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Table of contents

Thematic chapters

Boxes

Tables

Figures

The Survey *was prepared by Margit Molnar, Ben Westmore and Thomas Chalaux, with contributions from Jiangyuan Lu, Wenhao Chen, Baolin Wang and Hyunjeong Hwang, under the supervision of Vincent Koen. Secretarial assistance was provided by Mercedes Burgos and Sisse Nielsen.*

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BASIC STATISTICS OF CHINA, 2015

(Numbers in parentheses refer to the OECD)

LAND AND PEOPLE					
Population (millions)	1 371.2	(1 283.0)	Population density per km^2	146.1	(35.4)
Under 15 (%)	17.2	(18.1)	Life expectancy (years, 2014)	75.8	(80.1)
Over 65 (%)	9.6	(16.2)	Men	74.3	(77.5)
Latest 5-year average growth (%)	0.5	(0.6)	Women	77.4	(82.8)
Urbanisation rate	55.6	(80.3)	Agricultural land (% of total, 2013)	54.8	(35.3)
ECONOMY					
GDP, current prices (market exchange rate, trillion USD)	10.9	(45.9)	Value added shares (%)		
GDP, current prices (trillion CNY)	67.7	(285.8)	Primary	8.9	(1.6)
Latest 5-year average real GDP growth (%)	7.8	(1.6)	Industry	40.9	(24.2)
GDP per capita, (000 USD PPP)	14.2	(39.7)	Services	50.2	(74.1)
GENERAL GOVERNMENT					
Expenditure (% of GDP)	37.9	(41.9)	Net lending (% of GDP)	-1.3	(-2.9)
Revenue (% of GDP)	36.6	(39.0)			
EXTERNAL ACCOUNTS					
Exchange rate (RMB per USD)	6.23		Main exports (% of total merchandise exports)		
PPP exchange rate (USA = 1)	3.47		Machinery and transport equipment	12.9	
In per cent of GDP			Telecommunication, sound equipment	12.9	
Exports of goods and services	22.3	(24.9)	Computers	8.5	
Imports of goods and services	18.7	(24.7)	Main imports (% of total merchandise imports)		
Current account balance	3.0	(0.1)	Machinery and transport equipment	20.9	
Net international transfers	-0.1	(-0.7)	Petroleum and products	9.6	
Balance of income	-0.4	(0.5)	Metalliferous ore, scrap	6.6	
LABOUR MARKET, SKILLS AND INNOVATION					
Employment rate (total population, %)	56.4	(55.9)	Unemployment rate (urban) (%)	4.1	(6.8)
Participation rate (total population, %)	58.3	(60.0)	Tertiary educational attainment 25-64 year-olds (%, 2010)	10.0	(35.0)
Gross domestic expenditure on R&D (% of GDP, 2014)	2.1	(2.4)			
ENVIRONMENT					
Total primary energy supply per capita (toe, 2014)	2.2	(4.2)	Freshwater use (m^3 per capita 2014)	443.3	(827.7)
Renewables (% of TPES, 2014)	11.2	(9.4)	Agriculture (% of total use)	64.5	(43.9)
Fine particulate matter concentration ($PM_{2.5}$, $\mu g/m^3$)	57.2	(14.9)	Households (% of total use)	12.3	(15.1)
CO_2 emissions per capita (metric tons, 2013)	7.6	(9.7)	Industry (% of total use)	23.1	(41.1)
SOCIETY					
Income inequality (Gini coefficient, 2013)	0.473	(0.311)	Education outcomes (PISA score in B-S-J-G, 2015)		
Poverty headcount ratio at $3.1 a day (2011 PPP)			Reading	494	(493)
(% of population, 2013)	11.1	n.a.	Mathematics	531	(490)
Share of women in parliament (%)	23.6	(27.1)	Science	518	(493)
Net official development assistance (% of GNI, 2014)	-0.01	(0.01)			

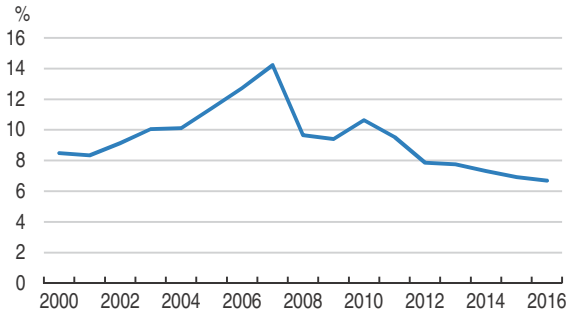
Note: B-S-J-G refers to the four areas covered by the latest PISA survey: Beijing, Shanghai, Jiangsu and Guangdong.
Source: Calculations based on data extracted from the databases of the following organisations: National Bureau of Statistics, OECD, International Energy Agency, World Bank and International Monetary Fund.

Executive summary

- *Managing the gradual slowdown*
- *Boosting corporate dynamism and performance*
- *Ensuring inclusive growth by enhancing opportunities*

Managing the gradual slowdown

Growth is still high, but is gradually and appropriately moderating



Source: OECD Economic Projections 100 Database.

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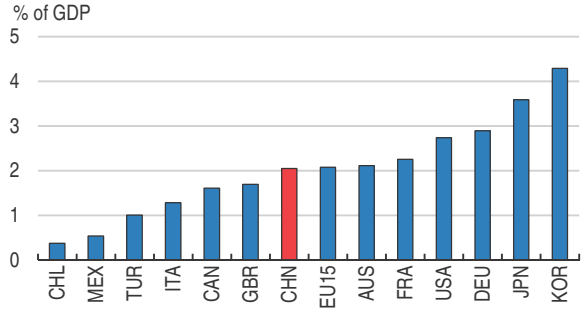
Growth remains high but is gradually moderating as the population ages and the economy rebalances from investment to consumption, from external to internal demand and from manufacturing to services. Orderly rebalancing requires addressing corporate over-leveraging, overcapacity in real estate and heavy industries, and debt-financed over-investment in asset markets. Fostering innovation and moving to more efficient and less energy-intensive production is key to raising productivity as well as to improving the quality of growth and making it more sustainable. At the same time, growth needs to become more inclusive. To measure progress on those fronts, better and more timely data provision is crucial.

Boosting corporate dynamism and performance

R&D spending is higher than in a number of OECD countries

2014 or latest



Source: OECD MSTI database.

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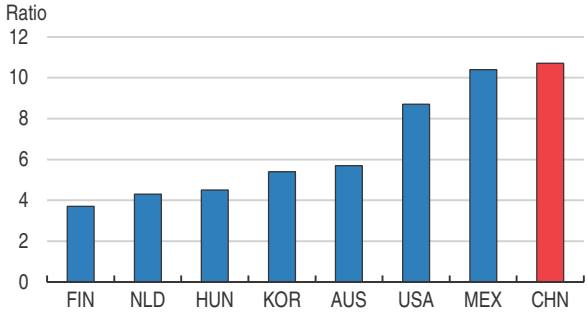
Spending on research and development is far above countries with similar GDP per head, though it remains behind the United States and Japan. Patent numbers are soaring on the back of generous subsidies but the share of invention patents is small. Business creation has been made easier through the removal and unification of licenses, but too many firms are unviable. Corporate governance is being strengthened, including for state-owned enterprises, through enhanced external monitoring and internal control, though on-the-ground progress needs to accelerate. Stepped-up efforts to curb corruption will improve the quality and resilience of growth.

Ensuring inclusive growth by enhancing opportunities

Disposable income of the top 20% over that of the bottom 20% of the income distribution

2016 or latest available



Source: China National Bureau of Statistics, OECD *Income Distribution Database*.

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Income inequality has declined and poverty even more so. Nevertheless, the income gap between the richest and poorest remains large. Policy reforms can greatly enhance the redistributive impact of the tax-and-transfer system, strengthen education and skills and improve the labour market opportunities of marginalised groups. Improving the adequacy and accessibility of healthcare and pensions would reduce the high household saving rate and benefit both individual well-being and economic growth.

MAIN FINDINGS	KEY RECOMMENDATIONS
Monetary policy and prudential regulation	
The stance of monetary policy is broadly appropriate, but the use of targeted policy instruments is rising.	Rely less on targeted monetary policy instruments.
Consumer finance is expanding rapidly.	Enhance prudential regulation by requiring lenders to take into account borrowers' repayment ability when extending loans.
Slower growth makes investment more risky and is driving funds to real estate and securities markets.	Restrict leveraged investment in asset markets.
Public spending and fiscal data	
Fiscal stimulus, including through policy bank lending, raises short-term growth but may lead to poor investments.	Conduct a prudent fiscal policy. Increase public spending efficiency by channelling funds to where returns are high such as education, health and social security and avoid misallocation of capital by allowing banks to better price risk.
Incomplete or tardy general government data hamper fiscal policy assessment.	Improve the quality, coverage and timeliness of fiscal reporting.
Greening growth	
Environmental standards are not enforced effectively enough and green taxes make up a very small share of tax revenues.	Effectively implement the December 2016 Environmental Protection Tax Law, stepping up enforcement efforts and raising environmental taxes.
China accounts for 27% of world carbon emissions and has committed to curb them. However, increased renewable capacity does not always translate into greater use.	Allow independent renewable generators to sell surplus energy and link renewable capacity expansion with the extension of the local power grid.
Promoting innovation	
Innovation is flourishing though only strategically important projects and new- and high-tech industries benefit from support.	Broaden the number of sectors benefiting from government support for innovation.
Intellectual property right violations deter registration of patents.	Strengthen intellectual property right protection by more systematically prosecuting violators and raising fines.
Improving corporate governance and pushing ahead with SOE reform	
SOE managers are often civil servants. The board often has a limited role in appointing and evaluating management and independent directors are not truly independent. SOEs are often burdened with social functions.	Professionalise the management of SOEs to make a clear division between business and politics. Hire truly independent directors and give the board authority to appoint and evaluate management as well as to decide management salaries and promotion. Where possible carry out SOEs' social functions separately from commercial operations to boost the efficiency of the latter.
Controlling shareholders often expropriate minority shareholders through related-party transactions.	Require the regular publication of company accounts and enhance disclosure standards for all firms.
Top executives have been found to embezzle State assets.	Raise penalties for individuals committing fraud.
SOEs and other public entities enjoy implicit guarantees that inflate corporate debt.	Gradually remove implicit guarantees to SOEs and other public entities to reduce contingent liabilities.
SOEs have large market shares in many sectors.	Reduce state ownership in commercially oriented, non-strategic sectors. Let unviable SOEs go bankrupt, notably in sectors suffering from over-capacity.
Strengthening social inclusiveness	
The gap between the richest and poorest is wide. Taxes and transfers have little redistributive impact. The system of social security contributions is regressive.	Base social security contributions on actual income earned. Increase central and provincial government social assistance transfers to poorer areas. Broaden the personal income tax base and increase tax progressivity. Implement a broad-based nationwide recurrent tax on immovable property and consider an inheritance tax that would include some basic inheritance allowance.
The retirement age is low, especially for women.	Gradually increase and unify the pension age to 65 and then index it to life expectancy.
Pension benefits cannot be readily transferred between locations, disadvantaging migrant workers.	Improve administrative procedures to make it easier to draw a pension in a different location from where it is earned.
Enrolment rates in early childhood education are relatively low for rural children.	Increase public funding for childcare and introduce incentives to encourage the participation of rural children in early childhood education.

Assessment and recommendations

- *Moderating growth*
- *Monetary policy is juggling two objectives: supporting growth and containing risks*
- *Mounting risks in the financial sector*
- *Loosening fiscal policy, tax reforms and inter-governmental fiscal relations*
- *Rebalancing growth*
- *Boosting corporate performance and entrepreneurship*
- *Improving well-being and economic prospects by making growth more inclusive*
- *Greening growth*

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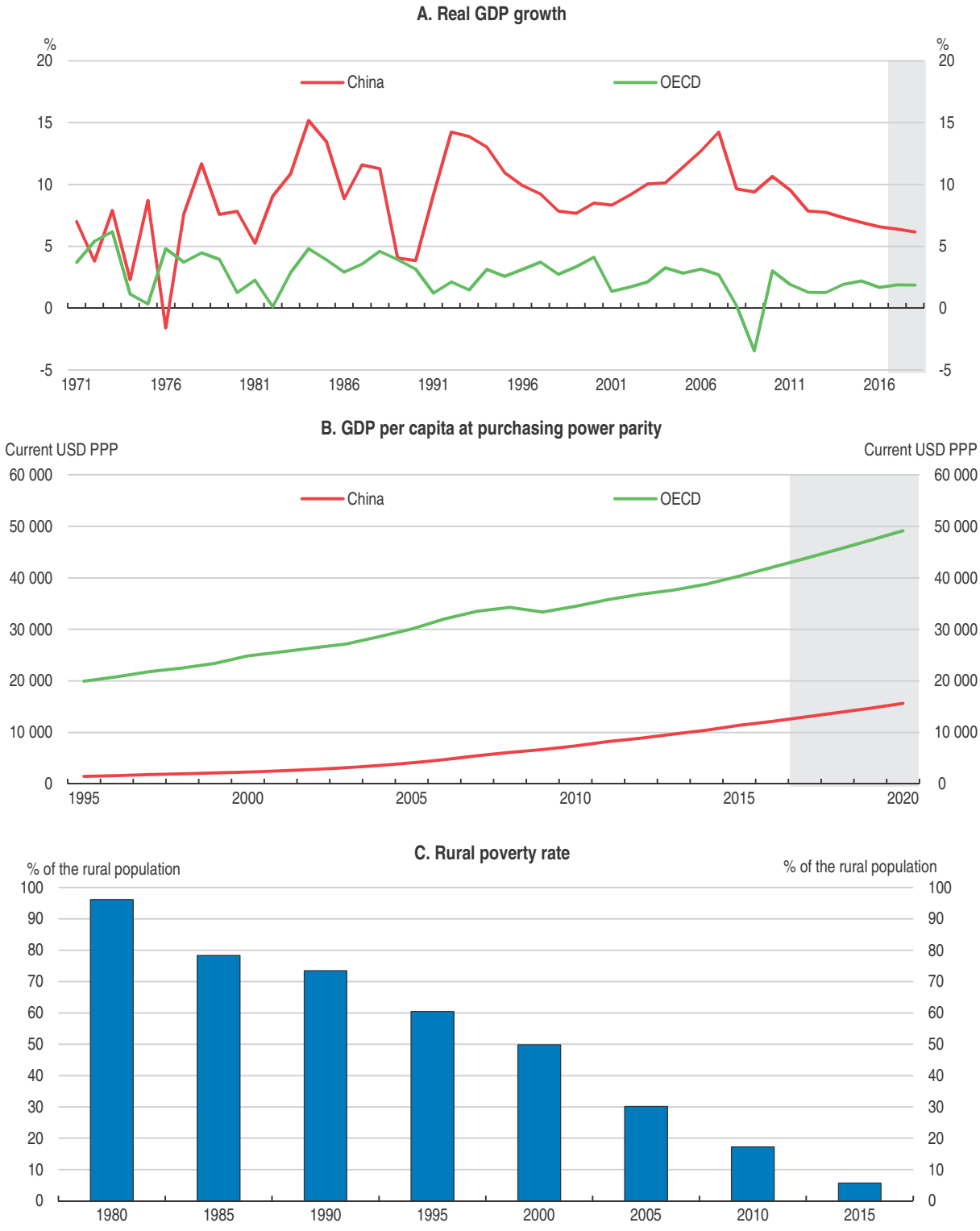
As it enters the 13th Five-Year Plan period (2016-20), the Chinese economy continues to grow fast by international standards. While growth is slowing gradually, GDP per capita remains on course to almost double between 2010 and 2020 (Figure 1). As a result, the Chinese economy will remain the major driver of global growth for the foreseeable future. Notwithstanding the economy's impressive performance and unprecedented poverty reduction (Panel C), imbalances have built up. China's growth has long been driven by capital accumulation, supported by high savings. However, the growth model has led to misallocation of capital and falling investment efficiency, and to excess capacity in some manufacturing industries and in the real estate sector, which needs to be worked off. High enterprise investment was financed by debt, fuelled by interest subsidies and implicit guarantees for SOEs and other public entities. Effectively addressing sources of risk, such as excessive corporate leverage, real estate bubbles and leveraged investment in asset markets will help keep growth on a sustainable path. The authorities may need to forgo some growth in the short run to ensure greater stability over the longer run, with a wider spread of the benefits of growth across society and less stress on a highly polluted environment.

Against this backdrop, rebalancing of the economy towards consumption is key. It has made progress, with growth slowing only gradually. Consumption is supported by stable income growth, in particular in rural areas, which will help reduce the urban-rural divide and thus make growth more inclusive. Consumption-driven growth will also help rebalancing from manufacturing to services (Figure 2.A) and from external to internal demand.

Slowing growth implies lower profits for enterprises, and therefore greater pressure to improve efficiency. It also translates into slower growth of incomes and limits the fiscal resources available to make growth more inclusive. Improving corporate performance by boosting innovation activities and entrepreneurship, enhancing the standards of corporate governance and reforming state-owned enterprises (SOEs) by exposing them to market mechanisms would raise efficiency and boost household incomes, improve employment opportunities and raise people's overall well-being. Against this backdrop, the main messages of this *Economic Survey* are:

- Growth is still high, but is gradually and appropriately moderating as the population ages and the economy rebalances from investment to consumption. More widespread innovation and entrepreneurship, more effective corporate governance and state-owned enterprise reform are needed to improve the quality and resilience of growth.
- Financial risks are mounting on the back of high and rising enterprise debt, expanding non-bank activities and enormous over-capacity in some sectors. A burst of the housing bubble would hurt the real estate, construction and several manufacturing industries. However, household indebtedness remains moderate and prudential regulations for mortgage loans are stringent, so the financial sector could likely absorb the shock.
- Social safety net coverage has improved over the past decade, contributing to reduce poverty. Nevertheless, income inequality remains high. Social infrastructure needs to be further developed, especially for rural citizens, and the tax and transfer system made more progressive.

Figure 1. **Trend growth is moderating but convergence proceeds**



Note: The shaded areas indicate projections. Panel C is calculated based on China's 2010 rural poverty standard of CNY 2 300 annual per capita net income in 2010 prices.

Source: World Bank World Development Indicators database; OECD Economic Outlook 100 Database, OECD Long-term Baseline Projections 96, National Bureau of Statistics, China Statistical Yearbook 2016.

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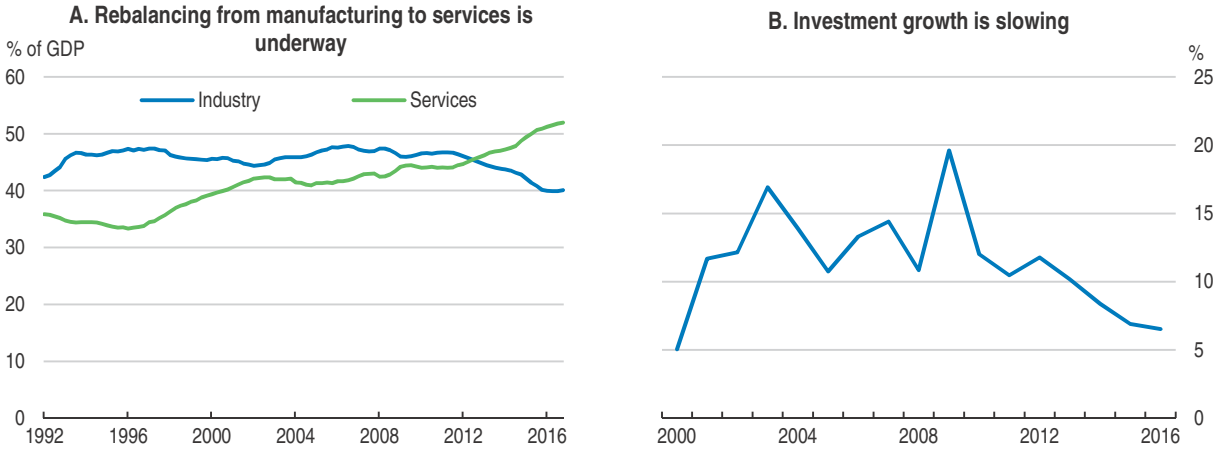
Figure 2. **The economy is undergoing a number of transitions**



Note: In Panel A industry includes the mining, manufacturing and utilities sectors; services include construction. In Panel B investment is real gross fixed capital formation.
Source: OECD Economic Outlook 100 Database.

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Moderating growth

Growth is projected to inch down further (Table 1), as adjustment in manufacturing sectors plagued by excess capacity gathers momentum and investment slows (Figure 2.B). Patterns across the country vary, however: in some areas slowing investment has brought down growth, while in others, mainly less developed ones, both investment and GDP are growing at or close to double-digit rates (Figure 3). Cutting capacity is hard as it requires sub-national governments to find funds to relocate, compensate, re-train and re-employ redundant workers. Many, especially below the province level, cannot afford the costs.

Property investment has been supporting growth alongside infrastructure projects for most of 2016, but is now bottoming out as regional macro-prudential regulations are introduced to cool markets. Residential property prices have been rising since mid-2015, especially in "Tier 1" cities (Figure 4), worsening housing affordability in the largest urban metropolises. Price gains have been fuelled *inter alia* by monetary accommodation and the loosening of restrictions on property investment in 2015. In contrast, estimates suggest it could take over three years to work off housing inventories in China's smallest cities even absent new residential construction (IMF, 2016a).

Restricted land supply has also propelled prices higher, notably in the "Tier 1" cities of Beijing, Shanghai, Shenzhen and Guangzhou. Local governments rely on land sales as a revenue source (OECD, 2015b), and therefore ration public land to keep prices up. Total land released for property development fell by 25% in 2014 and a further 21% in 2015, contributing to the existing lack of land for residential construction in many locations. In Shanghai, for example, the share of land available for residential property development is lower than in Tokyo and New York (Hong, 2016).

Table 1. **Macroeconomic indicators and projections**

	2010	2011	2012	2013	2014	2015	2016	2017	2018
					% change				
Real GDP	10.6	9.5	7.9	7.8	7.3	6.9	6.7	***6.5***	***6.3***
Exports of goods and services, volumes[1]	24.9	14.0	6.2	9.1	6.8	-2.0	2.3	***3.4***	***3.3***
Imports of goods and services, volumes[1]	18.1	16.0	7.1	11.0	9.3	3.9	8.6	***7.7***	***6.0***
GDP deflator	6.9	8.2	2.4	2.2	0.8	-0.5	***0.7***	***2.0***	***2.5***
Consumer price index	3.3	5.4	2.6	2.6	2.0	1.4	***2.0***	***2.6***	***3.0***
Terms of trade	-9.6	-3.7	2.6	1.0	2.8	12.8	0.0	***-0.9***	***0.5***
					% of GDP				
Fiscal balance									
Overall[2]	-0.4	0.2	0.5	-0.3	-0.3	-1.5	***-2.3***	***-2.5***	***-2.5***
Headline[3]	-2.2	-1.4	-1.1	-1.8	-1.7	-2.4	***-2.9***	***-2.9***	***-3.0***
Current account balance	3.9	1.8	2.5	1.5	2.7	3.0	***1.9***	***1.2***	***0.9***
Memorandum items:									
					Billion USD				
Foreign exchange reserves, end year	2 847	3 181	3 312	3 821	3 843	3 330	3 011		
					% change unless otherwise noted				
Housing prices deflated by the CPI[4]	6.5	-1.3	-3.2	3.2	0.5	-5.3	4.4		
Total employment	0.4	0.4	0.4	0.4	0.4	0.3	0.2		
Urban employment	4.1	3.5	3.3	3.1	2.8	2.8	2.5		
Nationwide Gini coefficient for household disposable income (level)	48.1	47.7	47.4	47.3	46.9	46.2	46.5		

Note: 2017-18 projections are based on the OECD's March 2017 Interim Economic Outlook.

1. OECD estimates.
2. The overall fiscal balance encompasses the balances of all four budget accounts (general account, government managed funds, social security funds and the state-owned capital management account).
3. The headline fiscal balance is the official balance defined as the difference between the two items i) general budget revenue and ii) revenue from the stabilisation fund and carryovers on the revenue side and the two items iii) general budget spending and iv) replenishment of the central stabilisation fund on the spending side.
4. The housing prices are estimated using the property price index of 70 cities for 2008-10, then the simple average of the property price index of newly constructed residential housing for 2011-16.

