below 0.25) between changes in log income, longevity and unemployment, and hence no risk of encountering multicollinearity problems.

Source: Boarini et al. (2014), "Beyond GDP – Is there a law of one shadow price?", OECD Statistics Directorate Working Paper, OECD Publishing, Paris, forthcoming.

[188] Boarini, R. et al. (2012), "What makes for a better life?: The determinants of subjective well-being in OECD countries.

There are various options for aggregating multidimensional living standards or welfare across individuals. A convenient way is to apply a generalised mean,[189] and to specify a parameter that allows one to gauge living standards for a particular group of the population.[190] The choice of this group is normative and will vary across societies and time. The OECD baseline calculations of multidimensional living standards focus on the median household (in terms of household disposable income). To test for the sensitivity of this choice, multidimensional living standards are also computed as the equivalent income of the poorest and richest 10% of households.

The aggregate measure of living standards can be presented as the product of a term that captures average equivalent income and a term that captures the dispersion of equivalent income. Thus, changes in multidimensional living standards over time can be conveniently decomposed into changes in the average equivalent income plus changes in the dispersion of equivalent income.

[189] Generalised means are grounded in Atkinson's (1970) framework for inequality and welfare analysis [Atkinson, A. B. (1970), "On the measurement of inequality", Journal of Economic Theory, Vol. 2, No. 3, September, pp. 244-263] and belong to the family of "equally distributed welfare" functions. Formally, generalised means are defined as follows: $W_{1-\tau} = \left(\frac{1}{n}\sum_i W_i^{1-\tau}\right)^{\frac{1}{1-\tau}}$ for all **τ** ≠1 and $W_{1-\tau} = \left(\prod_i W_i\right)^{1/n}$ for **ττ** =1, where w.i>0 is the welfare of the i-th person, and n is the population size. The generalised mean reduces to the standard mean when **τ** =0 and to the geometric mean when **τ** =1. The generalised mean of individual welfare places less weight on higher-welfare individuals and more on lower-welfare individuals as the parameter **τ** rises. Hence**, τ** can be interpreted as a measure of inequality aversion. Three values of the parameter **τ** are used in this chapter: 0 – to capture average welfare; 1.5 – for which the generalised mean coincides with median welfare; and 50 – for which the generalised mean coincides with the welfare of the lowest decile in the income distribution. See Kolm, S. (1969), "The optimal production of social justice," in J. Margolis and H. Guitton (eds.), Public Economics , Macmillan, London; and Atkinson (1970) and Table 1 for an empirical illustration of the method.

Annex 2. Applying the multidimensional living standards framework to China

The OECD Inclusive Growth conceptual framework has been developed with the ambition to be relevant for OECD countries and emerging-market economies alike, including China.

While the basic framework for the measurement of multidimensional living standards is general enough, the specific choice of variables used to proxy for the health and the jobs dimensions, as well as the definition of the "typical" household, may differ across countries. Applying the framework to the reality of emerging-market economies requires identifying specific issues in terms of labour market participation and health status, as well as making decisions on whether the analysis should focus on the median household or on the bottom end of the distribution, given the higher levels of extreme poverty in these countries. It addition, it requires considering whether health and jobs should be valued in the same way as for wealthier countries, or whether different stages of economic development call for a different set of shadow prices.

With respect to the *choice of the variables used to measure the income and the non-income components* in China, it is important to note that:

- Household disposable income remains a good proxy for the command over resources by households. This is probably even more so for China than for the average OECD country, as China's household disposable income represents less than 50% of economy-wide income, compared to 60% on average for the OECD. A special consideration has been made when selecting the price index for deflating nominal income (see Box 2, Chapter 1). While the calculations of multidimensional living standards made for OECD countries used the Consumer Price Index,[191] which is a standard inflation measure, the estimates for China presented in this chapter rely on the deflator of private consumption, as this is calculated to be consistent with national accounts aggregates and methodology.
- In many countries, mortality is a relatively poor indicator of health outcomes, as a large fraction of the population suffers from disability and chronic diseases. While summary measures of morbidity that combine these various diseases and long-term illnesses exist (such as measures of healthy life years gained or disability-adjusted life years, DALYs), these measures only rarely capture changes over time.[192] Combined with much better availability for mortality, the latter seems to be a reasonable choice to gauge health outcomes also for China.
- Measuring the jobs dimension through the unemployment rate is also open to debate for developing countries and emerging-market economies, where informal and insecure employment tend to be widespread. In all countries what matters the most is access to a decent job (i.e., the ability to work a sufficient number of hours, to do so on a regular basis and with sufficient welfare protection in case of dismissal). Hence, a measure of jobs that accounts for their quality would be appealing also for China. However, this meets serious practical difficulties, as OECD efforts to measure job quality are still ongoing: only few and scattered data are currently available, and there is no broadly agreed indicator that would permit to compare working conditions across OECD and emerging-market economies. At this point, therefore, the application of the OECD framework to China makes use of the same job variable as for OECD countries,[193] namely, the unemployment rate.

[191] OECD (2014), All on Board: Making Inclusive Growth Happen.