Source: CEIC database; OECD March 2017 Interim Economic Outlook.

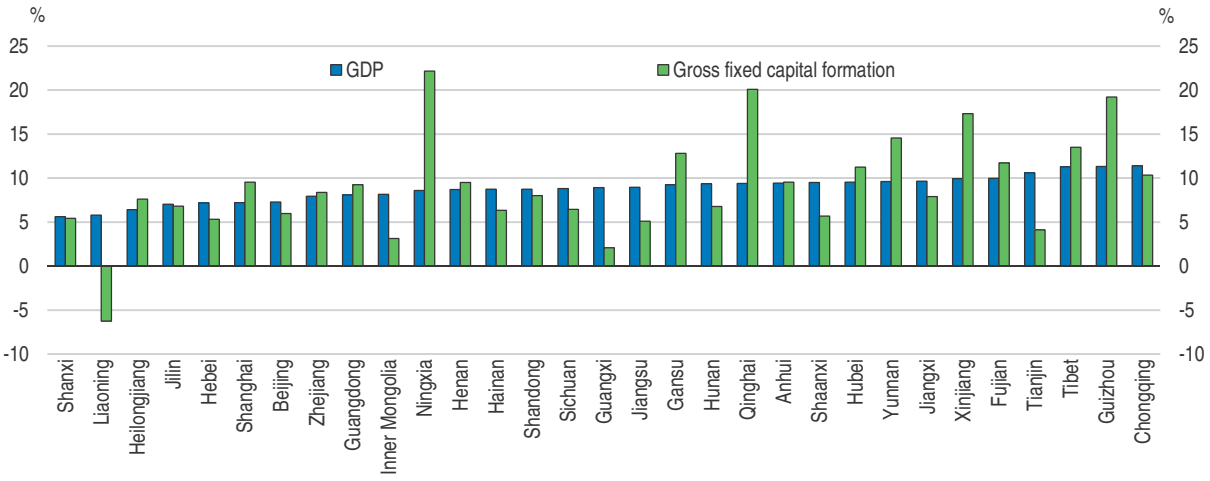
To temper the rapid increases in property prices in the largest cities, the authorities have tightened home purchase restrictions. In March 2016, mortgage down-payment ratios and restrictions on non-local buyers were raised in Shanghai and Shenzhen. Similar measures were subsequently introduced in Beijing and in Tier 2 cities such as Hefei, Xiamen, Suzhou, Wuhan and Chengdu.

Consumption has remained robust on the back of strong employment creation and steadily rising incomes, in particular in rural areas. E-commerce sales and tourism services imports have been very buoyant. Employment creation remains strong and (urban) unemployment low. Overall vacancy rates in dynamic big cities like Shanghai and Chongqing remain high, while in Shenyang, in the industrial rustbelt, labour demand continues to fall short of supply (Figure 5).

Trade has slowed (Figure 6, Panel A). Export sluggishness is related to the subdued global recovery, while the slowing of goods imports can be largely attributed to weak investment demand as capital goods make up a significant part of imports. The current account surplus remained relatively stable reflecting a sizeable and persistent surplus in

Figure 3. **The slowdown in growth and investment has been geographically uneven**

Compound average growth rate, 2012-15



Note: Both GDP and gross fixed capital formation are in real terms. The real gross fixed capital formation is calculated from the nominal figures using the province-specific fixed asset investment deflators. For Tibet, for which no deflator is available, the national average is used.
Source: OECD calculations from data by the National Bureau of Statistics. Data for Liaoning are reportedly overstated.

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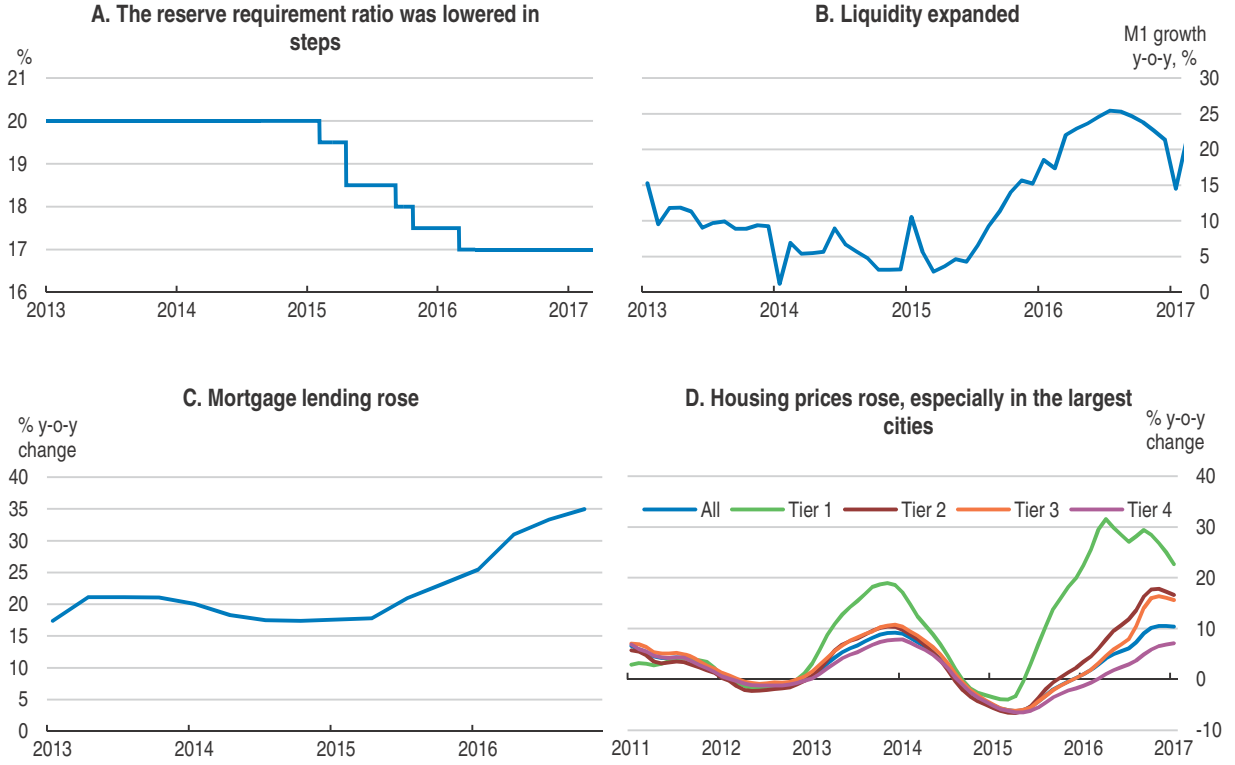
Figure 4. **High liquidity has fuelled a housing boom**



Note: The reserve requirement ratio refers to large commercial banks; housing prices are calculated from the 70 cities residential property price index. Chinese cities are commonly classified into six tiers according to their economic and administrative importance. In Panel D, "Tier 1" comprises four cities (Beijing, Shanghai, Shenzhen and Guangzhou), "Tier 2" eight, "Tier 3" 11 and "Tier 4" 47.
Source: CEIC database.

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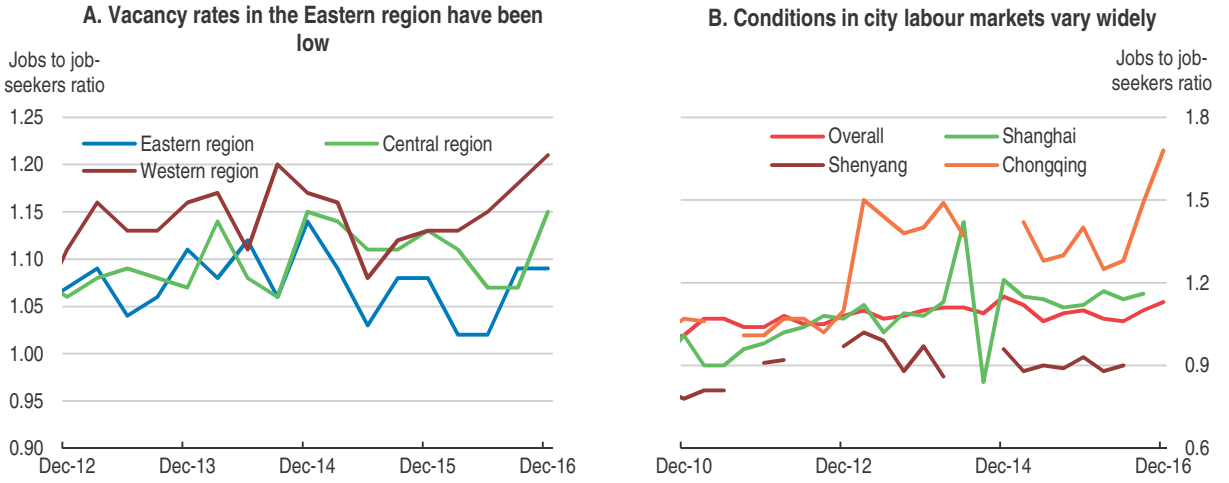
Figure 5. **Vacancy rates are high in some areas**



Note: Ratio above one means more jobs on offer than the number of job seekers in the respective category.
Source: China City Labour Force Survey, Ministry of Human Resources and Social Welfare.

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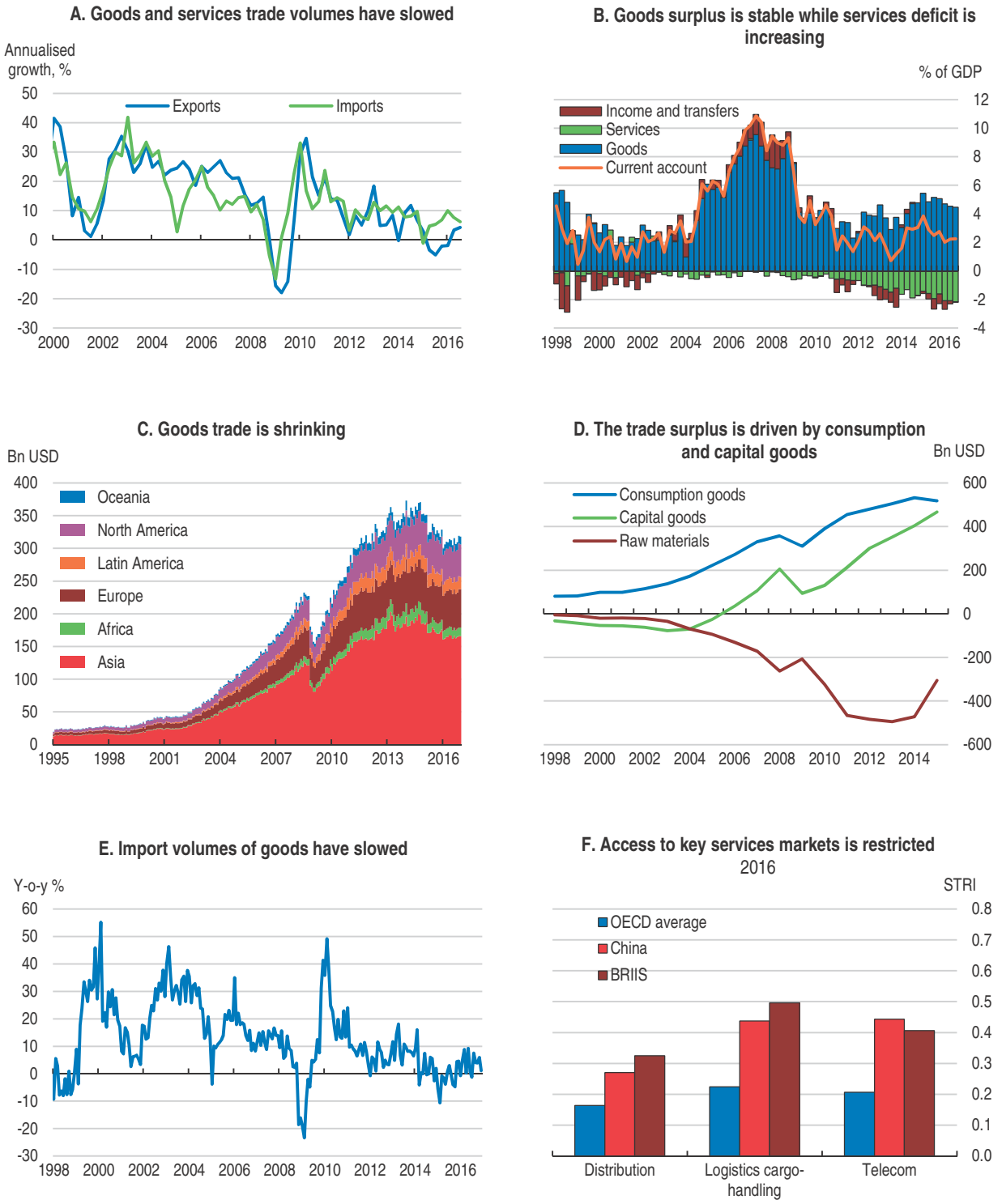
goods trade, even though overall goods trade is shrinking (Panel C). Capital goods have become an important contributor to the trade surplus (Panel D). In contrast to the large surplus in goods trade, the services deficit is soaring, due to a large increase in tourism imports (Panel B). Import volumes of goods have slowed (Panel E) as processing trade diminished and so have foreign global value chain (GVC) activities. As China is establishing its own GVCs, it will be even more important to provide the necessary services for that, in particular in the areas of distribution, logistics and telecom, where restrictions remain high (Panel F).

Producer prices have strongly accelerated (Figure 7), reflecting the combined and partly related effects of exchange rate depreciation, firming commodity prices and reduced excess capacity. Consumer price inflation, however, remains subdued.

Against this backdrop, growth will continue to slow gradually over 2017-18 (Table 1) but policy stimulus will help keep it above 6% (Table 1). Consumption will become a more prominent driver as investment slows, particularly in the private sector: i) on the back of adjustment in heavy industries; ii) amid declining returns on investment; and iii) due to still high entry barriers in the dynamic services sector. Consumption will be supported by stable employment and income growth. The fiscal deficit will widen somewhat as a result of stepped-up fiscal expansion. Inflationary pressures will rise somewhat due to higher raw material prices, but CPI inflation will remain relatively subdued.

Risks to the above projection are tilted to the downside. Soaring property prices in Tier 1 cities and leveraged investment in asset markets magnify vulnerabilities (Box 1) and the risk of disorderly defaults. Excessive leverage and mounting debt in the corporate sector compound financial stability problems even though a number of tax cuts are being implemented to reduce the burden on enterprises. Rapid adjustment in the real estate and industrial sectors would drag down growth, but is necessary to strengthen resilience. Supply-side policies, including deleveraging and working off excess capacity, are crucial to

Figure 6. **Trade has slowed but the goods surplus has increased**



Note: Panel C shows the sum of goods exports and imports. In Panel F, BRIIS stands for Brazil, Russia, India, Indonesia and South Africa and STRI for the OECD Services Trade Restrictiveness Index.
Source: CEIC and OECD Services Trade Restrictiveness Index database.

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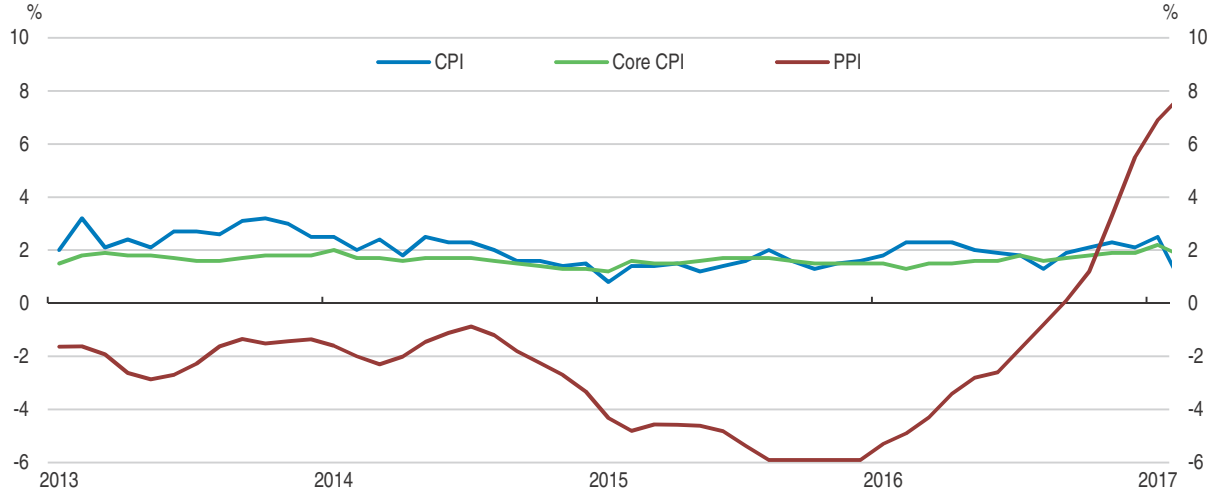
Figure 7. **Deflationary pressures are subsiding**

Per cent change over previous year



Note: Core CPI excludes food and energy.
Source: National Bureau of Statistics.

StatLink http://dx.doi.org/10.1787/888933461777

Box 1. **Key vulnerabilities**

Vulnerability	Possible outcome
A sharp rise in trade protectionism	Protectionist measures by some trading partners would hurt Chinese exports, but would be mitigated over time by China seeking free trade agreements with others.
A steep fall in housing prices	A collapse in housing prices would hurt some sectors of the economy including real estate, construction, furbishing, home appliances and other related industries, but the impact of a steep fall in house prices would be mitigated by stringent prudential regulations governing household mortgage borrowing and the prohibition of withdrawing housing equity.
A significant increase in corporate defaults	Slowing growth and enterprise profits make it harder to service debt and can lead to further defaults, adversely affecting bank profitability and leading to liquidity problems. This, however, may be mitigated in the short term by the government's bailout of defaulters or persuasion of creditors not to exercise their right.

avoid a sharp slowdown. Greater-than-expected stimulus, in contrast, would result in stronger growth in the short term but larger imbalances later. On the upside, a stronger than foreseen global rebound would support Chinese exports and growth.

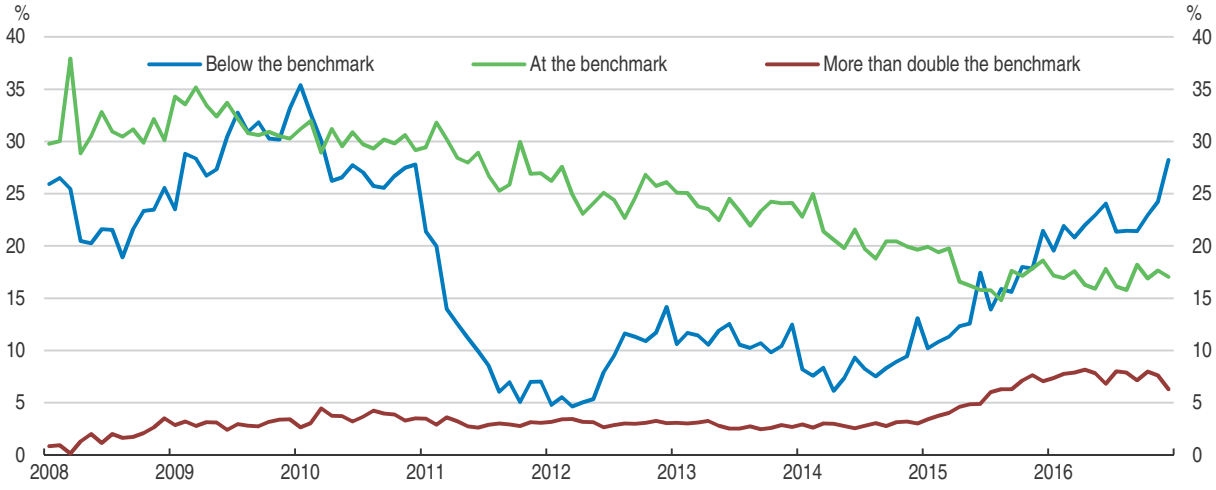
Monetary policy is juggling two objectives: supporting growth and containing risks

Monetary policy appropriately continued to ease in 2015-16 as activity slowed, stock prices fell and deflationary pressures persisted. The central bank continues to carefully manage liquidity conditions, which are particularly important for smaller banks, but recently concerns have risen over financial risks related to rising asset prices. The challenge will be to strike a balance between supporting demand and containing risk.

The monetary policy framework has become more market oriented, but at the same time recourse to targeted credit has been stepped up. The interest rate ceiling on deposits has been lifted – the last milestone in the interest rate liberalisation process (Box 2). Credit pricing seems to have improved as the share of loans at the benchmark rate has diminished while the share well above or well below has increased (Figure 8). However, the rising share of loans below the benchmark may be related to increased lending to SOEs and other public entities that carry implicit government guarantees. The PBoC has also introduced an interest rate corridor to guide key money market rates. However, at the same time, it has started to extend loans collateralised by qualified assets to banks for re-lending to SMEs and the agricultural sector. This measure, alongside other new tools such as the pledged supplementary lending and the medium-term lending facility, provides selective liquidity support (while also influencing lending rates). Reliance on such targeted instruments tends to hold back the move towards more market-based mechanisms.

Figure 8. **The share of lending at the benchmark rate has fallen**

Percentage of lending by interest rate relative to the benchmark interest rate



Source: CEIC database.

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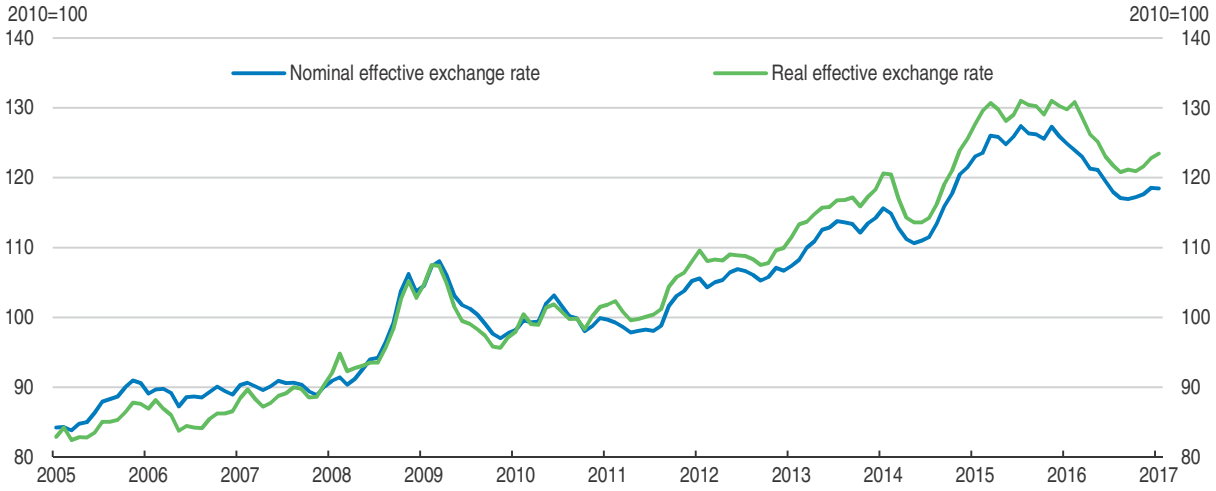
Exchange rate flexibility was increased in August 2015, an important step towards an effectively floating exchange rate regime (IMF, 2016a). By mid-2016 the renminbi had retraced much of the gains it recorded over 2014-15 (Figure 9). Expectations of further renminbi depreciation triggered capital outflows and prompted the authorities to step in to defend the currency in the foreign exchange market, resulting in a sharp decline in foreign exchange reserves. The authorities also tightened restrictions on some types of capital outflows and took measures to encourage inflows. Capital outflows are also a result of portfolio reallocation between renminbi and foreign currency assets by the private sector, which is likely to continue in the foreseeable future. The inclusion of the currency in the IMF special drawing rights basket in October 2016, however, is likely to boost demand for renminbi-denominated assets in the medium term, thereby mitigating the impact of capital outflows, a slowing economy and falling returns (Prasad, 2016). Overall, further flexibility should come with greater market determination of the exchange rate, which can serve as a cushion to absorb shocks as the capital account opens up further, as emphasised in the 2015 *Economic Survey*.

Figure 9. **Trend exchange rate appreciation has ceased**

Nominal and real effective exchange rates (2010 = 100)



Source: Bank of International Settlements database.

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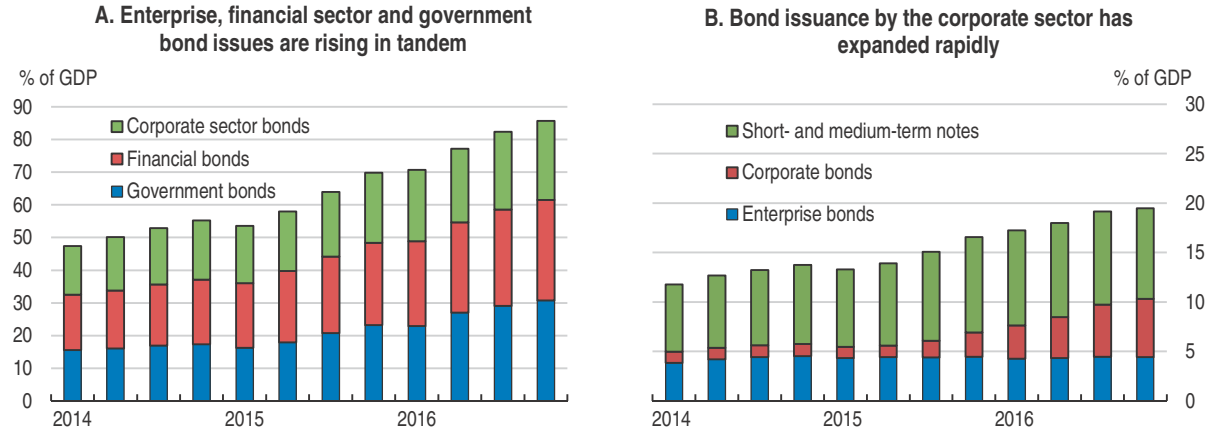
The kick-start of sub-national government bond issues in 2015 and more recently the surge in special bonds to support infrastructure projects, have expanded the bond market, which is now the third largest worldwide. As banks – the largest investors – tend to hold to maturity and other investors that tend to trade more such as insurance and securities companies play a limited role, the secondary market remains illiquid. The bond market is rather segmented by regulation (Ma and Yao, 2016). Banks are restricted to the interbank market. Although the three main issuer types (the government, financial institutions and the non-financial corporate sector) seem to account for similar shares of the bond market (Figure 10, Panel A), in fact most issuers are government related: policy banks are the largest

Figure 10. **The domestic bond market has developed rapidly**



Note: Bonds outstanding, quarterly data. In Panel B, issues by government-sponsored institutions such as the Central Huijin Corporation and China Railways and private placement notes are not included. For the various bond types, the English equivalents of the original Chinese names are used.

Source: Wind database.

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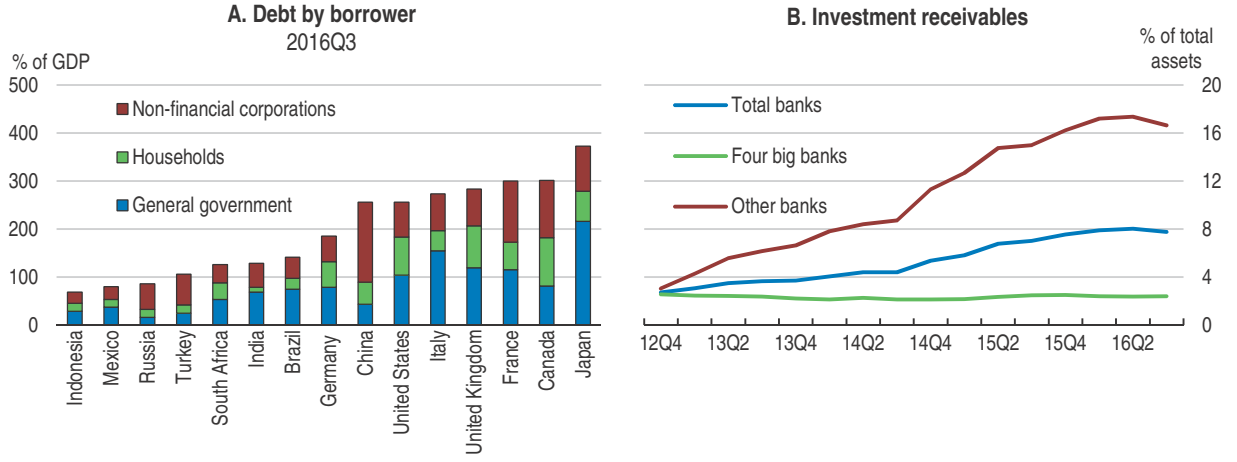
issuers of financial bonds and SOEs alongside local government investment vehicles the largest non-financial corporate issuers. The issuance of enterprise bonds and short- and medium-term notes is supervised by different bodies (Panel B) and this paper is traded on different platforms with different investor mixes. Regulatory unification would increase liquidity, reduce regulatory arbitrage, save on supervisory costs and help develop a more efficient bond market. This would promote currency internationalisation and use of the renminbi as a reserve currency since reserve holders invest through high-grade bonds.

Mounting risks in the financial sector

Total private and public debt now exceeds 250% of GDP, up from 150% prior to the Global Financial Crisis. While both corporate and household debt have been rising rapidly, the outstanding stock of corporate debt is particularly high when compared with many OECD countries (Figure 11, Panel A) and other emerging economies.

Figure 11. **Corporate debt is particularly high**



Note: In Panel B, "Other banks" are 12 other A-share listed banks. Combined with the four big banks, these institutions account for around 60% of banking system assets. While investment receivables also include some government and corporate bond holdings, this line item mostly reflects the derivative products used by banks that are linked to NBFI lending such as trust beneficiary rights and directional asset management plans.
Source: Bank of International Settlements, WIND database, author calculations.

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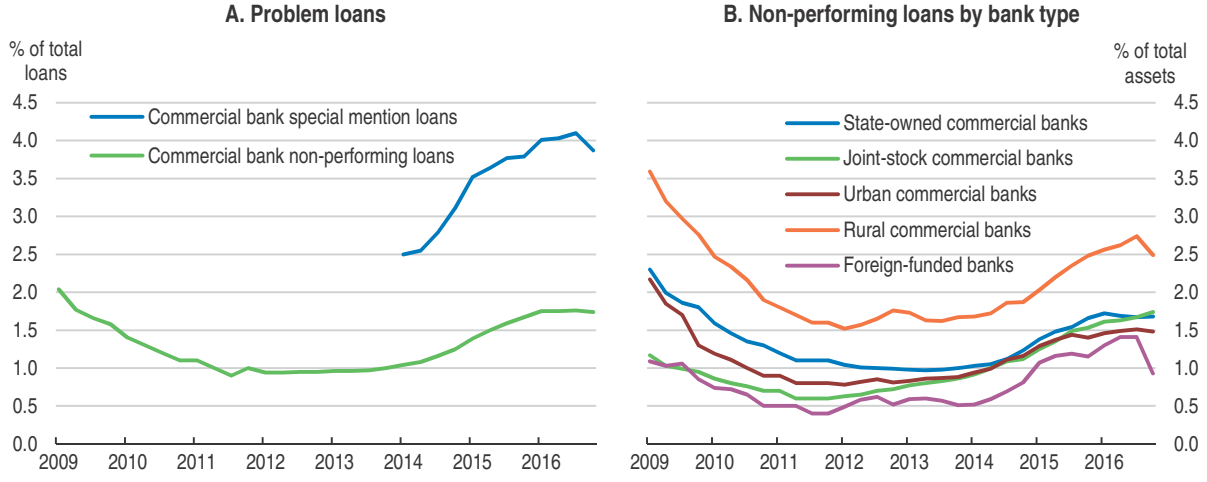
Non-financial corporate debt rose from less than 100% of GDP at the end of 2008 to 170% by early 2016. This sharp pick-up was due in large part to increased leverage of SOEs. The rapid accumulation of corporate debt combined with a slowdown in economic activity and some of the practices of financial institutions have significantly heightened systemic risks. Banks continue to channel loans through non-bank financial institutions and then reduce capital requirements by holding the loan on their balance sheet as an "investment receivable" (OECD, 2015b). This activity has been particularly pronounced outside of China's four largest banks (Figure 11, Panel B). In April 2016, the China Banking and Regulatory Commission (CBRC) issued Document 82, which outlined regulatory changes to the risk weighting and provisioning of some of the derivatives held by banks as investment receivables (CBRC, 2016). These regulations should be complemented by increased supervision of banks as they seek alternative channels to undertake regulatory arbitrage.

Issuance of wealth management products has continued. The funds from such securities have typically been used to extend corporate loans, but are now increasingly invested in other wealth management products. This may reflect banks' lower appetite to lend for investment in the real economy amid declining returns. Indeed, leveraged capital has increasingly been invested in asset markets, particularly the real estate, stock and bond markets. Cross-investment between wealth management products magnifies the risk of impairments being transmitted throughout the financial system. Such risks add to pre-existing vulnerabilities stemming from perceived implicit guarantees and maturity mismatches on these securities (Perry and Weltewitz, 2015; OECD, 2015b). Under the macroprudential framework announced in January 2016, banks are required to disclose wealth management product exposures on their balance sheet, which will benefit systemic stability. To further contain risks, more effective monitoring and control of leveraged investment in asset markets is required.

Non-performing loans (NPLs) have been on the rise since 2013 (Figure 12), partly reflecting overcapacity in some heavy industries. While the ratio of NPLs to total assets was less than 2% in mid-2016, this figure does not include those loans 90 days past due which bankers expect to recoup through selling collateral (PWC, 2015). Indeed, some estimates suggest that loan defaults are significantly higher than the aggregate NPL ratio suggests (IMF, 2016a). Special-mention loans – those perceived as problematic without being non-performing – have risen steeply in the past few years and there have been reports of banks "evergreening" loans to avoid reporting higher NPLs. In addition, defaults in China's corporate bond market have become more frequent, with some SOEs missing bond payments in 2016. This has resulted in a re-pricing of risk, with yields across various bond classes rising through mid-2016. A substantial increase in the scale of such defaults could trigger massive deleveraging and disorderly risk re-pricing in the bond market, exposing the banking sector to liquidity risk (as the banking sector is heavily exposed to corporate bonds via the sale of wealth management products).

Figure 12. **Problem loans are on the rise**



Source: Wind database.

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The authorities have initiated debt-to-equity swaps in heavily indebted enterprises and approved the issuance of credit default swaps that pay out if there is a default on the underlying loan. A debt-to-equity swap will be initiated for enterprises that cannot service their immediate debts but are considered to be financially sustainable in the medium to long term by the lender. Only a limited group of firms conform to both these conditions, restricting the potential scale of such measures. Indeed, few swaps have gone ahead so far as banks have been unwilling to take on the increased risk associated with becoming equity holders. The securitisation of NPLs has also been encouraged, which may be preferable to debt-to-equity swaps insofar as it reduces the exposure of banks to underperforming corporates and the NPLs are acquired by an entity with greater expertise in restructuring the company (Daniel et al., 2016). Nevertheless, China's securitisation market is relatively shallow at present, limiting the potential scale of such transactions. The government is also promoting business consolidation and debt restructuring in order to reduce financial risks. The Ministry of Finance and the State Administration of Taxation have recently announced preferential tax policies to this end. For example, value-added tax will not be levied on transfers of fixed assets and land-use rights.

Household debt rose from 30% of GDP at end 2012 to 40% by mid-2016, with strong growth in mortgages contributing to skyrocketing real estate prices in the largest cities (Figure 4). Nevertheless, the systemic risk of a sharp decline in property prices is partly mitigated by highly-regulated down-payment ratios and the inability of households to withdraw housing equity. Consumer finance has also grown rapidly, enabled by the expansion of online peer-to-peer lending platforms. Some of these new lenders are loosely regulated and do little to verify the repayment ability of borrowers. While financial institutions should be encouraged to lend only to people able to service their debt, improvements in household financial literacy are also needed. The planned development of a national strategy for financial education (Messy and Monticone, 2016) will benefit inclusiveness, but may also help alleviate risks in the financial sector.

Banks have financial buffers, but the aggregate loan-loss provision ratio has been declining since 2012. At mid-2016, it was highest for city commercial banks and lowest for China's large four banks. If 80% of reported NPLs and 40% of special-mention loans were to default (equivalent to 3.6% of GDP), the loan-loss provisions banks had set aside as of mid-2016 would be fully wiped out. Bank Tier 1 capital was around 11% of system risk-weighted assets in mid-2016, an increase from a year earlier but below the average Tier 1 capital ratio in OECD countries or in Brazil, Indonesia and South Africa.

Box 2. **Past recommendations on monetary and financial policies and actions taken**

OECD 2015 Survey recommendations	13th Five Year Plan and policies directly related to OECD recommendations
Enhance the role of the market and improve prudential regulation	
Phase out implicit government guarantees enjoyed by state-owned enterprises, so that all firms compete on a level playing field with regard to finance, regulation, taxation and public procurement.	The 13th FYP stipulates that the market should play a decisive role in the allocation of resources. The State Council issued the *Opinion to Establish Fair Competition Surveillance in the Market System* in June 2016 and the *Opinion on Adjustment and Reorganisation of Central Government-Owned Enterprises* in July to strengthen, reorganise or shut down central SOEs depending on their function. An increasing number of enterprises have entered bankruptcy procedures with the aim of re-organisation or liquidation amid rapidly increasing defaults, but bailouts still happen.
Continue to gradually liberalise deposit interest rates while enhancing financial stability through measures such as provisioning for actual bad loan exposures, including off-balance sheet loans.	Since October 2015, commercial banks and rural cooperative financial institutions are no longer subject to a deposit rate cap. The CBRC's April 2016 Document 82 introduced increased provisioning requirements by banks for exposures to off-balance sheet loans held as derivative products on their balance sheets.

Loosening fiscal policy, tax reforms and inter-governmental fiscal relations

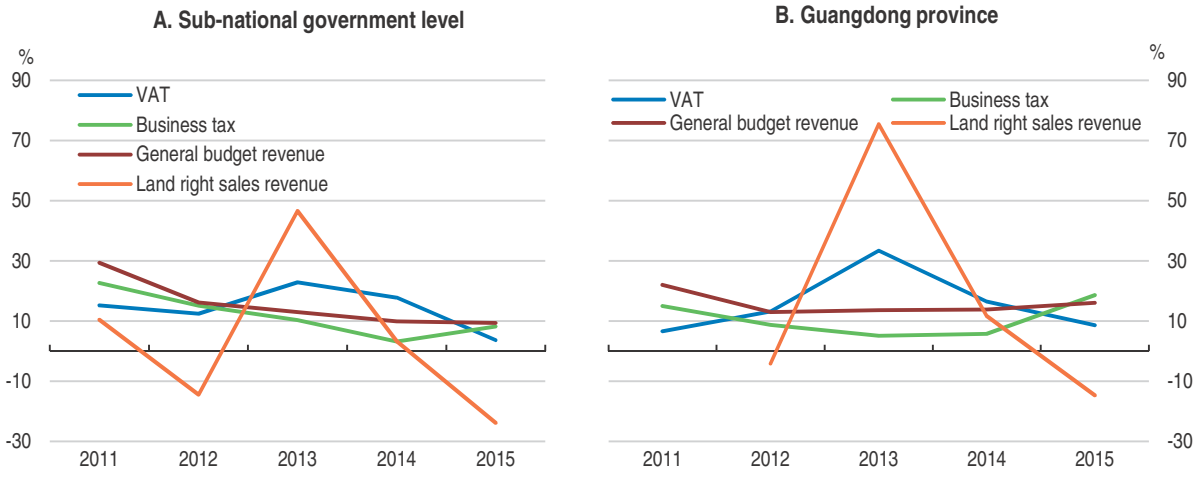
Fiscal policy is becoming increasingly expansionary to support growth. Even though there appears to be ample fiscal space as government debt is relatively low, future spending pressures related to ageing, the extension of the social safety net and the provision of public services call for more prudent fiscal policy. In addition to direct spending through the government budget, quasi-fiscal spending through policy banks, which have been recently re-capitalised, has also been rapidly rising. Interest subsidies make funding very cheap for selected government projects and entail risks of capital misallocation. Local government investment vehicles, which had transferred part of their debt to subnational governments, have been allowed to borrow again, which may lead to another round of government debt accumulation (Box 4).

Assessing the fiscal position is hampered by the poor quality, coverage and timeliness of fiscal data. Among the four budget accounts only the general budget account is published on a monthly basis; the fund budget, the social security fund and the state-owned capital management account are available annually and with a lag. Moreover, central stabilisation fund, sub-national budget adjustment and debt repayment data, which are needed to calculate the headline deficit, are also published with a lag. Furthermore, debt data at the sub-national level are not published regularly.

The transformation of the business tax levied on services into a value-added tax (VAT) was completed in May 2016 with finance, construction, real estate and personal services also moving to VAT. This move has significantly enhanced the neutrality of China's indirect tax system, in line with international standards. As the government pledged, the tax reform lightened the burden on firms, implying reduced budget revenues at the sub-national level as business tax revenues accrue to sub-national governments while the VAT is shared between central and sub-national authorities. Indeed, business tax revenues have been sliding as the tax is being phased out (Figure 13, Panel A). In 2013, sub-national governments resorted massively to land-right sale revenues to make up for the shortfall (Panel B). A fall in real estate prices would lower revenues from land-right sales and cause difficulties in provinces and municipalities such as Chongqing, Anhui or Zhejiang, where land-right sales revenues made up over 40% of revenues in 2014 (Figure 14). To make up for

Figure 13. **The tax reform reduced sub-national revenues, prompting sub-national governments to draw on other sources**

Changes in selected revenue types



Note: The VAT and the business tax are recorded on the general budget account, the main among the four budget accounts, while land sales appear in the government fund budget account.
Source: Ministry of Finance and Guangdong Finance Bureau.

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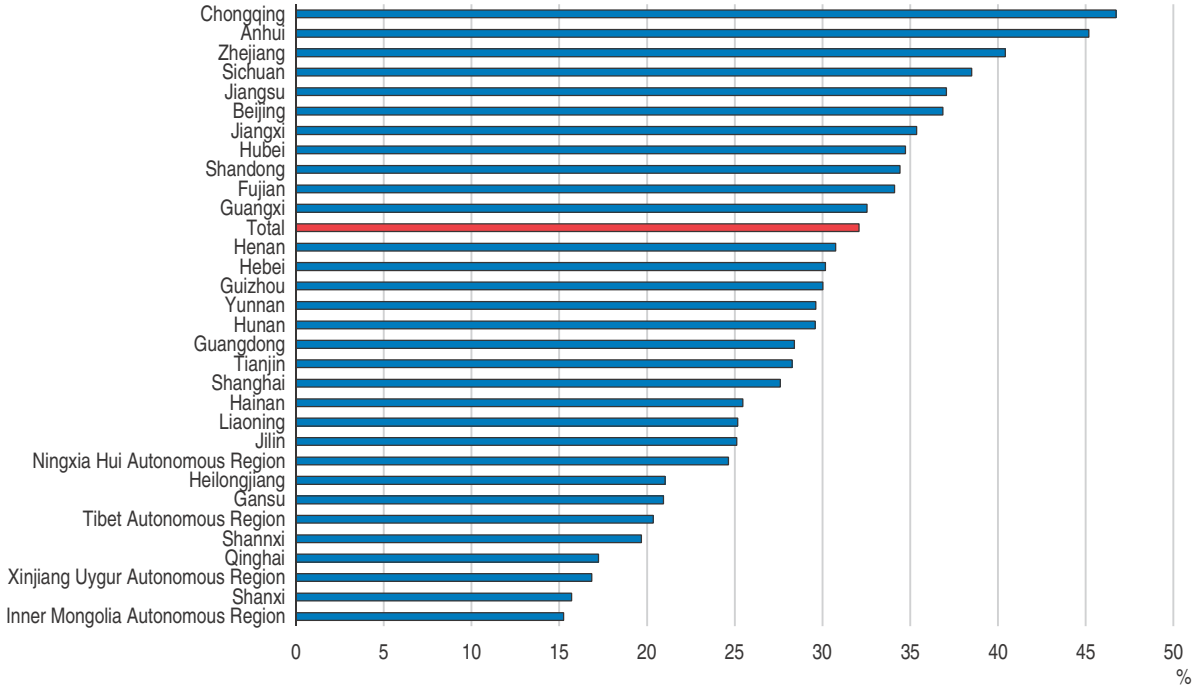
Figure 14. **Some sub-national governments rely heavily on land-related revenue**

Share of land right sale revenue to total revenue in 2014



Note: Sub-national fiscal revenue is defined as the sum of general budget account revenue and fund account revenue.
Source: Sub-national Audit Offices and Finance Bureaus.

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the lost revenue so that long-term fiscal sustainability is not endangered, tax reforms in other areas need to continue. Potential sources of revenue include a more progressive personal income tax, and more comprehensive taxation of income beyond wages (including rent and other types of income) as well as a recurrent tax on immovable property and an inheritance tax. There is also ample room to raise environmental taxes. A fairer tax system would help reduce income and wealth inequalities and make growth more inclusive (see below).

Imbalances between revenues and spending mandates (Box 3) at the sub-national level (Figure 15) have persisted for decades (OECD, 2006). The higher degree of decentralisation of expenditure responsibilities relative to revenues has led to financing

Box 3. **Revenue and spending assignments across government levels**

The most recent major change in inter-governmental fiscal relations is the 1994 tax sharing reform, which achieved a higher central government revenue share. Since then, sharing rules have been modified for some taxes, but the system as a whole remained unchanged. The major tax revenues are subject to explicit sharing formulas between the central and provincial governments. The VAT is shared in a 50:50 proportion temporarily as the business-tax to VAT conversion deprived sub-national governments of a major revenue source (prior to the conversion 75% belonged to the central and 25% to sub-national governments). Income taxes are shared in a 60:40 proportion between the central and sub-national governments (corporate income taxes paid by financial institutions and the railway corporation and personal income taxes on interest income belong to the central government). Resource taxes belong to sub-national governments except offshore oil taxes, which are assigned to the central level. The central level has few tax sources exclusively assigned to it, though tariffs are. In contrast, several smaller taxes such as the contract tax and taxes on land use are assigned exclusively to the sub-national level. While these taxes are reported on the general budget account, some of the major revenue items for many sub-national governments, such as revenue from land right sales, are on the fund account.