[192] When looking at available measures, it appears that China ranks much better in terms of DALYs than in terms of life expectancy, with DALYs that are comparable to those of the OECD on average.

[193] OECD (2014), All on Board: Making Inclusive Growth Happen.

With respect to the choice of the **typical household**, the median household seems to be a reasonable starting assumption for China too, as median incomes grew less than average incomes (7.3% versus 8.3% annually between 1992 and 2011). However, considering absolute poverty rates in China, it also makes sense to look at the situation of the most deprived segments of the population. Therefore multidimensional living standards that focus on the bottom 10% of households of the distribution of disposable income are also computed.

With respect to the computation of **shadow prices**, the question is whether allowance should be made for the fact that emerging-market economies may evaluate life expectancy and unemployment in a different way than OECD countries. For life expectancy, evidence shows that shadow prices increase with income.[194] This effect is reflected in the empirical specification of the estimates for shadow prices (**Box 2.1**): we compute a shadow price that is a constant proportion of household income and consequently rises with household income in absolute terms.[195]

However, one cannot exclude in principle the possibility that shadow prices are country-specific, and in particular that low and middle-income countries may exhibit a very different willingness to pay for health and unemployment than high-income countries. A robustness test has therefore been carried out to check whether or not the obtained shadow prices are sensitive to including China in the life satisfaction regressions. It turns out that when China is included in the regression sample the coefficients of longevity, log income and unemployment are not significantly affected and, as a result, the changes on the shadow prices of health and unemployment are relatively modest.[196] In addition, because some of the Chinese data in the earlier periods of observation (2006-07 and 2007-08) appear as outliers (probably due to the poorer quality of the first few waves of the Gallup World Poll questionnaire) and because the shadow prices used in OECD (2014) *All on Board* have been calibrated to be consistent with model-based approach, the analysis uses shadow prices estimated for the OECD countries only as used in OECD (2014) *All on Board: Making Inclusive Growth Happen*. In practice, the shadow price of life expectancy is approximately 4.5% (i.e., on average, a person would be ready to sacrifice 4.5% of her annual income to increase life expectancy by one year) and is around 1.5% for unemployment (i.e. a person would be ready to trade off 1.5% of her annual income to reduce the risk of unemployment by one percentage point).

Inequalities are taken into consideration in a two-fold way:

- First, **for cross-country comparisons**, we include inequalities in the calculation of the multidimensional living standards only in the income dimension as there is no data on inequalities in health and unemployment. In practice, this means that we calculate a measure of equivalent income by decile and that this measure differs across decile only in the household disposable income component, while both life expectancy and unemployment are assumed to be the same across deciles. These equivalent incomes by deciles are then aggregated with a generalised mean by setting the aversion to inequality parameter equal to a given value.[197] Depending on this value, the multidimensional living standard indicator will refer to the median income household or to the bottom 10% income household. Any difference between the average living standards and the median/bottom 10% living standards will therefore capture the impact of inequality on the multidimensional living standards.

[194] Viscusi, W.K. and J. Aldy (2003), "The value of statistical life: A critical review of market estimates throughout the world", Journal of Risk and Uncertainty, Vol. 27, No. 1, pp.5-76.

[195] Tests were carried out to compute shadow prices that change with income by interacting the health and unemployment variables with the income variable and by including a non-linear specification for health. However none of these alternative specifications have yielded significant and stable econometric results.

[196] When China is included into the sample, the shadow price of one percentage point of unemployment rises from 1.8% to 2.3% of disposable income, while the shadow price of one year of life expectancy increases from 5.3% to 7.3%.

[197] See Table 2.1., Chapter 2.

- Second, for calculating multidimensional living standards **within China**, we construct data on income, health and unemployment inequalities across rural and urban populations; namely, we estimate household disposable income by decile, life expectancy and unemployment for **rural** as well as for **urban** populations. This allows us to calculate measures of equivalent income for each of these groups and for various points of the income distribution (median and bottom 10%).

Definition and construction of variables

Ensuring data comparability between OECD countries and China is one of the goals of the analysis. A new dataset has been created, which almost entirely relies on official OECD data sources[198] and includes all the income and non-income variables necessary for the computation of multidimensional living standards.

Income variables are listed first, along with the variables used to compute gross household disposable income per capita at constant 2005 prices and in US dollars: population as reported by the Annual National Accounts questionnaires, the CPI (Consumer Price Index) and the Private Consumption Deflator (PCD) that have been used as income deflator, and the PPPs (Purchasing Power Parities) for Private Consumption for 2005, which have been used to convert local currencies into USD. Non-income variables (i.e. unemployment and life expectancy at birth) follow.

INCOME VARIABLES

1. GDP at constant 2005 prices, in local currency units

Source: http://stats.oecd.org, Annual National Accounts, 1.Gross Domestic Product

2. GDP at constant 2005 prices, in US dollars

Source: http://stats.oecd.org, Annual National Accounts, 1.Gross Domestic Product

3. GDP per capita at constant 2005 prices, in US dollars

Source: http://stats.oecd.org, Annual National Accounts, 1. Gross Domestic Product

Definition: GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. GDP per capita has been obtained dividing by end-year population (according to the 1993 SNA national concept of population).