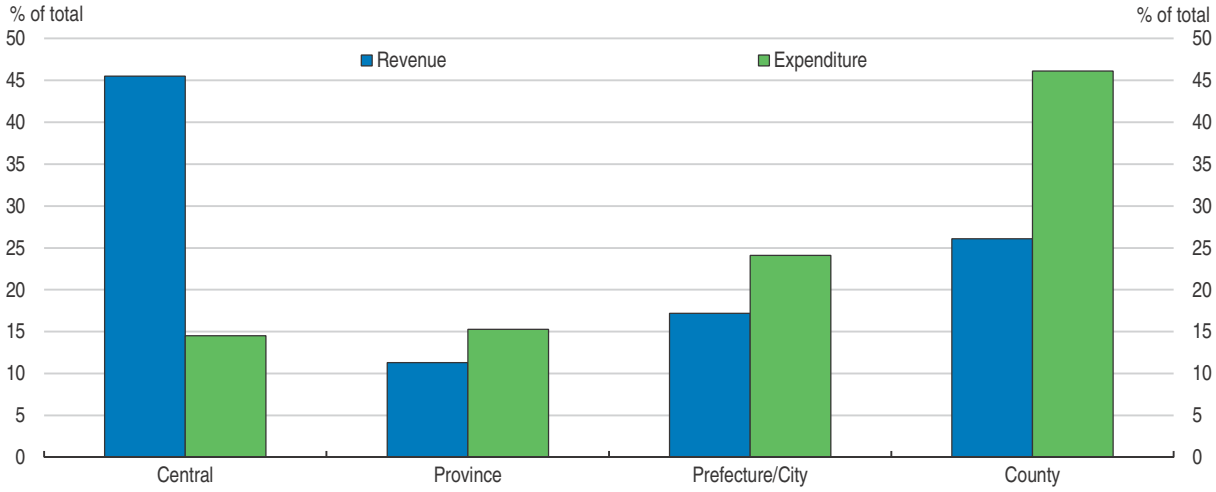
Spending is even more decentralised than revenues. The central government is in charge of national defence, armed police troops, diplomacy and external assistance and the national-level public security agency, procuratorial agency and court of justice. Sub-national governments are responsible for social-security-related spending, price subsidies, and sub-national public security and procuratorial agencies and courts of justice. Infrastructure investment is shared, with the central government being in charge of projects of national or interregional nature and sub-national governments of projects within their jurisdictions. Culture, education, science and public health are also shared according to similar principles. In general, however, assignments are not very clear and often overlap. The 2016 Guiding Opinion by the State Council aims at clarifying spending assignments between the central and sub-national levels. The details of the exact assignment of spending by item will be worked out by 2020. The Guiding Opinion designated some items, such as compulsory education as shared expenditure. In fact, the central government has already been supporting sub-national governments with financing the costs of several spending items that are assigned to the sub-national level such as compulsory education and poverty reduction.

Sharing of revenues and spending below the province level is determined at the discretion of the province.

Source: OECD (2006) and various State Council and Ministry of Finance documents.

Figure 15. **Fiscal revenue is mostly collected by the central government but mostly spent at county level**

2015



Note: Due to data availability, data are limited to the general public finance account and do not include the fund account, the social security funds account and the state-owned capital management account.
Source: Public Finance Yearbook 2016 and sub-national Finance Bureaus.

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gaps at the sub-national level, which are only partially filled by fiscal transfers. Unfunded mandates, in particular at the lowest government levels, have caused insufficient or low-quality public service provision and have contributed to persisting inequalities. Improving the alignment of revenues with spending mandates should also reduce disparities in the generosity of public social security systems between locations, lowering inequalities (see below). A better alignment between revenues and expenditures will entail a combination of changes in expenditure and revenue assignments along with reform of the fiscal transfer system. Centralisation of some spending assignments may be more effective in reducing inequalities in the provision of public goods and services than devolution of revenue-raising powers given that greater taxing powers would further aggravate already high income inequalities and necessitate higher transfers. Potential candidates for centralisation could include crucial public services such as education and health to ensure a minimum quality. Establishing a graduated system of tax sharing under which poorer provinces would receive a higher proportion of shared revenues than wealthier provinces, and making transfers to poorer provinces conditional on improvements in their tax collection could also be considered (OECD, 2006).

Box 4. **Past recommendations for fiscal reform and actions taken**

OECD 2015 Survey recommendations	13th Five Year Plan and policies directly related to OECD recommendations
Improve fiscal transparency and sustainability	
Increase fiscal transparency and sustainability including by permanently prohibiting local government investment vehicles from taking on new debt.	Since 2015, the Ministry of Finance (MoF) has disclosed the final budget by economic classification and 103 public institutions disclosed their budget performance data. In 2015 the MoF converted CNY 3.2 trillion of local government debt into bonds and adopted debt cap management. The prohibition of local government investment vehicles from taking on new debt was short-lived, however, and now they are once again major participants in urban infrastructure construction and their debt issuance has even been simplified. The MoF now sets a debt issuance limit at the beginning of the year for each province, which also serves as a criterion to assess the performance of local officials.

Rebalancing growth

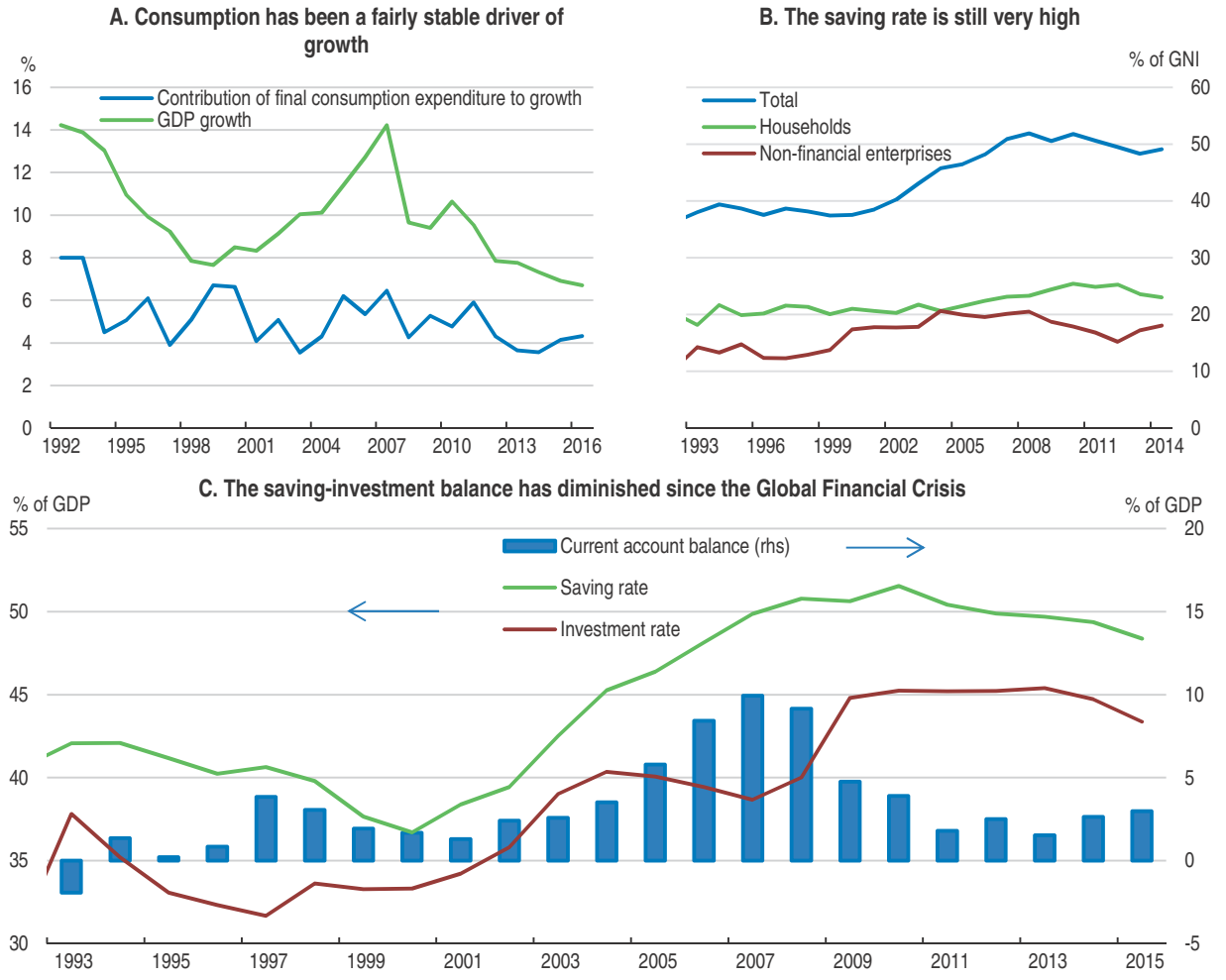
As China converges towards the advanced economies, it is undergoing a number of transitions that will make for more sustainable and inclusive growth. Rebalancing from investment to consumption is under way, as investment slows. The declining return on investment has increased labour's share of income. Rebalancing from manufacturing to services is also advancing. Even so, as highlighted in the *2015 Economic Survey*, there is ample room for services to grow faster. To that end, more relaxed entry regulations and a level playing field in areas such as taxation and access to government support are needed. The recent completion of the business-tax-to-VAT reform will facilitate that process by increasing demand for service outsourcing. Another transition is from external to domestic demand, with a sharp reduction in the current account surplus since the mid-2000s. Last but not least, China seeks to transition from a middle-income to a high-income or "moderately prosperous" society by 2020. This requires more equitable and greener growth and improvements in social infrastructure, which would reinforce the other transitions by boosting consumption and demand for services.

Urbanisation alone cannot reduce high saving rates: better social security and public services are needed

China's shift to a more consumption-led growth pattern has mainly been driven by the deceleration in investment rather than a surge in consumption as the contribution of consumption to growth has been relatively stable around 4 to 6 percentage points over the past two decades (Figure 16, Panel A). The household saving rate, however, remains very high (Panel B). Moreover, the saving-investment imbalance has come down since the Global Financial Crisis as a result of a jump in the investment rate, not of a fall in the saving rate (Panel C). Consumption can be substantially boosted only by reducing the need for people to save for old-age security, health and education, by providing access to similar-quality public services nationwide, and by ensuring employment opportunities for workers who become redundant as sectors suffering from overcapacity adjust.

The government plans on 100 million rural residents resettling in cities by 2020, and on extending the social coverage and other benefits of urban residence for another 100 million migrant workers who already reside in cities but are excluded from such benefits. This will raise consumption. Judging from a representative set of household micro-data (Molnar, Chalaux and Ren, 2017), migrant workers spend 50% more than rural

Figure 16. **The saving rate is still very high**



Note: Saving by sector from the flow of funds account until 2014 and projections for 2015.
Source: CEIC database.

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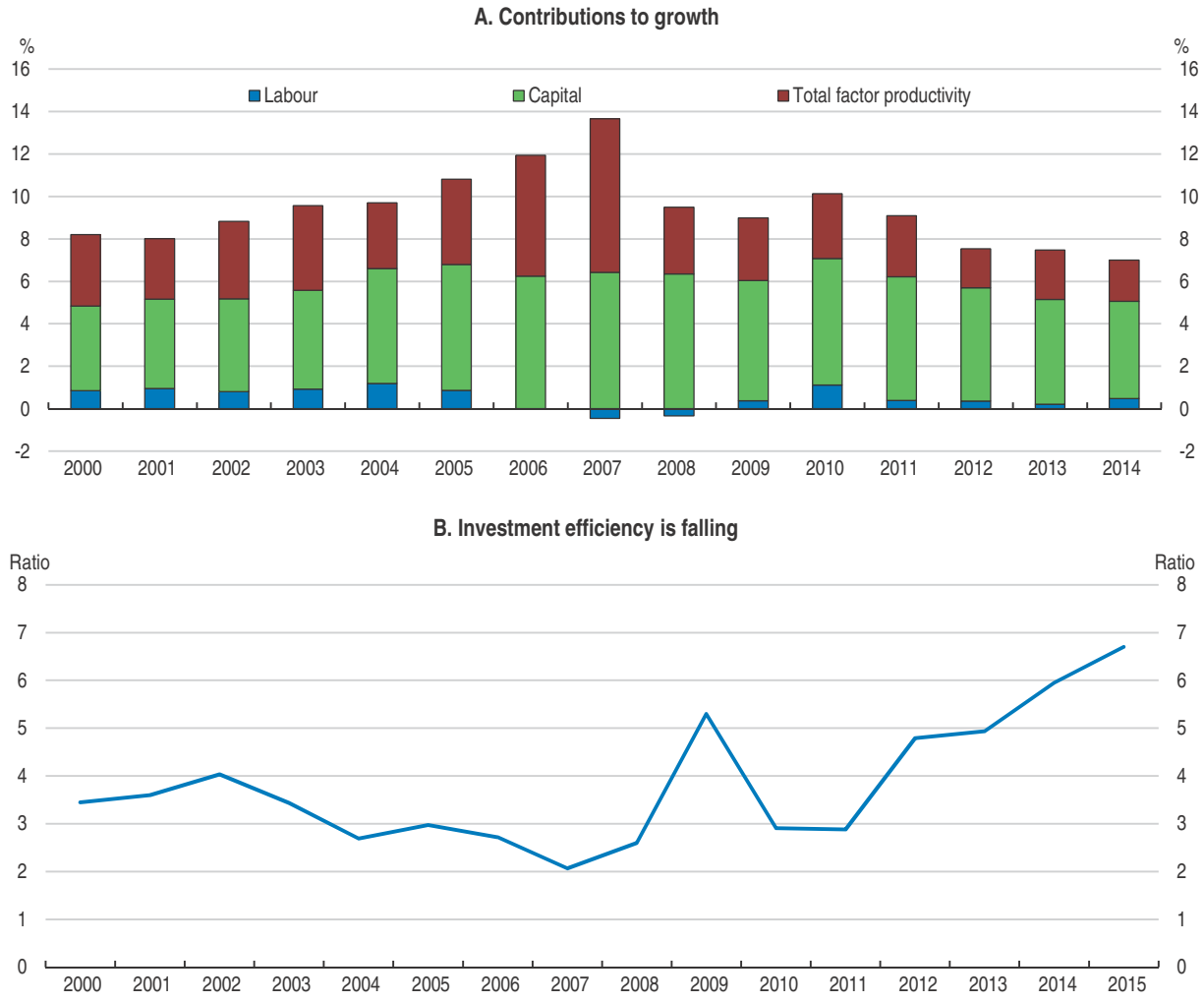
residents and urban residents 60% more than migrant workers. To boost overall consumption, inclusive growth policies that provide social security coverage and public services regardless of the location and residential status of individuals are needed.

Boosting productivity is essential to ensure sustainable growth

On the supply side, capital accumulation has long been and remains the major driver of growth, notwithstanding the slowdown in investment (Figure 17, Panel A). The contribution of total factor productivity to growth has decreased in recent years, as it has in many OECD countries (OECD, 2015d). This can partly be ascribed to the misallocation of capital resulting from the mega-stimuli through local government investment vehicles during the Global Financial Crisis (Bai et al., 2016). The ongoing digitalisation wave is expected to boost productivity. Even though China still needs to build capital in many areas where it lags behind (such as rural and agricultural infrastructure, urban underground structures and environmental facilities), the efficiency of its investment has fallen (Panel B). Many service sectors remain partly off limits to private and foreign investors,

Figure 17. **Capital accumulation still drives growth, though the efficiency of investment is falling**



Note: Investment efficiency is measured by the incremental capital-output ratio, i.e. the amount of capital needed per extra unit of output, expressed as a ratio. It is calculated as a ratio of the investment rate and the change in GDP.
Source: Authors' calculations based on the Asian Productivity Organisation's Productivity Database and OECD Economic Outlook 100 Database.

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holding back potential economy-wide productivity gains. Beyond their direct impact on the degree of competition in the restricted services sectors, a key risk is that low productivity in these sectors indirectly constrains productivity growth in downstream sectors. China would likely benefit from greater efforts to improve its FDI regime in this respect. Evidence suggests that open and efficient markets for services are fundamental to underpin participation in global value chains and hence to facilitate the diffusion of new technologies (OECD, 2015d). Besides, intensified anti-corruption efforts will likely contribute to a better allocation of capital and a more efficient use of public funds.

Productivity-enhancing reforms are needed all the more as the population is ageing rapidly and the labour force is shrinking both in absolute and relative terms. Even under a scenario of a gradual increase in the number of children to two by 2050, the population would peak in 2030 at 1.43 billion. Furthermore, while empirical research found that parents can improve their old-age support by having more children (Oliveira, 2016), survey

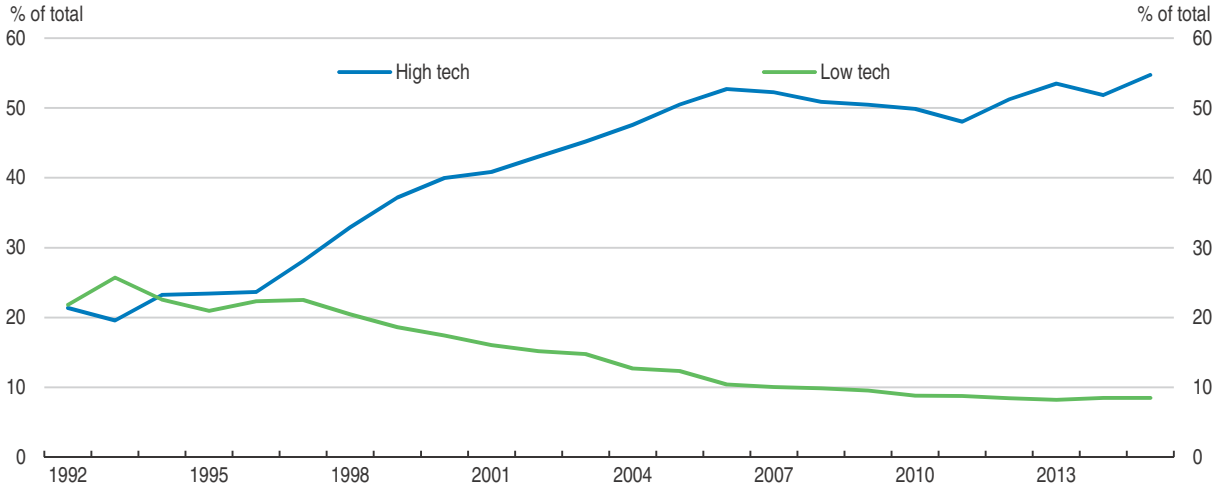
data show that the policy change will have a limited impact in the short term as many respondents worry about the cost of raising an additional child, feel too old to have one more child or women in cities prefer to pursue their career. In this context, improvements in public support for the elderly will be key (see below). Digitalisation and automation will at least partially make up for the shrinking labour force and help keep wage increases under control.

Informality in labour markets also hinders productivity growth. The lack of labour contract (60% of migrant workers had no contract in 2015) and social security contribution by employers of migrant workers encourages high turnover rates and therefore hampers the accumulation of skills (Li and Ning, 2016). Informality is also prevalent in the financial sector, where private lending eases the financing constraints of mainly private firms (Xu and Pan, 2016). Interest rates charged, however, are sometimes beyond the legal ceiling. Such usury lending imposes excessive costs on borrowers and pushes them to chase short-term returns instead of long-term productivity improvements.

Growth has become less dependent on external demand

China's growth has long been driven largely by external demand, with foreign companies setting up assembling plants for re-exports and exploiting labour cost advantage. The rapid expansion of production capacity led to extraordinary rates of trade growth and foreign direct investment was an important source of capital. This trend stalled in the mid-2000s, as the improvement of living standards and the rise in labour costs encouraged a growing number of foreign companies to consider China as a market rather than just the world's factory. Indeed, Chinese demand for foreign high-tech goods has increased considerably (Figure 18). Concomitantly, as Chinese firms move up the value chains, an increasing share of value added is produced domestically (Box 5). However, the Belt and Road initiative will likely facilitate new forms of international economic integration (Box 6).

Figure 18. **High-tech goods imports are rising fast**



Note: The figure is based on the technology classification of Lall (2000). Medium tech goods have been excluded from the figure.
Source: UN Comtrade.

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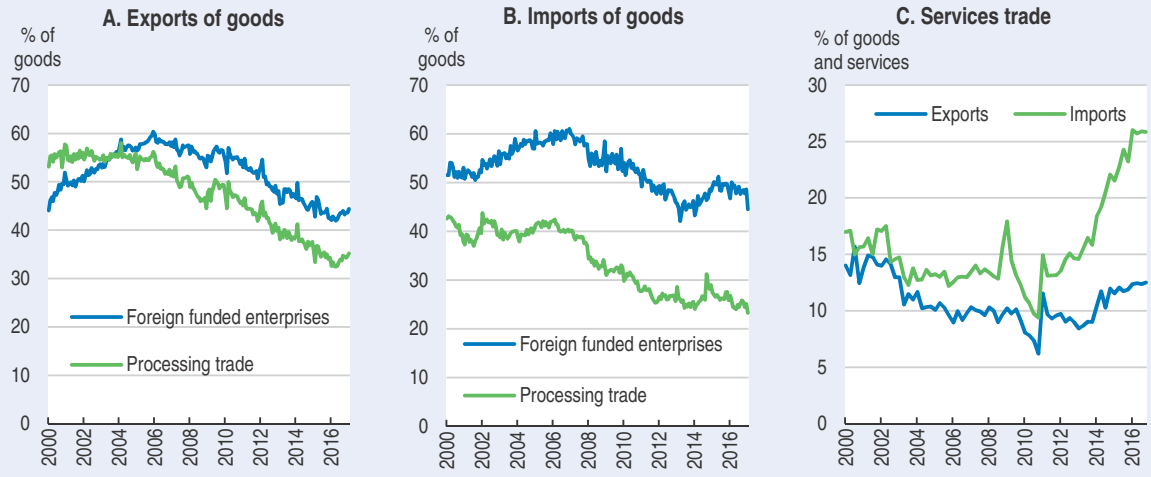
Box 5. **The evolution of China's foreign trade and FDI patterns**

The share of processing trade has been falling since the mid-2000s. Accordingly, the share of foreign-funded enterprises in goods trade has diminished continuously (Figure 19, Panel A). The trend decline in their imports has reversed since 2013, however, reflecting the growing affluence of Chinese consumers (Panel B). Imports of services have been rising fast following the improvement of living standards (Panel C).

Figure 19. **The evolution of the trade structure reflects rebalancing**



Note: Panels A and B use customs trade series, Panel C balance of payments data.
Source: CEIC.

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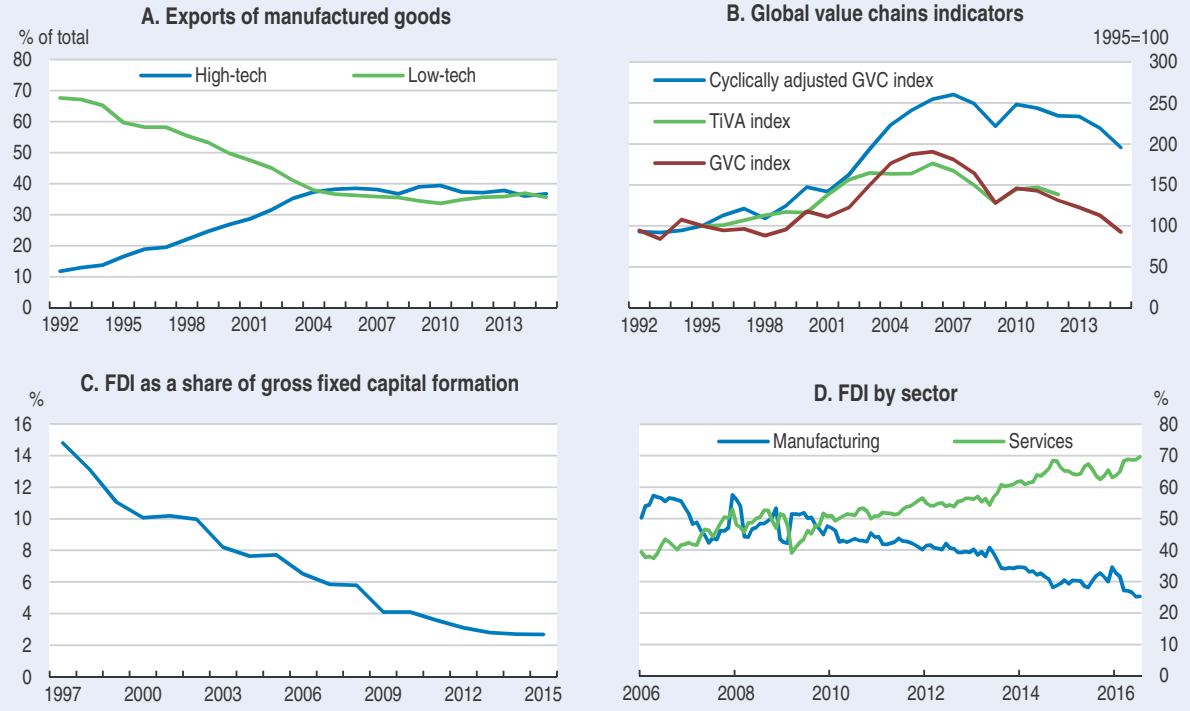
The share of high-tech exports quadrupled between 1992 and 2005, to nearly 40%, but has remained stable thereafter. Concomitantly, the low-tech export share fell from around 70% to nearly 40% and also stabilised at that level (Figure 20, Panel A). Falling shares of processing or of foreign-funded company exports show that Chinese companies are more and more involved in the various steps of the production process, suggesting an increase of the domestically produced share of value added. This is confirmed by other studies (IMF, 2016b) and by recent estimates of the value-added embedded in global value chains (Panel B). The share of imported intermediate inputs in final domestic demand rose from 14% in 2000 to 23% in 2006 but then fell back to 11% by 2015.

The shift of FDI from export-processing manufacturing to services confirms that China is an increasingly attractive consumer market (Panel D). The share of FDI in overall investment has shrunk considerably over the past two decades, to only 2.7% in 2015 (Panel C). The recent FDI reform in October 2016 to move from an approval-based to a filing system will bring China's FDI regime closer to international levels of openness. As the OECD's FDI restrictiveness index indicates, China is one of the top reformers. Many service sectors, however, remain off-limits to foreign investors, which limits efficiency gains, inter alia by curtailing competition in those sectors.

Box 5. **The evolution of China's foreign trade and FDI patterns** *(cont.)*

Figure 20. **Technological upgrading and on-shoring are gaining momentum while FDI, especially in manufacturing, loses importance**



Note: Panel A is based on the technology classification of Lall (2000); manufactured goods are defined as all the non-primary or resource-based goods. In Panel B, the TiVA index, based on the analysis of input-output tables, refers to foreign value added embodied in final domestic demand. The GVC index, developed as a more timely proxy for the TiVA index, is the ratio of intermediate imports to final domestic demand in nominal terms. To control for the impact that commodity price fluctuations have on imports of intermediate goods, the cyclically-adjusted real GVC index has been computed based on the volumes of intermediate imports and final domestic demand and with cyclical fluctuations removed. In Panel D, services exclude utilities and construction.

Source: UN Comtrade database, OECD Trade in Value Added Database, OECD STAN Bilateral Trade Database, CEIC database.

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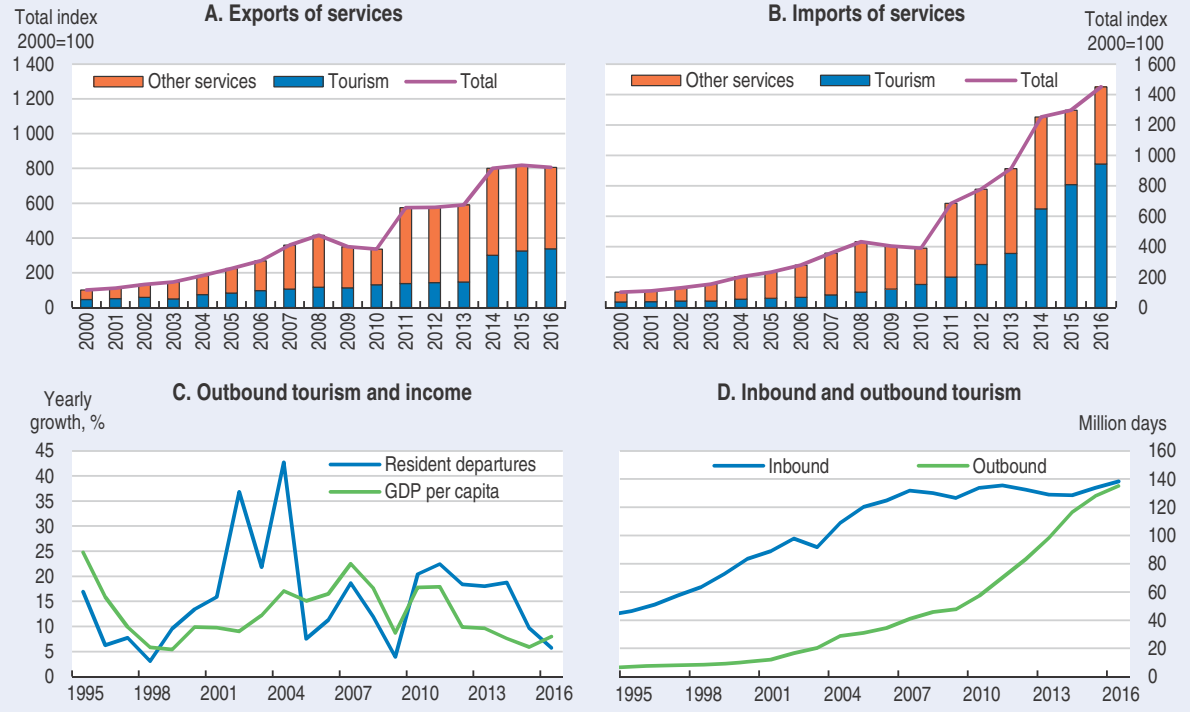
Services imports have surged since the beginning of the 2010s, to more than a quarter of total imports by the first half of 2016. Higher incomes and easier visa requirements since the early 2000s boosted tourism, with almost 130 million days spent by the Chinese to travel abroad in 2015 (Figure 21, Panels C and D). Tourism also constitutes the biggest share in services exports, but it has been growing much less rapidly than imports (Panels A and B).

Box 5. **The evolution of China's foreign trade and FDI patterns** *(cont.)*

Figure 21. **Services imports are growing rapidly**



Source: CEIC.

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Boosting corporate performance and entrepreneurship

Labour productivity has increased very rapidly in China, in particular in manufacturing (Figure 22). With growth worldwide, and in China, having slowed and profitability being on a declining trend, corporate behaviour in China needs to change and focus more on efficiency and sustainability to ensure continued catch-up with the most advanced OECD countries. To this end, supportive policies are needed, fostering an environment that is more conducive to innovation and entrepreneurship, and facilitating resource reallocation through the exit of unviable firms. At the same time, corporate governance practices must improve and State assets need to be better managed.

Innovation and entrepreneurship will drive growth

China boasts remarkable scientific and technological achievements in a wide range of areas, including 3D printing, nanotechnology and robotics (OECD, 2017b). Looking ahead, it needs to fully harness science, technology and innovation as a source of growth. Innovation features among the five keywords of the current Five-Year Plan and was included in the G20 agenda on China's suggestion during its presidency. Gross expenditure on R&D slightly exceeded 2% of GDP in 2014, in line with that of the EU15 economies but still behind major innovators such as the United States and Japan. However, research personnel, as a share of the total employed, has not kept up with R&D outlays (Figure 23). Research money has mostly been spent on developmental rather than applied research and only 5% of the total was channelled to basic research (as against 18% in the United States and 12% in Japan).

Box 6. **The Belt and Road Initiative**

The Belt and Road Initiative (Table 2) is a large project aiming at improving regional cooperation through better connectivity among countries lying on the ancient Silk Road. It includes the Silk Road Economic Belt for the land part and the 21st Century Maritime Silk Road for the naval part. At the start, it involved 64 countries but its scope has since broadened to over 100.

The roadmap issued by the NDRC in March 2015 underlines the five priorities of the Initiative: policy coordination (promoting intergovernmental cooperation), facilities connectivity (improving road, energy and information infrastructure), unimpeded trade (removing trade and investment barriers), financial integration (deepening of financial cooperation, expansion of bilateral currency swaps and settlements, establishment of new financial institutions) and people-to-people bonds (promotion of cultural and educational exchanges, enhancing cooperation on tourism and epidemic information). The Initiative also includes strengthening environmental and energy cooperation.

A number of institutions will help fund the Initiative, including the recently-created Asian Infrastructure Investment Bank.

Table 2. **Belt and Road in numbers**

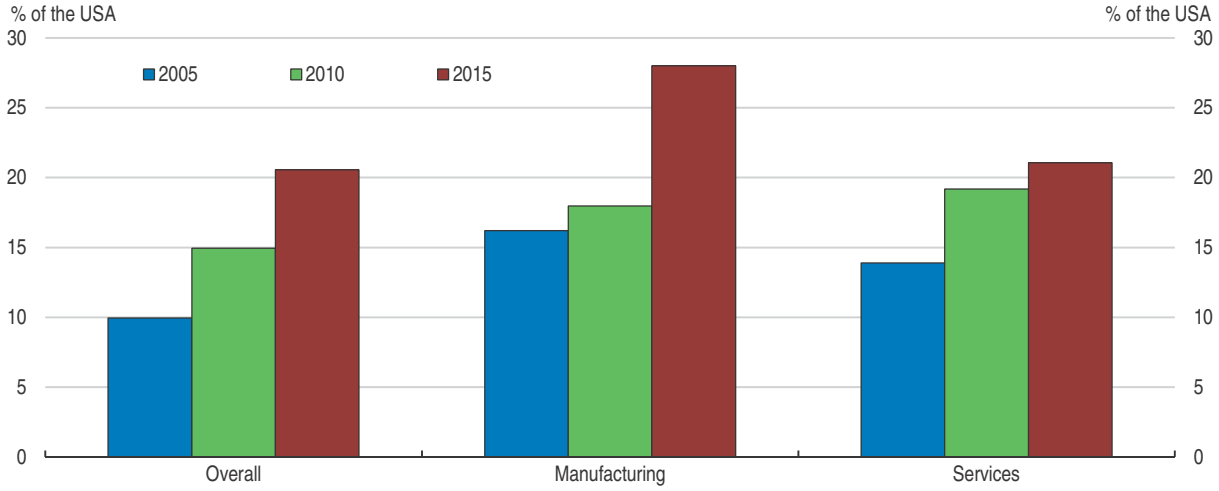
	General			Outward investment		Overcapacity			Energy		Infrastructure	
	Population	GDP	GDP growth	Annual	Cumulated	Iron and steel	Aluminium	Cement	Oil	Gas	Quality of port	Logistics performance
	2015, Mn	2015, Bn USD at current PPP	2010-15 annual average %	2015, Bn USD	2010-15, Bn USD	% of China exports			% of China imports		Index	
China	**1 371**	**19 524**	**7.8**								**0.65**	**0.73**
Southeast Asia	632	6 940	5.1	14.6	46.1	25.5	31.4	13.0	7.3	17.6	0.56	0.60
South Asia	1 712	9 799	6.4	1.1	4.4	8.1	5.4	3.0	0.2	0.0	0.46	0.48
Central Asia	200	2 462	2.4	-2.9	9.6	3.5	1.5	2.8	8.1	32.6	0.40	0.45
Middle-East and Africa	193	4 521	6.2	2.8	7.8	11.0	8.0	16.3	37.9	27.2	0.59	0.54
Central and Eastern Europe	322	6 925	1.4	3.2	8.1	1.9	2.5	3.1	11.7	0.4	0.55	0.58
64 countries initially included	**3 058**	**30 648**	**3.8**	**18.9**	**76.0**	**50.0**	**48.7**	**38.2**	**65.3**	**77.9**	**0.51**	**0.53**
Rest of the world	**2 917**	**63 440**	**1.6**	**126.8**	**531.9**	**50.0**	**51.3**	**61.8**	**34.7**	**22.1**	**0.57**	**0.40**
World	**7 347**	**113 613**	**2.6**	**145.7**	**607.9**	**100**	**100**	**100**	**100**	**100**	**0.58**	**0.55**

Note: This table draws on the non-exhaustive list of 64 countries originally included in the Belt and Road Initiative. The quality of port and logistics performance index averages are not weighted by country size. The quality of port index measures business executives' perception of their country's port facilities; the logistics performance index measures the logistics professionals' perception of a country's quality of trade and transport-related infrastructure; both indices are scaled from 0 to 1, 0 indicating the worst and 1 the best score.
Source: World Bank *World Development Indicator* database, IMF *World Economic Outlook* database, UN *Comtrade* database, CEIC, World Economic Forum *Global Competiveness Report*, Turku School of Economics.

The number of patents has also soared, but their impact on productivity has declined, largely reflecting quality and relevance issues. Most Chinese patents fall in the categories of utility or design patents and only a small share are genuine inventions. Furthermore, only a fraction of Chinese patents are registered in the United States, the European Union and Japan and Chinese researchers are weakly linked to global networks. Intellectual property right (IPR) enforcement is perceived as a serious problem: two-thirds of firms think that patent rights cannot effectively prevent others from copying their inventions. In addition to IPR protection, most firms try to reap the first-mover advantage by quickly marketing their

Figure 22. **Labour productivity has caught up fast**

Labour productivity as percentage of the US level



Note: Labour productivity is expressed as a percentage of the US level by using 2010 prices and PPPs.
Source: Authors' calculation based on the Groningen Growth and Development Centre's World Input-Output Database.

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invention, signing confidentiality agreements with staff or changing products quickly so that competitors cannot catch up. Specialised intellectual property courts have been set up since 2014 in Beijing, Shanghai and Guangzhou. Together, they dealt with around 8% of all concluded IPR cases in 2015 (Supreme People's Court of the PRC, 2016).

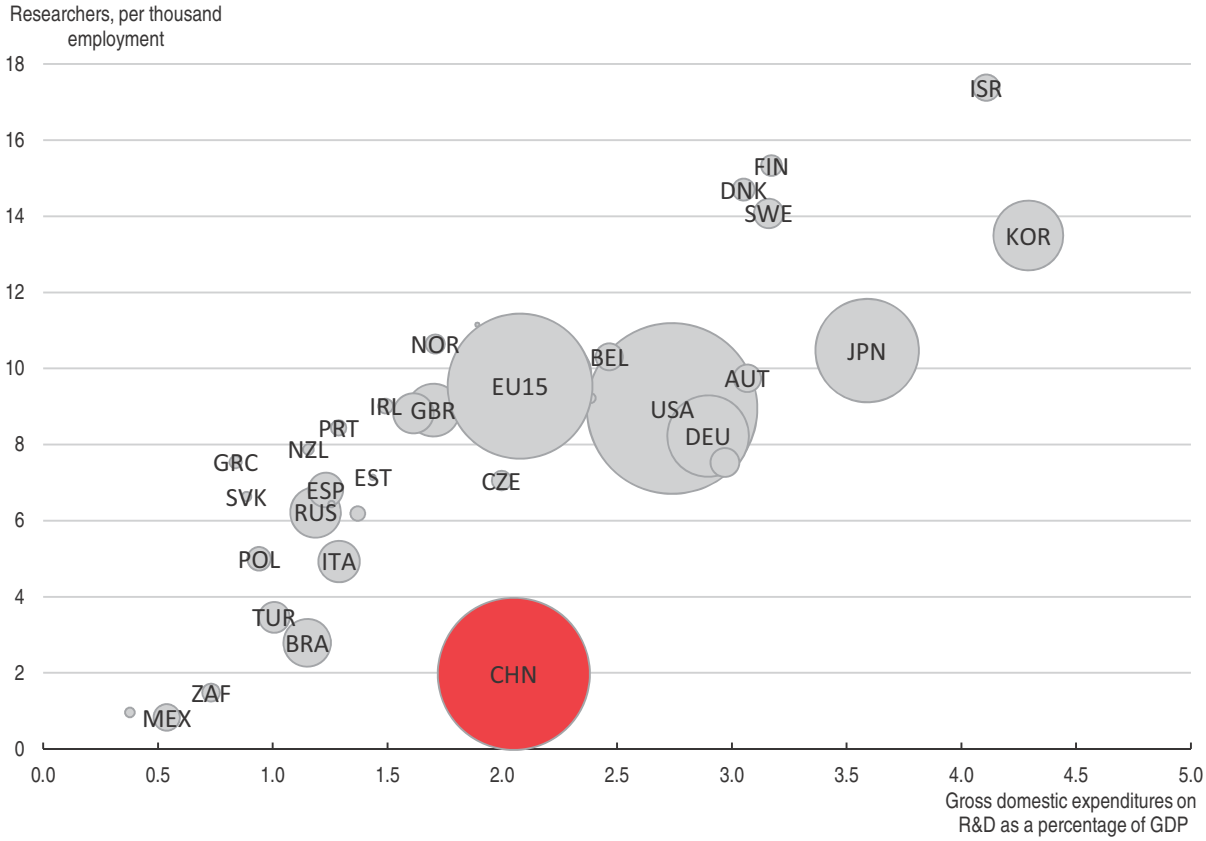
The innovation system has traditionally favoured state-owned enterprises and new and high-tech industries (Zhao et al., 2011). Public funding has been geared to SOEs, public research institutions and frontier projects. In this spirit, subsidies have been extended to firms in high-tech industries. The designation as high and new-technology enterprise, however, is done in differing ways across the country, creating an uneven playing field. Moreover, the 2016 revision of the definition includes more stringent standards for IP ownership implying that foreign firms with global innovation activities may no longer be able to obtain this status. Since the late 1990s, sub-national governments provide exemptions from fees or offer prizes for successful patent filers and around 70% of individual filers have benefited in recent years. Since September 2016, they have been eligible for an exemption of up to 85% of fees related to the application, examination, maintenance and re-application of a patent. Streamlining patent subsidy policies could lead to higher quality and more relevant patents.

Another recent measure is to grant company shares to technology personnel in technology-oriented SOEs to reward good performance. The specific scheme, which is still to be released, should strike a balance between being sufficiently attractive to encourage better research performance and avoiding the leakage of state assets.

Business creation, which is an important source of innovation and productivity growth, has accelerated recently as over 350 administrative procedures were either abolished or delegated to the sub-national level. The easing of administrative burdens on start-ups and streamlining of procedures have reduced overall barriers to entrepreneurship (Figure 24). In 2016, 16.5 million new business entities were registered, making up nearly 19% of all registered business entities. Nevertheless, the business environment needs to be more entrepreneurship-friendly.

Figure 23. **China has become a major R&D power, but the share of researchers is low**

2014 or latest year available



Note: The size of the bubble indicates the size of spending in absolute terms measured in 2010 USD PPP prices.
Source: OECD.

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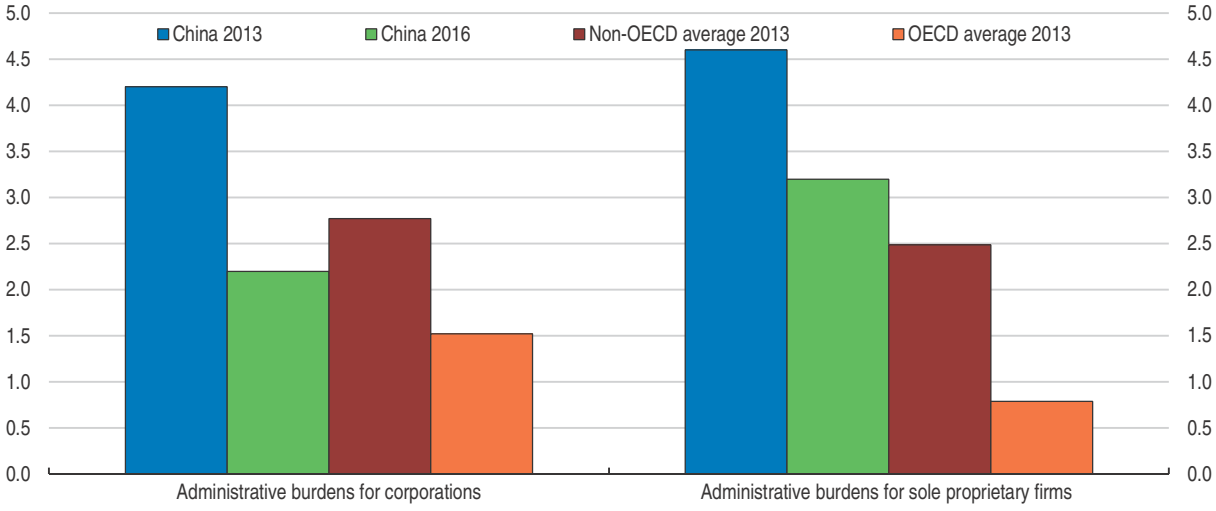
Competition remains low in many sectors, particularly in network industries. Introducing competition into, for instance, the energy sector and shifting towards retail prices that reflect actual costs of generating, transmitting and distributing electricity and incorporate the environmental costs of carbon-generated energy are key ways to enhance efficiency. Moreover, oligopolistic market conditions in some sectors, such as internet services, hinder the formation of start-ups as the platforms which are the basis for applications are owned by a few large players. Mandatory sharing of internet platforms would facilitate the commercialisation of computer applications and thus boost start-ups where entry costs are otherwise relatively low. In contrast, companies in manufacturing industries and some services sectors, such as retail or land transportation, engage in cut-throat price competition. Many of those are private firms focusing on cutting costs, hardly investing in innovation and often endangering product quality and environmental safety. Establishing and enforcing standards while raising consumer awareness and enhancing consumer protection would help promote fair competition, provided such efforts do not unduly raise barriers to entry.

Steps taken to facilitate firm creation should be accompanied by measures to ensure that unviable firms exit the market. By 2013, around half of all steel mills and nearly half of all developers were making losses but could still obtain loans, or were unable to service

Figure 24. **Barriers to entrepreneurship are falling rapidly**

Barriers to entrepreneurship component of the OECD Product Market Regulation indicator, 2013 and 2016



Note: The value of the indicator ranges from 0 to 6, with 6 being the most restrictive.
Source: OECD Product Market Regulation database and OECD updates for China for 2016.

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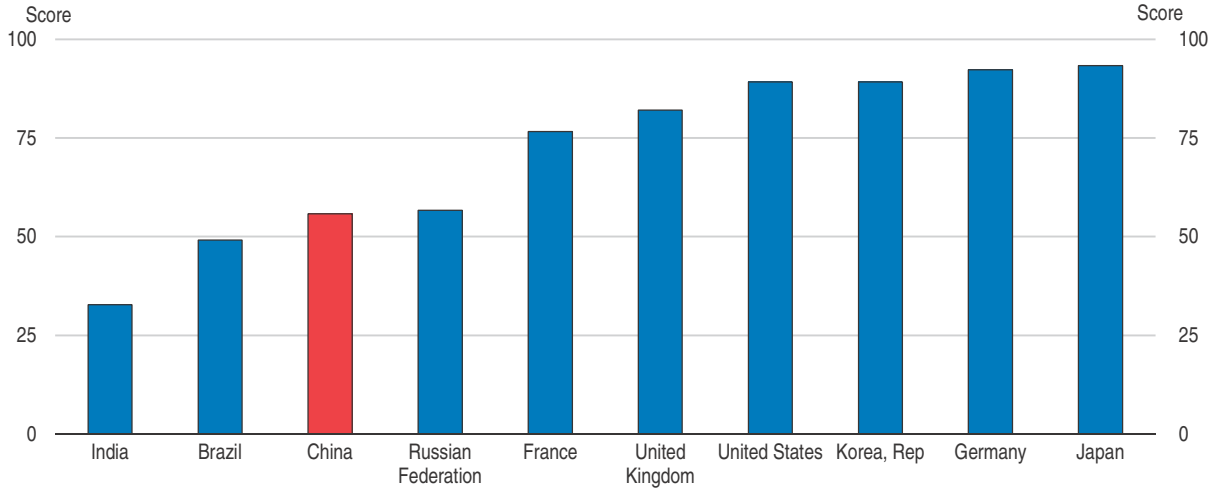
their interest payment obligations (National Academy of Development and Strategy of Renmin University, 2016). Zombie companies, mainly SOEs in sectors plagued by excess capacity, take up vast resources that could be allocated for more productive purposes. OECD research shows (Adelet McGowan et al., 2017) that zombie-firms aggravate capital misallocation and by preventing more efficient firms from expanding, also drag down productivity. Major impediments to bankruptcy initiation include the lack of a feasible and acceptable worker compensation plan and resistance at the local level. The length and high degree of uncertainty associated with the bankruptcy procedure (Figure 25) may also discourage firm managers to choose this form of exit. To overcome local opposition stemming from the stigma effect of bankruptcy, local officials' progress in eliminating excess capacity is now included among their performance evaluation indicators.