4. Gross household disposable income per capita, constant 2005 prices and 2005 PPPs, US dollars

Source: http://stats.oecd.org, Annual National Accounts, Detailed non-financial sector accounts, 14A. Non-financial accounts by sectors.

Definition: Gross household disposable income is the sum of wages and salaries, mixed income, net property income, net current transfers and social benefits other than social transfers in kind, less taxes on income and wealth and social security contributions paid by employees (including social contributions payable by employers), the self-employed and the unemployed.

Gross household disposable income at 2005 prices and 2005 PPPs has been calculated starting from the variable "Disposable Income, Gross" in national currency and current prices (NFB6GP according to the National Accounts Classification) for sectors S14 and S15 (i.e. Households and Non Profit Institutions serving Households), and then dividing it by the Consumer Price Index (base year=2005), the PPPs for Private Consumption for 2005 (based on the 2011 ICP Benchmark Comparison) and the end-year population.

Note: an alternative choice for deflating household income would have been the deflator for private final consumption expenditure from the national accounts. It has a somewhat different coverage from the CPI and is constructed with a different index number formula. For OECD countries, the difference between the CPI and the private consumption deflator tend to be small but differences are large for China. The choice made for OECD countries has been to use the CPI because of the availability of a long time series and because it is the standard deflator in the OECD Income Distribution Database.

[198] http://stats.oecd.org.

5. Population

Source: http://stats.oecd.org, Annual National Account, 3. Population and employment by main activity

Definition: The System of National Accounts distinguishes two population concepts depending on the geographical coverage: resident persons (i.e. national concept) and resident production units irrespective of the place of residence of the person (i.e. domestic concept). The national concept of population is the one used for the OECD per capita computation.

Data come from statistics reported to the OECD by Member countries in their answers to Annual National Accounts questionnaire. The questionnaire is designed to collect internationally comparable data according to the System of National Accounts.

6. Private Consumption Deflator, 2005 = base year

Source: http://stats.oecd.org, National Accounts, Annual National Accounts, Main Aggregates, 1.Gross Domestic Product, Deflator for Households and NPISHs' final consumption expenditure (P31S13_S14)

Definition: The private consumption deflator or personal consumption expenditure (PCE) price index measure considers the actual and imputed expenditures of households and NPISHs and includes data pertaining to durable and non-durable goods and services. It is a measure of goods and services targeted towards and consumed by individuals. In comparison to the Consumer Price Index, which uses a fixed basket of goods with weights that are changed only infrequently, the PCE Price Index uses expenditure data from both the current period and the preceding period. This formula allows for changes in relative prices. That is to say, using the Deflator for Private Consumption, a substitution effect among goods due to a different evolution in prices is taken into account. The private consumption deflator is used as deflator over time of the Gross Household Disposable Income series.

7. PPPs for private consumption

Source: http://stats.oecd.org, Prices and Purchasing Power Parities, PPP Statistics, 4. PPPs and Exchange Rates

Definition: PPPs are the rates of currency conversion that control for differences in price levels between countries. The PPPs are given in national currency units per US dollar. They are drawn from the 2011 Benchmark Comparison. As the base year for prices is 2005, PPPs for private consumption were constructed through backward extrapolation from 2011. These are in general different from the 2005 PPPs based on the 2005 Benchmark Comparison. The 2005 PPPs (based on the 2011 Benchmark) are used for the spatial deflation and currency conversion into U.S. dollars of the Gross Household Disposable Income series.

NON-INCOME VARIABLES

1. Unemployment rate, total population, 15-64

Source: http://stats.oecd.org, from Labour Force Statistics, by sex and age, indicators
Source for China: OECD calculations based on National Bureau of Statistics.

Definition: Unemployment refers to the share of the labour force between 15 and 64 years old that is without work but available for working and seeking employment.

2. Labour force participation rate, total population, 15-64

Source: http://stats.oecd.org, from Labour Force Statistics, by sex and age, indicators

Definition: Labour force participation rate is the proportion of the population aged between 15 and 64 that is economically active. It consists of all people who supply labour for the production of goods and services during a specified period.

3. Employment to population ratio, total population, 15-64

Source: http://stats.oecd.org, from Labour Force Statistics, by sex and age, indicators

Definition: Employment to population ratio is the proportion of a country's population that is employed. OECD considers as working age population people aged 15-64.

4. Life expectancy at birth, total population

Source: http://stats.oecd.org, Health, Health Status, Life Expectancy
Source for China: OECD calculations based on World Population Prospects 2012.

Definition: Life expectancy at birth reflects the mortality level of the overall population. It is defined as the average number of years that a new-born is expected to live if current mortality rates continue to apply.

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The OECD is a unique forum where governments work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

The OECD member countries are: Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The European Union takes part in the work of the OECD.

OECD Publishing disseminates widely the results of the Organisation's statistics gathering and research on economic, social and environmental issues, as well as the conventions, guidelines and standards agreed by its members.

www.oecd.org/china
OCDE Paris
2, rue André Pascal, 75775 Paris Cedex 16
Tel.: +33 1 45 24 82 00