Although at the time of its enactment in 2006 the new Bankruptcy Law was considered progressive and well-suited to the increasingly market-based economy, China's economy has undergone significant changes since, with which the bankruptcy legislation needs to keep up, particularly as regards conditions for bankruptcy and law coverage. Compensation plans for workers should not be a condition for filing bankruptcy. Instead, workers should be compensated according to relevant laws. Financial institutions are still not covered by bankruptcy legislation and their insolvency process follows ad hoc rules. The legislation makes it possible to convert a liquidation case into a reorganisation one if creditors, who control the insolvency practitioner, wish to do so. Creditors may be demotivated by the fear of increased non-performing loans in case of liquidation of their client or by uncertainty related to the insolvency procedure. Uncertainty needs to be reduced by setting clear and reasonably short deadlines for each stage in the insolvency procedure. A major obstacle to getting rid of public zombie companies is the obstruction of the insolvency process by the insolvency manager for fear of state asset embezzlement. The ongoing reform aiming at specialisation of the industry by establishing bankruptcy divisions in intermediate courts in provincial capitals and No. 2 cities in provinces will likely increase the efficiency of case

Figure 25. **Insolvency procedures lag behind major OECD economies**



Note: The frontier is 100 and the score reflects the time, cost and outcome of insolvency proceedings involving domestic entities as well as the strength of the legal framework governing judicial liquidation and reorganisation.
Source: World Bank Doing Business 2017 database.

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handling. Shenzhen has been a pilot and by July 2016 15 provinces had introduced this new system. A simplified procedure for micro- or small enterprises would also work in the same direction.

Regulatory authorities are building a more robust corporate governance framework

Adequate and effective corporate governance nurtures confidence in capital markets and trust in business transactions. The China Securities Regulatory Commission (CSRC) is currently undertaking a systematic review of the system governing listed firms aiming at enhancing its ability to address corporate governance problems while ensuring consistency between relevant laws and regulations. The CSRC requires listed companies to include certain types of information in their articles of association, for instance the powers of independent directors. The Shanghai Stock Exchange also has corporate governance rules, including on the training of independent directors and the conduct of Board of Directors meetings. The exchange is then in charge of enforcing those rules, but the conduct leading to one of the four possible sanctions (oral warning, letter of oversight, criticism notices and public criticism) is not made public. While public naming and shaming may be effective, keeping the motive confidential diminishes its impact on prospective violators.

Corporate governance practices are being strengthened by enhancing both external monitoring and internal control. Sophisticated and active institutional investors are to play a greater role and the regulatory and supervisory framework is being upgraded with firmer enforcement and more qualified and independent auditors. Foreign institutional investors can have a positive impact on corporate governance to the extent that they are more likely to participate in arm's-length negotiation and monitoring (Huang and Zhu, 2015).

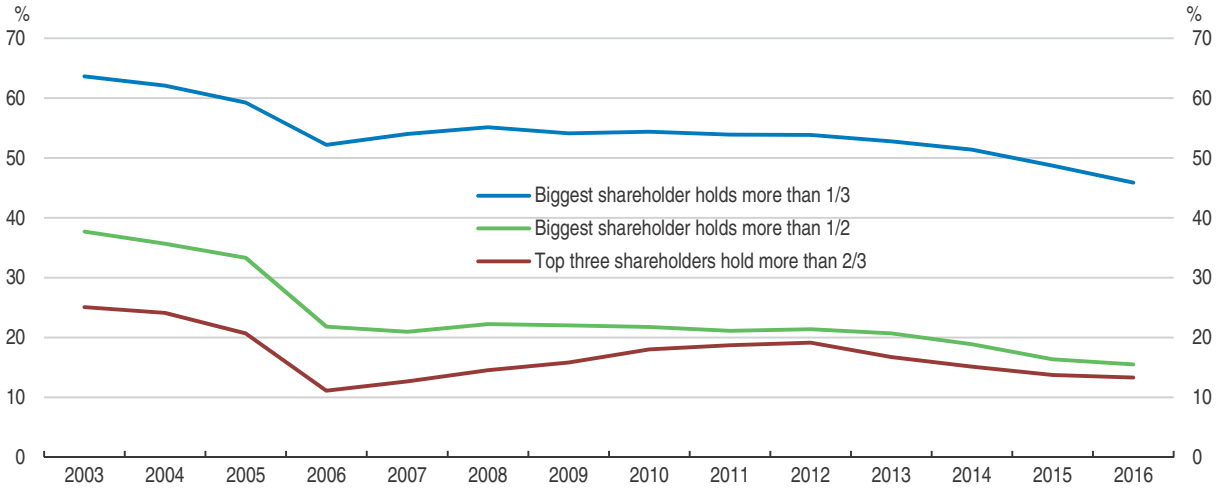
Improving internal control requires increasing board independence, protecting minority shareholders and strengthening incentive mechanisms. All listed firms need to have a board of directors and a board of supervisors, which is instrumental in protecting minority shareholders' interests. Recruiting competent and experienced board members is

a major challenge for listed firms in China as the history of corporate governance is relatively short even on paper and a fortiori on the ground. Almost all companies choose to have only the minimum number of independent directors required by law, and therefore forego the benefits of having additional external experts sitting on the board (OECD, 2013). Firm-level empirical analysis carried out for this *Economic Survey* based on data of listed non-financial enterprises shows that profitability improved when the requirement that at least one third of directors must be independent was introduced in 2002 (Molnar, Chen and Wang, 2017). Data on independent directors' votes show that they rarely vote against the board, indicating that they indeed do not have the time or courage to engage on behalf of all shareholders (Ye et al., 2011). In addition, whistle-blowers – be they independent directors or anyone inside the firm noticing unlawful practices – lack legal protection. Remedying this would help uncover more cases and serve as a disciplining device. Furthermore, independent directors tend to sit on too many boards, making effective monitoring and advising very difficult.

Protecting minority shareholders from expropriation is an acute problem given the highly concentrated ownership of listed firms. While ownership concentration has declined somewhat over the past decade, it remains high (Figure 26). The biggest shareholder owns at least a third of the shares in half of the listed firms and more than half in nearly a fifth. While large shareholders tend to monitor better and ownership concentration reduces the free-rider problem of many dispersed shareholders, concentration above a certain level may not improve performance (Shapiro et al., 2015). The Chinese Code of Corporate Governance requires disclosure of related-party transactions and fair pricing, but in practice violations are commonplace. Also, according to the Code, the major task of independent directors should be to monitor controlling shareholders. That is why they are barred from any position in the company and have to be independent from majority shareholders (OECD, 2015a). Accounting regulations pertaining to related-party transactions have been strengthened, but better disclosure and better enforcement is needed to effectively tackle this issue.

Figure 26. **Ownership concentration has declined somewhat**

Share of firms with top ownership exceeding certain thresholds



Source: OECD calculation from the CSMAR database.

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Strengthening incentive mechanisms calls for setting the right level of executive pay as well as for non-salary incentives such as distributing shares. Market-based mechanisms are meant to play a greater role, including to set executive pay. While high remuneration of executives may boost managerial and company performance, greater pay disparity between executives and other staff may alienate workers and thus lower productivity (Firth et al., 2015). While shareholding by executives increased sharply in the late 2000s in listed firms of different ownership types, as of 2015, around one-eighth of private firms' executives owned shares in the company they managed, as against less than 0.5% among listed SOEs.

A key challenge is taking state-owned enterprises to market

As documented in the 2015 *OECD Economic Survey of China*, SOEs are dominant not only in natural monopolies such as network sectors, but also have significant market share in many industries in which competition could flourish such as construction, retail and wholesale trade or hotels and restaurants (OECD, 2015b). There are about 155 000 SOEs. They belong to different government levels and their management is also split across the State Asset Supervisory Administrative Commission (SASAC) and the MoF and their local arms. SOE debt makes up over 70% of total corporate debt (Figure 27, Panel A). Firms in industries suffering from excess capacity display high leverage, in particular in real estate, building materials and metals (Panel B) and in competitive and monopoly industries (Panel C). SOEs controlled by central government agencies saw a very sharp increase in leverage during the Global Financial Crisis (Panel D).

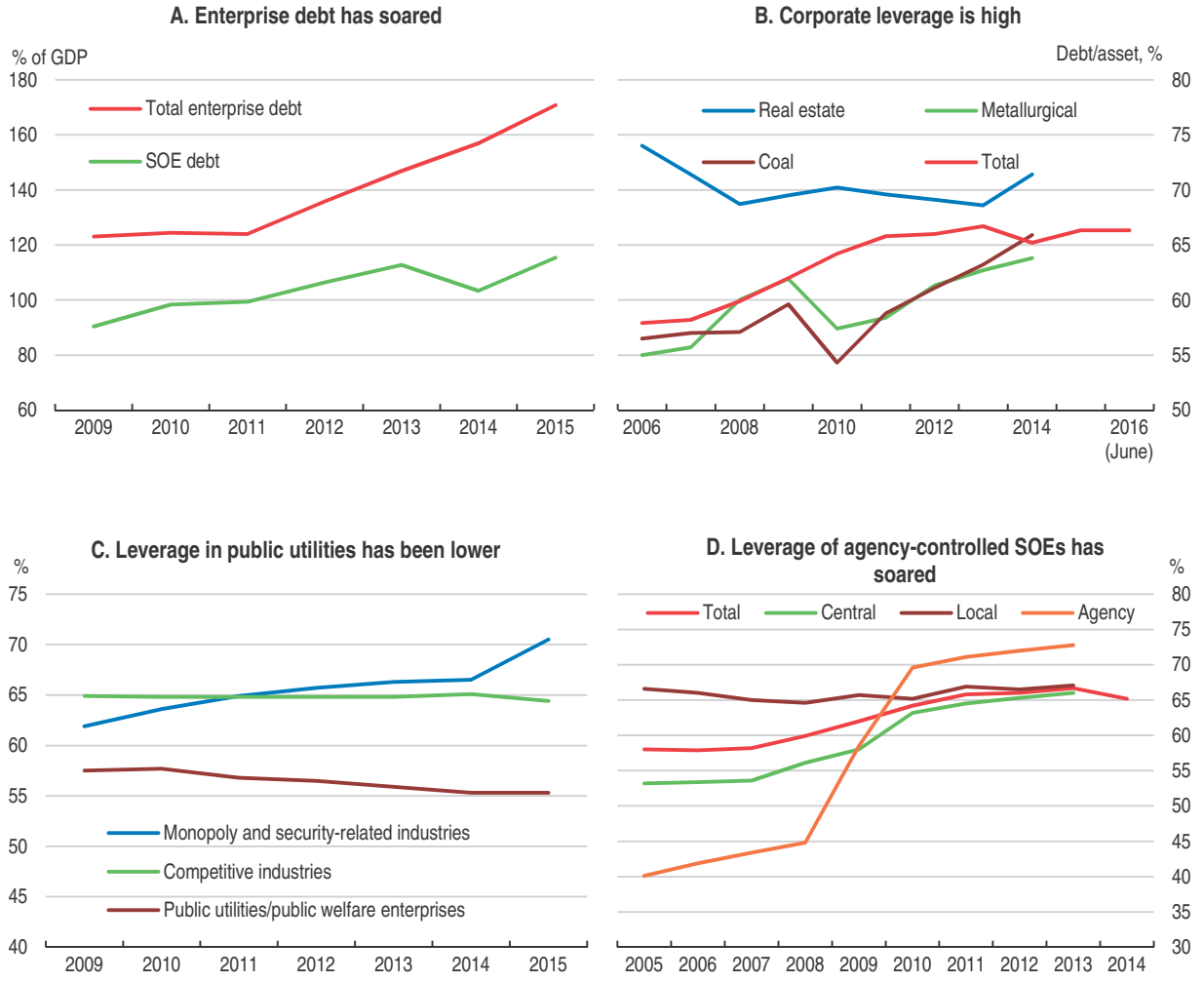
China's *Guidelines on Deepening SOE Reforms* released in September 2015 define six priority areas for reform: i) mixed ownership; ii) transitioning to a modern enterprise system; iii) professional management; iv) classifying firms according to their nature; v) strengthening supervision to avoid loss of state assets; and vi) better managing state assets with a focus on capital management. Mixed ownership reform has recorded impressive progress with 68% of SASAC – controlled central SOEs introducing non-State owners by end-2015 (Xiao, 2016). The major importance of mixed ownership reform lies in introducing additional checks and balances. A private shareholder may not be able to prevent the expropriation of minority shareholders' wealth, but transparency is enhanced.

The current Chinese notion of a modern enterprise system includes separation of business from politics, corporatisation, establishing a board of directors, managing executives by type and level of enterprise and choosing a remuneration system that fits the country's economic system (SASAC Research Centre, 2016). A major link between business and politics is the appointment system and the intertwined career paths in the public administration and the SOE system, where progress has so far been modest. In the area of corporatisation, in contrast, progress is tangible: over 80% of SOEs under SASAC have been corporatised and have set up or are in the process of setting up a board, though this is mainly happening at the lowest tiers of enterprise groups, not at the group level. The Chair of the Board, who de facto manages the company, is often a civil servant without extensive prior practical experience. Hiring professional managers is expected to mitigate this weakness and improve corporate performance. New regulations for senior executive compensation are being introduced and performance-based incentive plans will be put forward.

The results of a survey of central SOEs under SASAC carried out for the purposes of this *Economic Survey* indicate that some central SOEs link only a negligible part of the managers' salary to performance, while others link most of it. Moreover, the salary

Figure 27. **State-owned firms led debt accumulation and debt is high in some industries plagued by overcapacity**

Non-financial corporate debt



Note: Panel A shows corporate debt as a percentage of GDP and Panels B, C and D corporate leverage defined as debt-to-asset ratio. In Panel C, competitive industries include most sectors with competitive markets (*shangye yilei* or *jingzhengxing*), monopoly and security-related industries refer to industries with monopolistic or oligopolistic markets and industries related to national security (*shangye erlei* or *longduan*) and public utilities/public welfare enterprises primarily pursue public policy objectives (*gongyilei* or *gongyixing*). In Panel D, Central refers to SOEs under SASAC, local to those under local SASACs and agency to SOEs under other government agencies.
Source: BIS database, Wind database and Ministry of Finance (2014, 2015).

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differences related to performance can be as high as three-fold. Tunnelling or transferring assets across firms is particularly acute as holding companies often control several hundreds of firms and managers in control can move assets across affiliated firms. Listing of holding companies can be a way of mitigating the tunnelling problem as higher disclosure requirements and monitoring would make it harder to shift assets across listed firms. Even before listing, however, SOEs could be subject to the same high quality accounting, disclosure, compliance and auditing standards as listed companies, as recommended by the *OECD Guidelines on Corporate Governance of SOEs* (OECD, 2015c).

SOEs are in the process of being classified into competitive, monopoly and security-related, and public utility/public welfare firms and their performance will be evaluated according to the category they belong to. For enterprises belonging to the competitive category, net profit or other profit-related variables will carry a bigger weight while for other types of enterprises safety indicators, public welfare and similar measures will be more relevant. Strengthening supervision to avoid loss of State assets is mainly done through fortifying the Party organisation within the company and by strengthening external and internal supervision. Past mechanisms, however, did not appear to function well, leading to series of arrests related to State fund embezzlement. Strengthening whistle-blower protection may encourage insiders to report unlawful conduct, but they would need to report to an independent investigator body to make such protection meaningful as supervisors and regulators may be subject to capture. People observing corruption in Australia, for instance, can turn to the Independent Commission Against Corruption. Shifting the focus to more active managing of assets and seeking return on capital (*ziben yunying guanli*) is considered as a promising way to ensure an increase in the value of State assets.

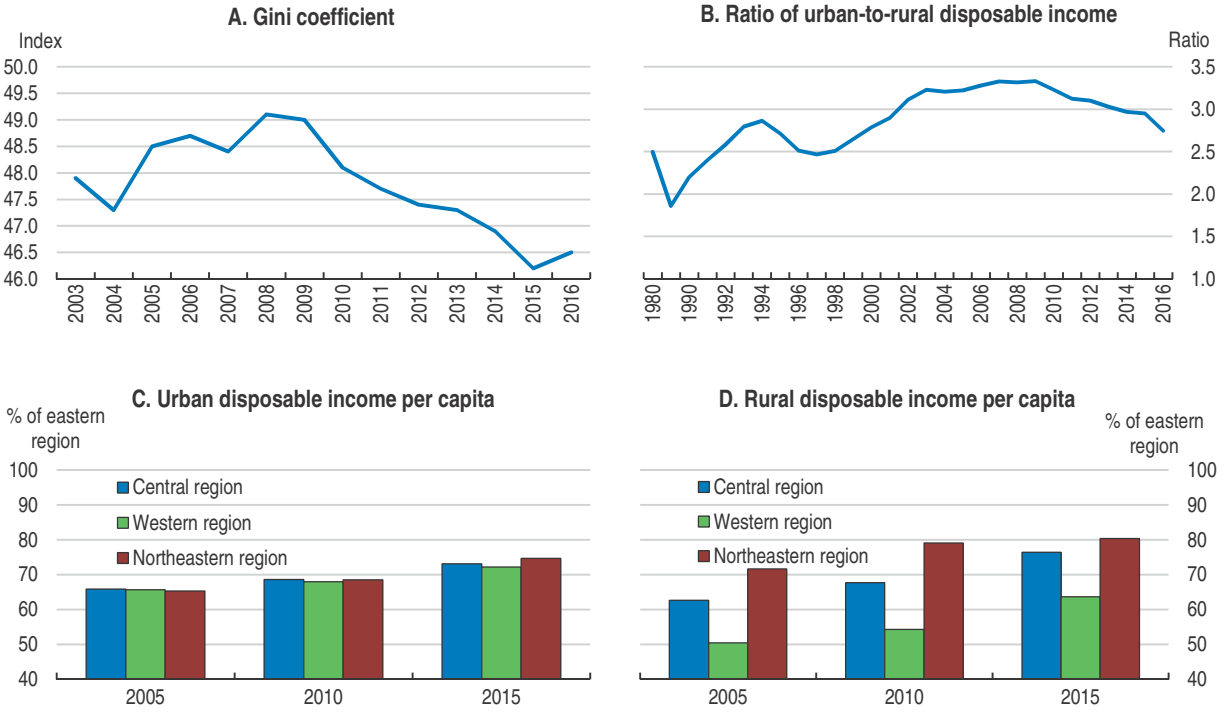
The State Council issued a *Guiding Opinion on Promoting Structural Adjustment and Restructuring of Central SOEs* in July 2016. It clarifies central SOEs' strategic position, ensuring their effective functioning, improving their overall structure, significantly boosting the allocative efficiency of state assets and forming a group of innovative and internationally competitive firms. Consolidation is expected by policymakers to drive efficiency gains, the major challenge being how to ensure that merging inefficient groups will actually result in higher efficiency. The effect of mergers on competition needs to be assessed by competition authorities prior to their approval. Asset disposal has made little progress between 2012 and 2015, with central SOEs controlled by SASAC shedding assets worth CNY 108 billion, equivalent to only 1.6% of the total. Stripping off assets is quite complicated as the suspicion of State asset embezzlement always looms large. The target of 345 zombie firms to be closed by SASAC in the coming three years appears rather modest given that it controls around 40 000 firms and that most zombies are SOEs. As SOEs expand internationally, destination countries place increased scrutiny on transactions involving SOEs to assess the potential anti-competitive effects in their markets. Enhanced corporate governance and better disclosure would facilitate SOEs' overseas operations.

Improving well-being and economic prospects by making growth more inclusive

The goal of the Chinese government to achieve a "moderately prosperous society in all respects" by 2020 involves a strong commitment to maximising aggregate social welfare. As well as improving the well-being of the community, a more equitable distribution of growth can support rebalancing to a more consumption-based growth model and help build popular support for necessary growth-enhancing reforms. Furthermore, with a rapidly ageing labour force, it is critical that growth is made more inclusive so that all members of China's society have the opportunity to fulfil their potential and make a productive contribution.

Income inequality, as measured by the Gini coefficient, has declined since 2008 (Figure 28, Panel A). This reflects some regional income convergence as the central, western and northeastern parts of the country have made progress catching up with the east (Panels C and D) and a narrowing of the urban-rural income gap (Panel B). Accordingly, the share of the rural population living below the poverty line fell from 30% in 2005 to 5.7% in 2015. The government aims to lift the remaining 43.3 million rural poor out of poverty by 2020, thereby achieving one of the United Nations Sustainable Development Goals ten years before the 2030 deadline.

Figure 28. **Income inequality has declined**



Note: The Gini coefficient presented here is based on income and has a range from zero (when everybody has identical incomes) to 100 (when all income goes to only one person). Increasing values of the Gini coefficient thus indicate higher inequality in the distribution of income.

Source: China National Bureau of Statistics, CEIC, authors' calculations.

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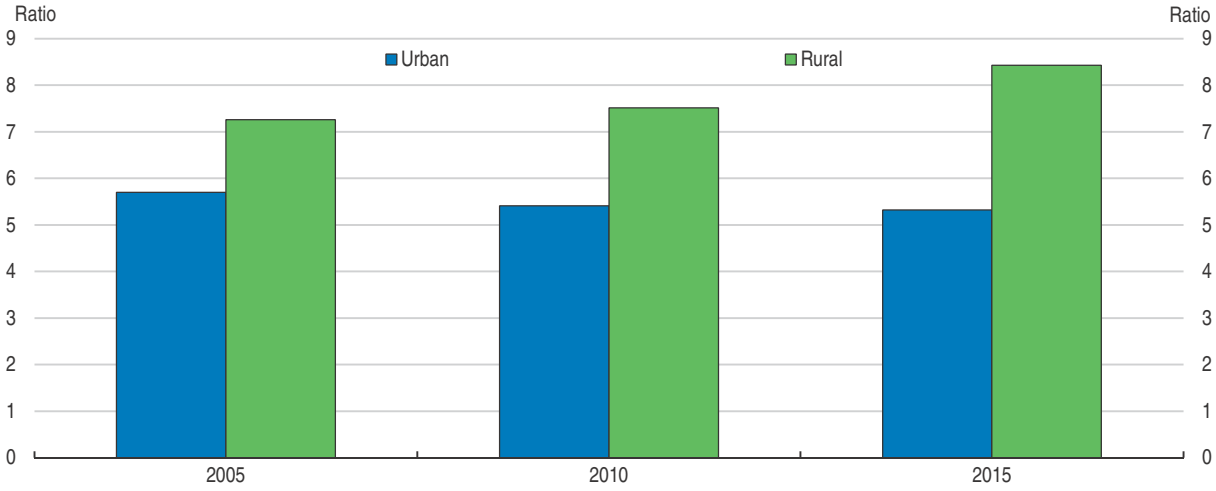
Despite the reduction in aggregate income inequality, the disposable income gap between the richest and poorest urban individuals has barely narrowed. In rural areas, the gap has even risen (Figure 29). The marked reduction in poverty without the lowest income quintile gaining income share suggests that while many households have been lifted above a subsistence level, there has been less success in creating the necessary conditions to encourage further growth in the incomes of the lowest wage earners.

The share of wealth held by the top segment of the income distribution has been rising, according to recent research based on household data, and by 2012 the richest 1% held one third and the poorest 25% around 1% of all household assets (Xie and Jin, 2015). Among OECD countries for which comparable data are available, wealth inequalities are greater only in the United States with the richest 1% holding 37% of household wealth in 2010.

Figure 29. **The income share of the poorest people has been falling in rural areas**

Disposable income of the top 20% over that of the bottom 20% of the income distribution



Source: China National Bureau of Statistics, CEIC.

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Redistribution through taxes and benefits is low

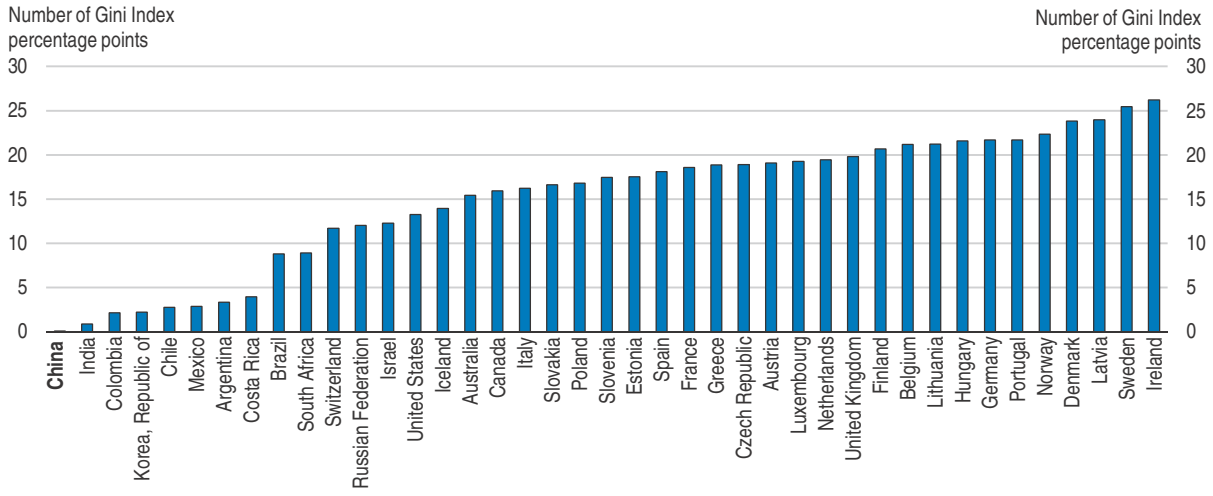
Overall, the tax-and-transfer system does not narrow the gap between the richest and poorest households (Figure 30). In part, this reflects the structure of the social security system, which has a minimum contribution that is calculated on an imputed value of earnings irrespective of the employee's actual income (equivalent to 60% of the previous year's local average wage) and a cap (at the payment required for an individual earning three times the local average wage). As a result, the many households in the lowest income quintile (who pay social security contributions) pay a much higher share of their income in contributions than those with higher incomes. The government should base the calculation of social security contributions on actual income earned. This may lower aggregate contributions, but can be funded through a broadening of the tax base which would also make the personal income tax system more progressive. For example, tax exemptions on interest from government bonds and savings accounts at Chinese banks could be abolished and the introduction of an inheritance tax considered.

The coverage and targeting of social assistance has improved in recent years, although there are significant disparities in benefits depending on the location of the recipient (Figure 31). The main social assistance scheme is the minimum living standard (or *dibao*) programme, which is administered at the local level. While the central and provincial governments make fiscal transfers to poorer regions to fund social assistance payments, benefit disparities endure that largely reflect the financing capacity of local governments.

The design of the *dibao* programme may also create a disincentive for social assistance recipients to take up work. This is because an increase in household wage income will result in a proportionate decrease in the *dibao* benefit received. As well as increasing central government transfers to fund social assistance payments in poorer areas, a portion of any increase in household salary should be excluded from assessable household income in calculating benefits.

Figure 30. **Redistribution by the tax-and-transfer system is very limited**

Reduction in market income inequality due to taxes and transfers



Note: Data for China are for 2013 and for other countries the latest available observation (2013 to 2015). The Gini coefficient ranges from zero (when everybody has identical incomes) to 100 (when all income goes to only one person). Increasing values of the Gini coefficient thus indicate higher inequality in the distribution of income. The metric presented here is calculated from data that are standardised to allow cross-country comparisons. Potential remaining comparability issues are detailed in Solt (2016).

Source: Standardised World Income Inequality Database (SWIID) Version 5.1.

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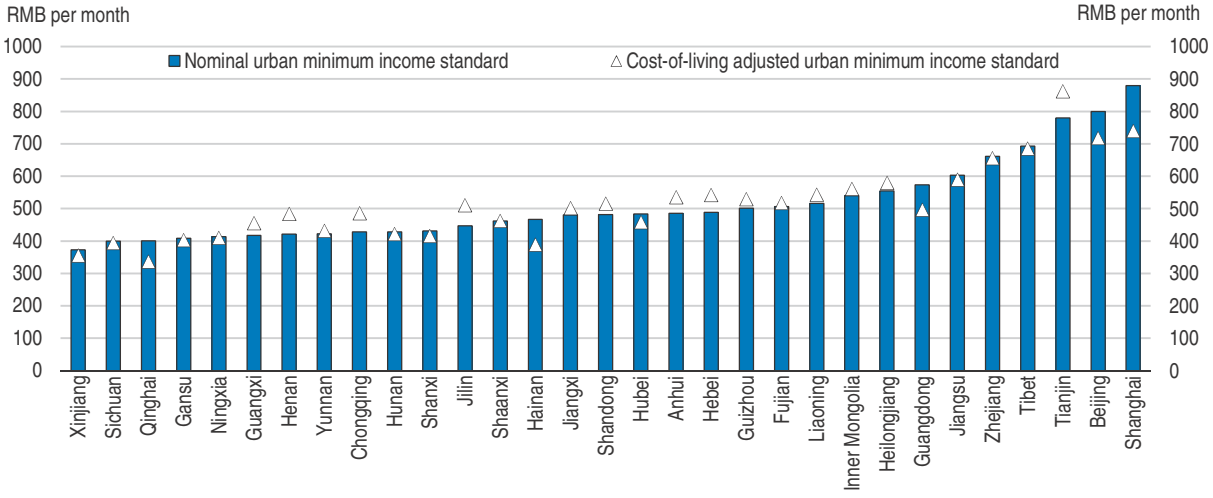
Figure 31. **The minimum living standard varies significantly across provinces**

Average provincial minimum living standard in urban areas, September 2016



Note: Separate spatial price deflators for rural and urban areas in each province are taken from Brandt and Holz (2006) and then extrapolated using the province-specific consumer price index. Li and Gibson (2013) outline potential limitations with such a methodology.

Source: China Ministry of Civil Affairs, CEIC, Brandt and Holz (2006), authors' calculations.

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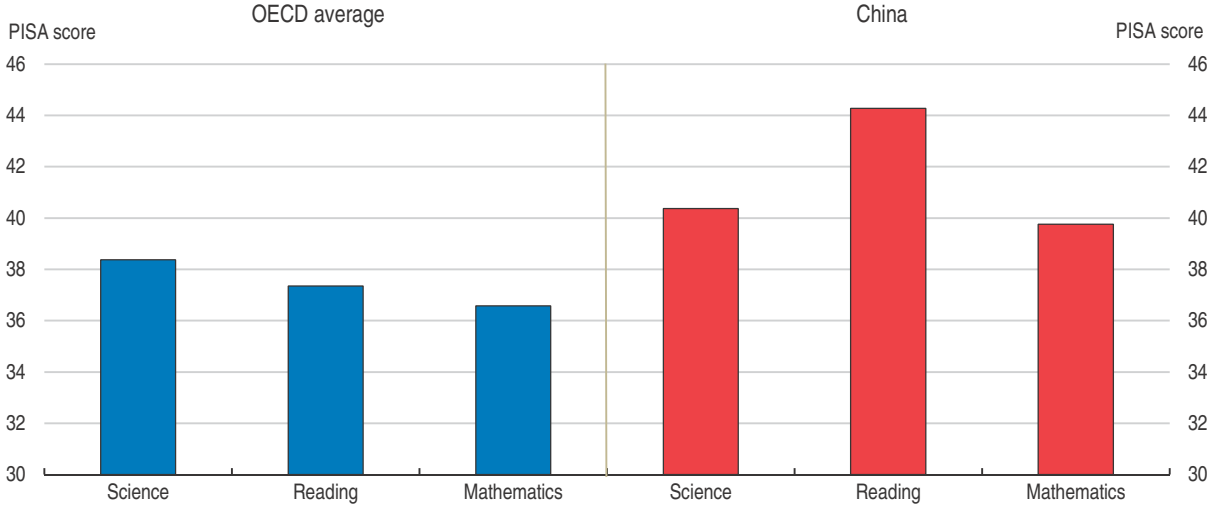
The unemployment insurance system suffers from low coverage and replacement rates. In 2015, just 43% of the urban employed contributed to unemployment insurance. The average unemployment insurance benefit was around 18% of the average urban wage in 2014, contrasting with an average net replacement rate above 60% in the OECD for an individual who previously earned 67% of the average wage. Low replacement rates may discourage long discretionary spells in unemployment. However, they may also result in workers from low-income families rushing to take a job regardless of the compatibility with their skills, reducing the efficiency of labour market matching and risking skills atrophy.

Various other government policies outside the tax-and-transfer system can narrow inequities within the population, such as those relating to public education, healthcare and the pension system (Solt, 2016). While data enabling the calculation of the aggregate effect of such policies on measures of inequality are not currently available on a cross-country basis, these policies warrant further discussion.

Work opportunities can be enhanced by more equality in education and the labour market

Educational opportunities shape people's destiny in the labour market, their productivity and their well-being. In 2015, Chinese students from Beijing, Shanghai, Jiangsu and Guangdong, who were tested for the Programme for International Student Assessment, outperformed the average OECD country cohort in science and mathematics and performed similarly in reading (OECD, 2016a). However, compared with OECD countries, socioeconomic factors explain a large part of the variation in China's PISA results (Figure 32). This reflects broader inequalities in educational opportunities, stemming primarily from the urban-rural divide. There are particularly large disparities in enrolment rates between urban and rural children in pre-primary education. This is

Figure 32. **Socioeconomic factors have a large influence on Chinese PISA scores**
Impact on PISA score of a one unit increase in the PISA index of economic, social and cultural status, 2015



Note: The PISA index of economic, social and cultural status is a composite indicator derived using Principal Component Analysis from several variables related to the family background of students. Parent education, parent occupations, various home possessions that proxy material wealth and the number of books and other educational resources available in the home are inputs to the index.
Source: OECD.

StatLink http://dx.doi.org/10.1787/888933462028

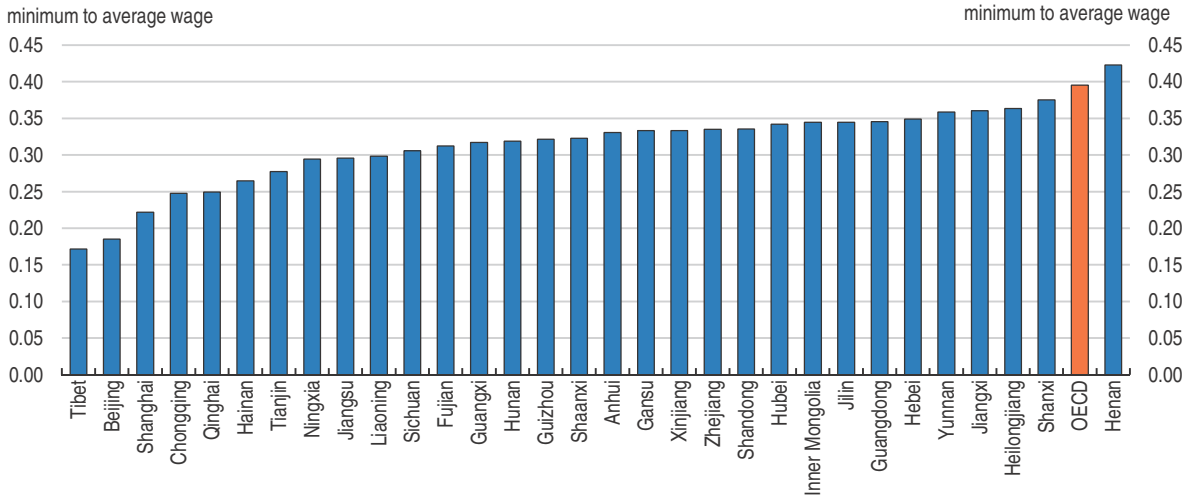
worrying given that research highlights positive effects of early childhood education on employment, income and health in later life (Campbell et al., 2014). The quality of education is also significantly lower in many parts of rural China, reflecting overcrowding in classrooms and significantly lower teacher salaries. Comparatively low educational attainment for women is also more common in rural areas (Zeng et al., 2013).

Along with providing all citizens the opportunity for a good general education, there needs to be more emphasis on retraining low-paid workers during their working lives. Workplace-based vocational training is one channel for such programmes. However, the system remains underdeveloped, and better co-ordination between employers, teachers, students and the government is needed. Online education has been growing rapidly and holds potential as a platform for lifelong learning. However, the quality of such courses varies greatly and improvements in the monitoring, evaluation and quality assurance of such programmes are needed.

China has had local minimum wages since the early 1990s to ensure work pays for low-income employees. Empirical evidence suggests that increases in the minimum wage have had beneficial effects on income distribution by reducing the gap between the median and bottom decile (Lin and Yun, 2015), even though the local minimum wages are low when compared with OECD countries (Figure 33). While, on average, there appears to be scope for an increase in minimum wages, the potential for negative employment effects in some locations should still be carefully considered. In early-2016, Guangdong Province imposed a two-year minimum wage freeze, reflecting such concerns.

Figure 33. **Minimum wages are low compared with OECD countries**

Ratio of minimum wage to average wage of the provincial capital, 2014



Note: The OECD bar is a simple average of the ratio of the minimum wage to average wage of full-time workers in 27 OECD countries in 2015.

Source: Ministry of Human Resources and Social Security, CEIC, OECD, authors' calculations.

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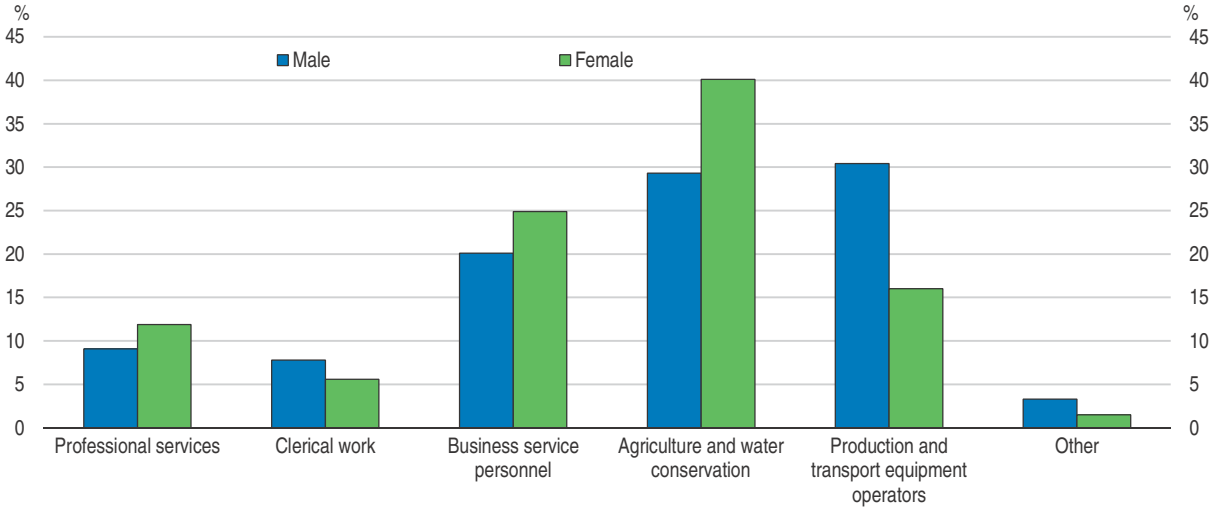
Some groups face lower labour market opportunities, reducing their income-earning ability and overall well-being. Rural-to-urban migrant workers often take on low status, badly paid and sometimes dangerous jobs. In 2015, 60% of migrant workers did not have employment contracts. As a result, such workers were not legally entitled to the minimum wage nor covered by China's labour laws, increasing their vulnerability to cyclical

fluctuations and discriminatory practices by employers. The authorities have made progress in the past few years in severing the link between *hukou* status and welfare entitlements. However, the criteria for gaining residency in the most popular destination cities remain prohibitively strict for most migrant workers. There is also scope to improve job opportunities for women. Between 1990 and 2014, the labour force participation rate of 15-64 year old females declined by 9 percentage points, partly reflecting reductions in the public provision of childcare following SOE reforms in the late 1990s. Women in the labour market often face a wage gap with comparable male workers and a relatively high proportion are employed in the agricultural sector (Figure 34), farming their household farmland allocation while their husband temporarily migrates to an urban job.

Figure 34. **The employment share in agriculture is higher for women**

Occupation by gender, 2014



Source: China Labour Statistical Yearbook, 2015.

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Improvements to the health system will raise well-being and labour supply

A strong and equitable healthcare system that supports increasing healthy life expectancy is integral to well-being and the ability of the population to participate productively in the labour force. The health system has expanded in the past decade, with the number of beds in healthcare institutions rising from 2.83 per 1000 people in 2007 to 5.11 in 2015. However, there remains a shortage of quality healthcare personnel. Such shortages are particularly pronounced in rural areas, where child mortality rates are over double that of urban China.

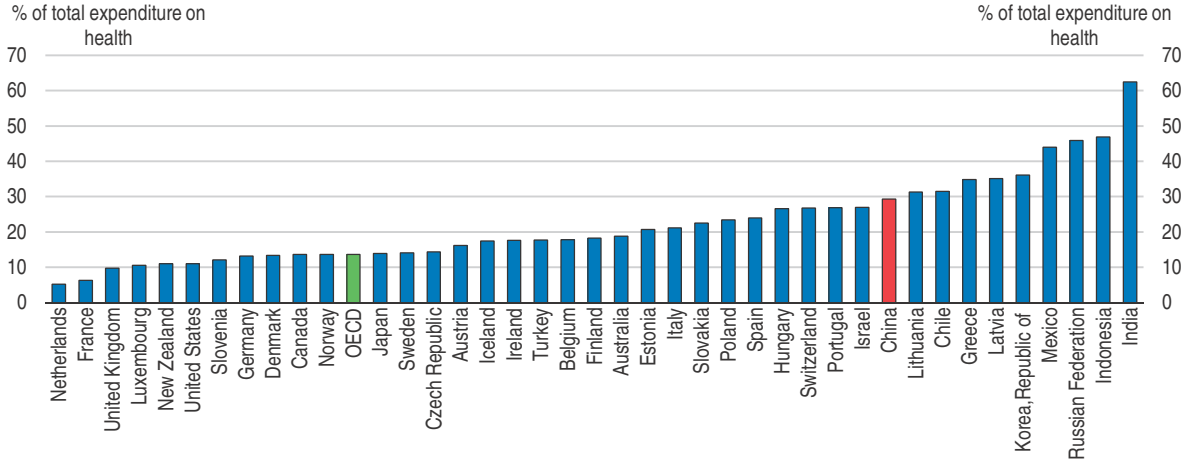
Access to healthcare has been improved by a dramatic expansion in health insurance coverage. Between 2004 and 2014, the coverage rate rose from around 200 million to over 1.3 billion people – the largest expansion of insurance coverage in human history. Many migrant workers continue to face impediments to health insurance access. In 2014, only 18% of migrant workers were covered by urban employee health insurance. Instead, many were required to return to their place of origin to claim health insurance benefits through the New Rural Cooperative Medical Scheme. In December 2016, the government announced that patients will be able to claim reimbursement in the location of the treatment regardless of which health insurance scheme they belong to or the province

from which they come. This reform should improve the utilisation of health services by migrant workers and reduce the time between when health costs are incurred and reimbursed.

Out-of-pocket payments for healthcare have declined in recent years owing to increases in government subsidies. However, by international standards, direct health outlays remain a high share of total healthcare spending (Figure 35). Indeed, new analysis based on the 2014 China Family Panel Studies survey suggests that those living in poverty spent a relatively high share of their income on medical expenses (Westmore, 2017).

Figure 35. **Out-of-pocket health costs for the insured are high**

As a percentage of total health expenditure (%), 2015 or latest available



Note: Data relate to 2015 for China and to 2014 for all other countries.
Source: World Health Organization *Global Expenditure Database*.

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More can be done to extend working lives and improve care for the elderly in retirement

Active working lives are being cut short by China's low pension age, especially for women, as underlined in the *2010 OECD Economic Survey of China* (OECD, 2010). The normal pension age in China is 60 years for men, 55 for women in white-collar jobs and 50 for women in blue-collar occupations. An increase and alignment of the pension age between men and women, as well as indexation to life expectancy, are advisable. However, this may be difficult due to concerns over pension fund sustainability that leave some workers unconvinced that an extra year of work will translate to a higher pension benefit. While an increase in the retirement age will, in itself, improve pension sustainability, complementary parametric adjustments or government spending measures may also be needed to safeguard pension incomes.

The government is aiming for universal pension coverage by 2020. At present, there are multiple pension schemes and administration is performed at the local level. This contributes to a high degree of fragmentation in the system that is reflected in disparities in pension benefits, stoking inequalities at older ages. Migrant worker coverage is low, as it can be difficult for a pension to be drawn in a different location from where it is earned. Nationwide administrative systems are needed for pensions to become portable across the country.

In addition to pension payments, there are also some in-kind benefits provided by the government including reimbursements for various care services provided in the home. However, there is no financial support for family caregivers who need to reduce their wage-earning hours to care for a family member. Such a measure is advisable given that, partly as a legacy of the One Child Policy, it is becoming more common that one child must look after two parents and four grandparents.

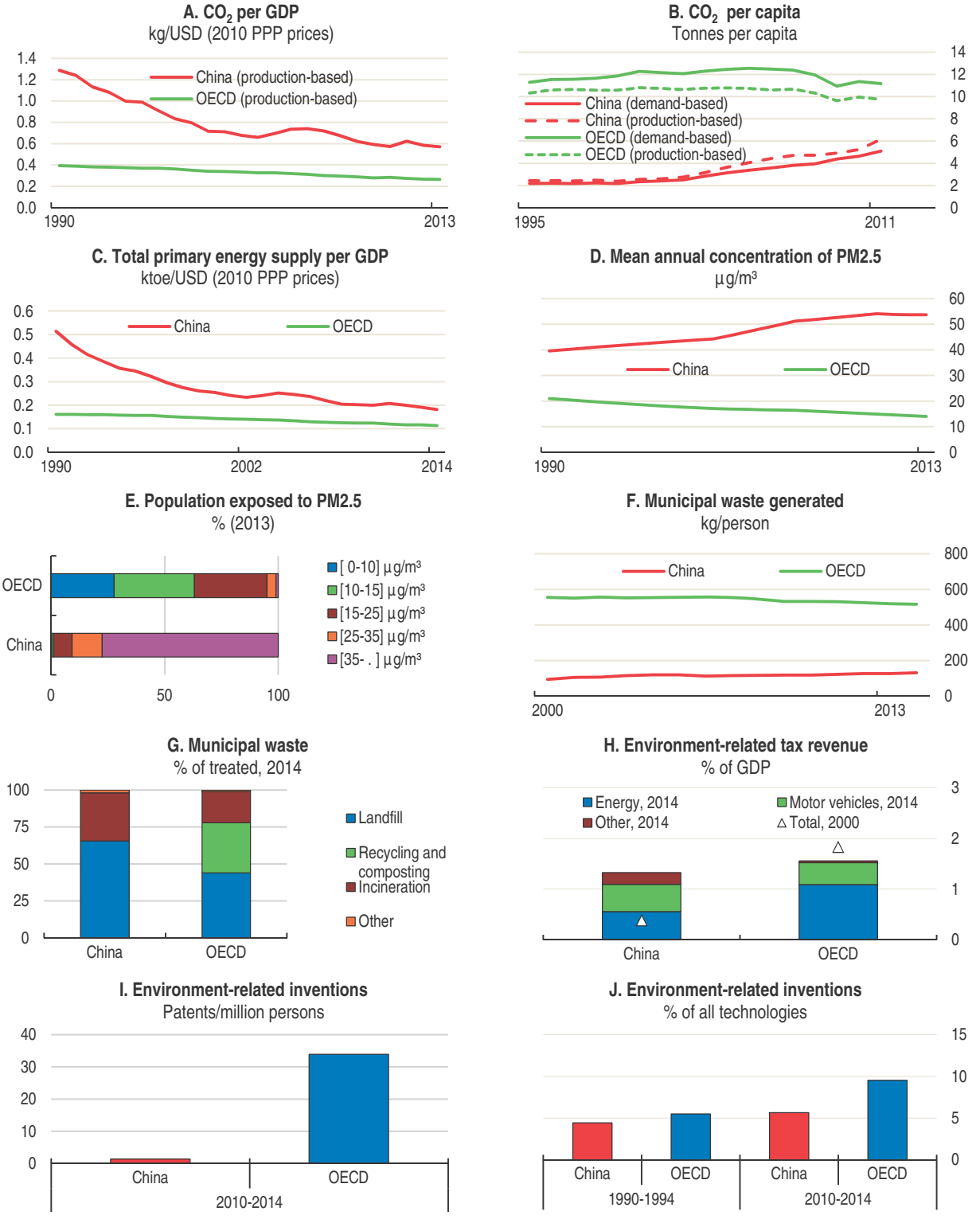
Greening growth

The targets set for environmental protection during the 13th Five Year Plan (2016-20) – including emission targets for coal-fired power plants, a target for absorbing and reusing rainfall and eliminating the problem of black and odorous water in urban areas – illustrate the importance the authorities attach to greening growth (Figure 36). China's high level of pollution has severely impacted health and well-being. There were an estimated 670 premature deaths per million people in China from exposure to particulate matter and ozone concentrations in 2010 (OECD, 2016b). Furthermore, if taking into account the emission of pollutants as negative by-product, environmental degradation has greatly reduced multi-factor productivity (Cárdenas Rodríguez et al., 2016).

China's bilateral agreement with the United States in late 2014 on curbing greenhouse gas emissions and its ratification at the G20 Hangzhou Summit in September 2016 was an important milestone, as China accounts for 27% of global carbon emissions and the United States 16% (as of 2015, according to BP, 2016). A national cap-and-trade carbon emissions system is to be a key tool to achieve the target (Box 7). However, the system, to be rolled out from 2017, can meaningfully reduce emissions only if enforcement is effective in raising the cost of polluting sufficiently for the polluter to cut output, switch to new technology or reduce emissions in other ways. The example of the pilot scheme in Guangdong province indicates that trading volume is relatively low owing to the generous allocation of quotas and the limiting of trading to selected large enterprises in a few industries. A carbon tax (either standalone or as part of environmental or resource charges) could usefully complement the cap-and-trade system, extending coverage to e.g. the transport sector. By 2030, the government plans that carbon emissions per unit of GDP will have been cut by 60-65% relative to 2005 levels, the share of non-fossil fuels in energy consumption will be about 20% and carbon emissions will have peaked. Meeting those commitments will be aided by slower growth, economic restructuring and rebalancing. Indeed, energy consumption in 2016 grew at about 1.4% – its slowest pace since 1998. Also, energy consumption per unit of GDP declined by 5%. In addition, there is ample room to make better use of environmental taxation. The issuance of green bonds, which finance carbon emission reduction and climate change impact mitigation initiatives, has soared in 2016, making China the largest issuer commanding a market share of over 40% in the first 11 months of the year.

Renewable energy use grew by 21% in 2015, reaching around 17% of the worldwide total, but China's share of renewables remains lower than its share of world energy consumption, which is nearly 23% (BP, 2016). The renewables mix has diversified over time from mainly hydro-energy into solar, wind and geothermal energy more recently. A series of economic and regulatory policies as well as fiscal incentives have been put in place to support renewable energy (OECD, 2017a). The current 13th Five Year Plan has set a target to at least triple the country's solar power capacity by 2020. However, increased renewables capacity does not always translate into increased consumption. The lack of connecting

Figure 36. **Ample room for improvement in greening growth**



Source: OECD (2016), Green Growth Indicators (database). For detailed metadata *http://stats.oecd.org/wbos/fileview2.aspx?IDFile=02a134e1-c3ec-4c5c-9a05-4ebb41a60539*.

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grid, for instance, hinders the use of electricity generated by renewables and results in large amounts of idle capacity. Moreover, over the years, wind power development and local power grid planning were not sufficiently integrated (Zhao et al., 2016), leaving many wind power farms with connection problems. Renewable energy generation has also long been hindered by a lack of channels for independent generators to sell surplus energy. Policy has begun to tackle these difficulties. The pilot that started in 2013 to allow small-scale individual solar power generators to sell their surplus electricity to the grid has now been extended to the whole country. As a response to large amounts of idle capacity, in May 2016, the National Energy Agency and National Development and Reform Commission (NDRC) jointly set minimum guaranteed utilisation hours. Also, the construction of ultra-high voltage electricity transmission circuits by 2020 is expected to alleviate transmission bottlenecks. Even when there is grid connection, however, grid companies prefer thermal or hydropower-generated electricity as the on-grid tariff for wind power is higher than for thermal or hydropower.

Environmental management is expected to become more effective as a result of changes to the supervisory and monitoring system announced in September 2016 that will make it harder for local governments to manipulate the data before reporting it to the central government. More comprehensive monitoring and surveying would make pollution control more effective and raise public awareness.

Box 7. **Past recommendations on greening growth and actions taken**

OECD 2015 Survey recommendations	13th Five Year Plan and policies directly related to OECD recommendations
Make growth greener	
Continue to pursue stated emission targets, including by implementing a national carbon emission trading scheme, phasing out subsidies to carbon-intensive producers and boosting investment in renewables.	In 2015 the State Council published the Standardisation on Strengthening Energy Conservation Advice covering all the main energy-intensive industries. More than 80% of energy efficiency indicators should reach the level observed in advanced economies by 2020. In February 2016, the NDRC announced the launch of a national emissions trading system in 2017. The Energy Development Strategy Action Plan (2014-20) aims to install nuclear power capacity reaching 58GW by 2020, with an additional 30GW expected to be under construction in 2020. Installed capacity of hydro-, wind and solar power in 2020 is expected to reach 350GW, 200GW and 100GW, respectively. From the start of the first pilot in late 2013 to end-2016, carbon trading in the seven pilot provinces under the carbon emission trading scheme cumulatively reached 94 million tonnes of CO_2 and CNY 2.2 billion.

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Thematic chapters

Chapter 1

Boosting firm dynamism and performance

With persisting slower growth worldwide and in China, over-capacity in some heavy industry sectors, declining profitability, and intensifying competition from other, lower-cost emerging economies, corporate behaviour in China needs to change and focus more on efficiency and sustainability. This need is further intensified by mounting environmental pressures and China's ambition for greener and more sustainable growth. A larger proportion of firms, including state-owned enterprises, should step up innovation efforts and improve corporate governance practices. To this end, supportive policies are needed, fostering an environment that is more conducive to innovation and entrepreneurship, and facilitating resource reallocation through the exit of unviable firms. At the same time, fraudulent corporate practices must be halted and State assets need to be better managed. Reforms are under way or envisaged that will help improve corporate performance and, more broadly, deliver more resilient and environmentally sustainable growth and continuing progress in living standards.

Growth has slowed both worldwide and in China. The Chinese economy continues to grow fast but over-capacity has emerged in some heavy industries and enterprise profitability has been eroding. At the same time, competition from other, lower-cost emerging economies, has been intensifying. Against this backdrop, corporate behaviour in China needs to change and to focus more on efficiency and sustainability. Instead of relentlessly seeking expansion, echoing the "growth above all" macroeconomic principle, firms should focus on how to boost productivity, which is the only way to secure growth in the long term. This calls for greater emphasis on innovation. As a share of GDP, China is already spending as much on research and development (R&D) as many OECD countries, but making the most of innovation calls for broader reforms, notably with respect to corporate governance. China has adopted many best practices in this area, but the lack of transparency and incentive distortions give rise to abusive practices such as shifting assets through related party transactions or expropriating minority shareholders. Such practices reduce firm value and overall efficiency. The announced reforms of state-owned enterprises (SOEs) will be instrumental in boosting overall firm performance given their large share in many industries. While the sweeping SOE reforms initiated in the late 1990s sharpened incentives to enhance efficiency, the SOE sector is now ripe for reforms to enhance checks and balances, improve transparency and achieve a better return on government assets.

This chapter discusses how to improve corporate performance under the above three angles, drawing as appropriate on analysis of firm-level data: first, it examines how to boost innovation activities and entrepreneurship; it then turns to corporate governance asking how to help avoid fraud and protect the interests of all the stakeholders; finally, it zooms in on the large SOE sector, which is subject to special rules, and the reforms in this area.

Coping with excess capacity in selected sectors

Adjustment towards somewhat lower but higher-quality growth urgently requires a reduction of overcapacity and a shift towards more efficient and less energy-intensive production through market-oriented mechanisms. A number of industries are affected by excess capacity, including steel, coal, cement, chemicals, machinery, shipbuilding and metallurgy. This exerts downward pressure on the overall price level as those industries supply intermediate inputs to most other sectors. It also reduces corporate profits, weighs on enterprise investment and absorbs resources that could be used more efficiently elsewhere, thereby constraining potential growth. Recent measures (Table 1.1) aim at capacity cuts in firms with high costs, tight financing conditions and high pollution as well as outdated production facilities. Measures to eliminate capacity taking into account different levels of technology, energy efficiency, emissions and other criteria, are, however, challenging to operationalise.

Table 1.1. **Capacity reduction in coal and steel is limited**

	Coal	Steel
Production capacity to eliminate in 2016 (million t)	250	45
Eliminated by end-2016	Over 290	Over 65
Percentage of 2016 target	Over 100	Over 100
Production capacity to eliminate over 2016-20 (million t)	500 + 500	150
Total capacity at end-2015 (million t)	5 700	1 150
Capacity utilisation 2015 (%)	65	70
Proportion of total capacity to eliminate in 2016 (%)	4.4	3.9
Proportion of total capacity to eliminate over 2016-20 (%)	17.5	13
Number of workers affected over 2016-20 (thousand)	1 300	500
Total number of workers at end-2015 (thousand)	4 884	3 716
Share of workers affected over 2016-20 in total sectoral employment (%)	27	13
Government funds to support the laid off (CNY billion)	100	
Disbursed government funds as of end-July 2016 (CNY billion)	30.7	

Note: Government funds to support the laid off are not allocated for a specific sector or year, CNY 100 billion is the total amount the central government provides. 500 + 500 refers to cutting 500 million tons of capacity by closures and another 500 million tons by mergers and restructuring.
Source: 2017 Government Work Report. Guowuyuan guanyu Meitan hangye Huajie Guosheng Channeng Shixian Tuokun Fazhan de Yijian Guofa No. 2016/7, in Chinese (State Council Opinion on Smooth Development of the Coal Mining Industry by Alleviating Excess Capacity, State Council Document No. 2016/7). Guowuyuan guanyu Gangtie Hangye Huajie Guosheng Channeng Shixian Tuokun Fazhan de Yijian, Guofa No. 2016/6, in Chinese (State Council Opinion on Smooth Development of the Steel Industry by Alleviating Excess Capacity, State Council Document No. 2016/6). Qu Channeng Quannian Mubiao Nenggou Ruqi Wancheng, in Chinese (The Year-end Targets Can be Met) available on the government website *www.gov.cn/xinwen/2016-08/20/content_5100885.htm*, accessed on August 22, 2016. Press conference by the Ministry of Human Resources and Social Security available at *www.chinanews.com/cj/2016/02-29/7777138.shtml* accessed on March 7, 2016.

One organising principle of the process of cutting excess capacity is local leadership. While it creates a sense of ownership, it also slows the process, especially in the regions where excess capacity and costs are the highest. More central government support could accelerate the process in such cases. The overall employment impact of capacity reduction is expected to be modest as most of the sectors affected by overcapacity tend to be capital-intensive (OECD, 2015a). The nine major sectors with sizeable excess capacity employ around 16 million people, or about 4% of the total urban labour force. Workers made redundant with the capacity cuts are retained in the enterprise, transferred to other enterprises, offered a severance package or, as a last resort, moved onto early retirement.

In December 2015, the Central Economic Work Conference stressed the importance of cutting excess capacity as a major supply-side reform measure. Supply-side measures were expected to effectively address the issue of excess capacity, unlike demand-side measures such as the scrap-and-build subsidy in shipbuilding. However, by February 2016, when the targets for capacity reduction were announced, ambitions had been scaled back owing to concern over short-term economic growth (Table 1.1). In steel, for instance, 150 million tons of capacity is to be eliminated over 2016-20, although at end-2015 excess capacity reached 336 million tons (Center on Globalization, Governance and Competitiveness at Duke University estimate). Even though annual capacity reduction targets so far have been met, as those targets have been relatively modest, the 2016 Central Economic Work Conference reiterated the importance of cutting excess capacity as a major objective for 2017. Coal mining capacity is to be cut by 150 million tons and steel production capacity by 50 million tons. The scope of reduction of excess capacity will go beyond steel and coal in 2017. Coal power generation capacity is to be cut by 50 million kW.

Delaying the necessary adjustment to work off excess capacity by rolling over loans, persuading investors not to exercise their rights to avoid funding pressure on ailing companies or in other ways to artificially keep unviable firms afloat, will lead to a further build-up of imbalances. Moreover, despite the capacity reduction targets, declining demand for steel and demand weakness in several other sectors affected by overcapacity imply that capacity utilisation rates may not improve much in the short term. This will keep prices down and force or keep otherwise efficient private companies out of the market. Furthermore, subsidies to ailing firms impose a large burden on the budget and slow the necessary adjustment. Last but not least, keeping loss-making polluting firms afloat takes a toll on the environment.

Strengthening the role of innovation and entrepreneurship as drivers of growth

Innovation and reallocation are key for sustainable growth: new industries will emerge to meet new types of demand and traditional industries will be upgraded to produce better quality and greener goods, or phased out. The importance the Chinese government attaches to innovation is reflected in its choice of innovation as one of the five keywords for the current Five-Year Plan, alongside coordination, sharing, green development and opening up. The emphasis on innovation is not new, however, and much progress has already been achieved, as documented in the *2015 OECD Economic Survey of China* (OECD, 2015d). In some respects, China still has room to catch up with the frontier. In addition to setting the main directions (Box 1.1), new initiatives have therefore been launched in 2015, notably Made in China 2025 and Internet Plus, backed up by increased public funding (Box 1.2). The major policy targets emphasise human capital, financing of innovation and technological progress. Also, more attention is being paid to quality and greening. Green technological innovation, which is being embraced by China, will lead to a better utilisation of resources and hence, to higher overall efficiency. Furthermore, innovation is to be coupled with entrepreneurship.

Progress in innovation has been impressive, but more focus on outcomes is needed

China's gross expenditure on R&D reached just over 2% of GDP in 2014, in line with that of the EU 15 economies and well above countries with a similar level of GDP per capita such as Chile, South Africa or Turkey, but still behind major innovators such as the United States or Japan. However, research personnel, as a share of the total employed, has not kept up with R&D outlays (Figure 1.1). Research money has mostly been spent on developmental rather than on applied or basic research, consistent with a view of science emphasising development (Sun and Cao, 2014). Only 5% of the total was channelled to basic research, as against 18% in the United States (2013) and 12% in Japan (OECD, 2015f).

Not only is total R&D spending as a share of GDP high in China given its level of GDP per capita, but within it the share of the business sector exceeds three-quarters (Box 1.3). Business spends more on R&D in China than in the median OECD country (Figure 1.3). It also spends more on industry-financed public R&D spending. Chinese firms have become more innovative in response to wage pressure and global opportunities (Wei et al., 2016).

Box 1.1. **Policy targets for science, technology and innovation development in China**

The 2006 Medium and Long-term Plan for Science and Technology Development set out major policy directions. In 2010, a set of seven "strategic emerging industries" was identified, whose share in GDP was to rise to 15% by 2020. In 2015, the focus broadened with the unveiling of Made in China 2025 and Internet Plus, which is more comprehensive and also puts a greater emphasis on market mechanisms. The 13th Science, Technology and Innovation Five Year New Plan was issued in August 2016 and provides more specific guidance on how to achieve the 12 targets set out by the Plan by 2020 (Table 1.2). The New Plan treats innovation as both a technological and an economic concept. It defines a tiered system for innovation, with the major cities competing in the world innovation arena, followed by indigenous innovation zones and high-tech zones, and then innovation centres with strong ability to drive regional development and finally extension of the various experiments with innovation reform.

Table 1.2. **Targets for the 13th Science, Technology and Innovation Five Year New Plan**

Target indicator	2015	2020
Global ranking in overall innovation capability	18	15
Contribution of technological progress %	55.3	60
R&D spending as % of GDP	2.1	2.5
Researchers per 10 000 employees	48.5	60
Operating revenue of high-tech enterprises (CNY trillion)	22.2	34
The share of knowledge-intensive services value added in GDP	15.6	20
The ratio of R&D spending and operating revenue from main business for industrial enterprises above the designated threshold	0.9	1.1
Global ranking by citations of scientific papers	4	2
PCT patent applications (thousand)	30.5	61
Invention patents per 10 000 people	6.3	12
Technology contract value (CNY billion)	983.5	2 000
The share of science professionals, defined as those understanding and able to use science in the population	6.2	10

Source: Guofa 2016/43 Guanyu Yinfa Shisan Wu Guojia Keji Chuangxin Guihua de Tongzhi (Notice on the 13th Science, Technology and Innovation Five Year New Plan), Guobanfa 2016/28 Guanyu Yinfa Cujin Keiji Chengguo Zhuanyi Zhuanhua Xingdong Fangan de Tongzhi (Notice on promoting commercialisation and transfer of S&T outputs), 2016-20 Nian Quanmin Kexue Suzhi Xingdong Jihua Zhaiyao Shishi Fangan (2016-20 Implementation of improving science skills of all citizens).

In addition to those set in the Five Year New Plan, a number of specific targets for 2020 are being pursued. For instance, the number of professional farmers aware of modern agro-technology is to increase to 10 million. Quantifiable targets have also been set with respect to the commercialisation and transfer of science and technology outputs, with a view to increase their relevance and quality: i) establishment of 100 model technology transfer institutes; ii) supporting the creation by sub-national governments of 10 model zones for commercialisation and transfer of science and technology outputs; iii) training 10 000 technology transfer professionals; iv) reaching CNY 2 trillion worth of technology contracts.

Box 1.2. **Made in China 2025 and Internet Plus**

Made in China 2025 is the first action plan specifically targeting manufacturing. It is inspired by Germany's "Industrie 4.0" plan. To transform China into a world manufacturing power by 2025, the plan lists nine tasks: 1) improving innovation in the manufacturing sector, 2) integrating technology and industry, 3) strengthening the industrial base, 4) developing Chinese brands, 5) fostering green manufacturing, 6) continuing restructuring of the manufacturing sector, 7) promoting service-oriented manufacturing with a focus on product customisation, 8) internationalising production and 9) promoting breakthroughs in 10 key sectors. The 10 priority sectors are: 1) new advanced information technology; 2) automated machine tools and robotics; 3) aerospace and aeronautical equipment; 4) maritime equipment and high-tech shipping; 5) modern rail transport equipment; 6) new-energy vehicles and equipment; 7) power equipment; 8) agricultural equipment; 9) new materials; and 10) biopharma and advanced medical products.

For some of the priority sectors, 2020 objectives were specified. For instance, the Development Plan for the Robotics Industry 2016-20, issued in May 2016 aims at 1) larger industry scale, i.e. an annual domestic production of 100 000 industrial robots, 2) better quality, i.e. 80 000 hours mean time between failures for domestically produced industrial robots, 3) 50% or greater market share for domestic core components and 4) more widespread application of industrial robots, i.e. 150 robots per 10 000 employees.

The nine main tasks including breakthroughs in the 10 priority sectors are supposed to be market driven, but government guidance and support is provided in the form of various subsidies and accelerated depreciation. The Made in China plan also aims at achieving a 40% domestic reliance in core components and basic materials by 2020 (and 70% by 2025). This compares with the 2006 Medium and Long-term Plan target of at least 70% domestic reliance in terms of overall technology by 2020 that was achieved well ahead of time. To support the Made in China 2025 initiative, the government set up the CNY 20 billion Modern Manufacturing Industry Investment Fund, CNY 6 billion of which are allocated from the government budget.

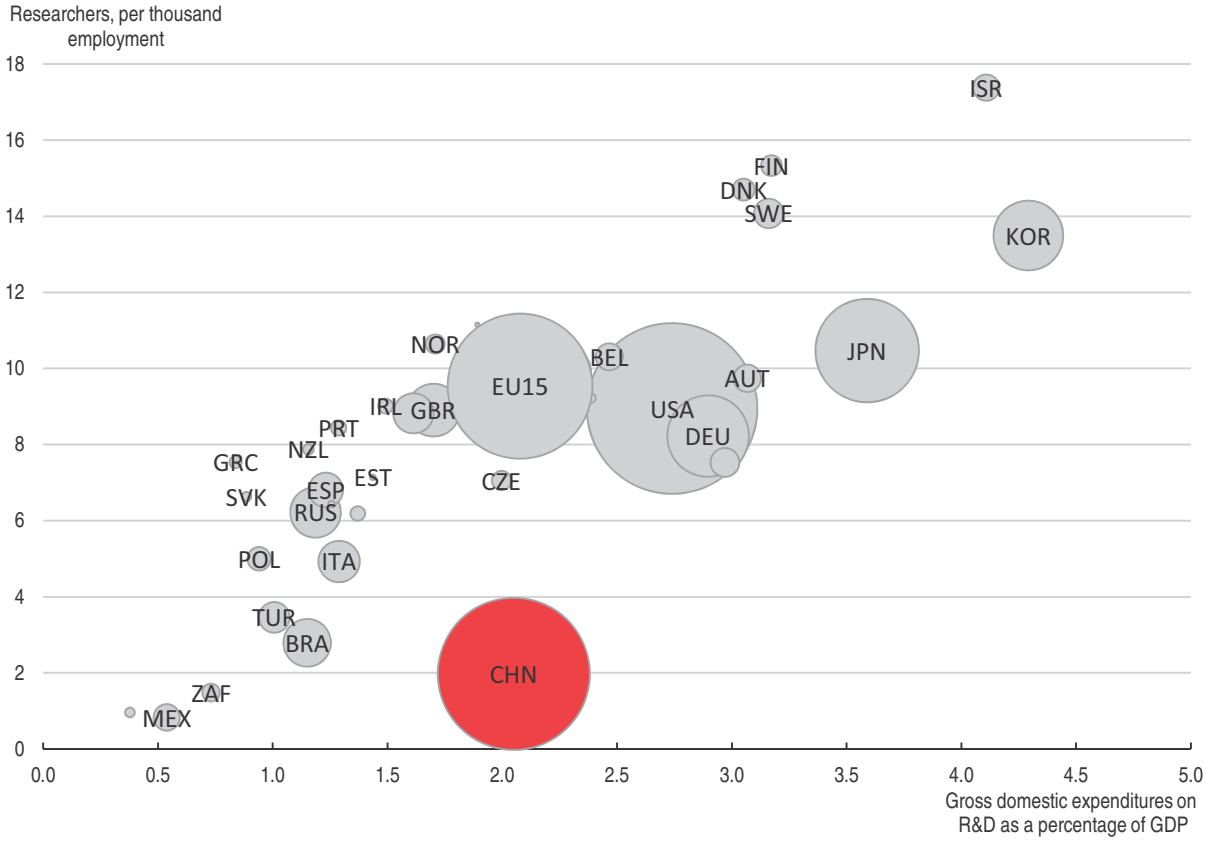
Internet Plus seeks to integrate mobile internet, cloud computing, big data, and the Internet of Things with modern manufacturing, to encourage the healthy development of a wide array of services, and to get internet-based companies to increase their presence in the international market. The 11 priority areas where internet will be promoted include entrepreneurship/innovation, integrated manufacturing, modern agriculture, intelligent energy, internet banking and other financial services through the internet, public services, efficient distribution, e-commerce, transport, green ecology and artificial intelligence.

Smart cities and communities are envisaged to emerge as a result of Internet Plus initiative, with an increased level of digitisation and e-government services. Hospital services such as making appointments and getting the results of diagnoses online are already available in some cities. In the area of commercial services, online booking and other services are even more widespread.

Source: Guofa 2015/28 Guanyu Yinfa Zhongguo Zhizao 2015 de Tongzhi (Notice on Made in China 2025), Guofa 2015/40 Guanyu Jiji Tuijin Hulianwang Jia Xingdongde Zhidao Yijian (Guiding Opinion on Promoting Internet Plus Activities).

Figure 1.1. **China has become a major R&D power, but the share of researchers is low**

2014 or latest year available



Note: The size of the bubble indicates the size of spending in absolute terms measured in 2010 USD PPP prices. In China, all people in agriculture are defined as employed, which affects total employment.
Source: OECD Main Science and Technology indicators (MSTI) database (2016).

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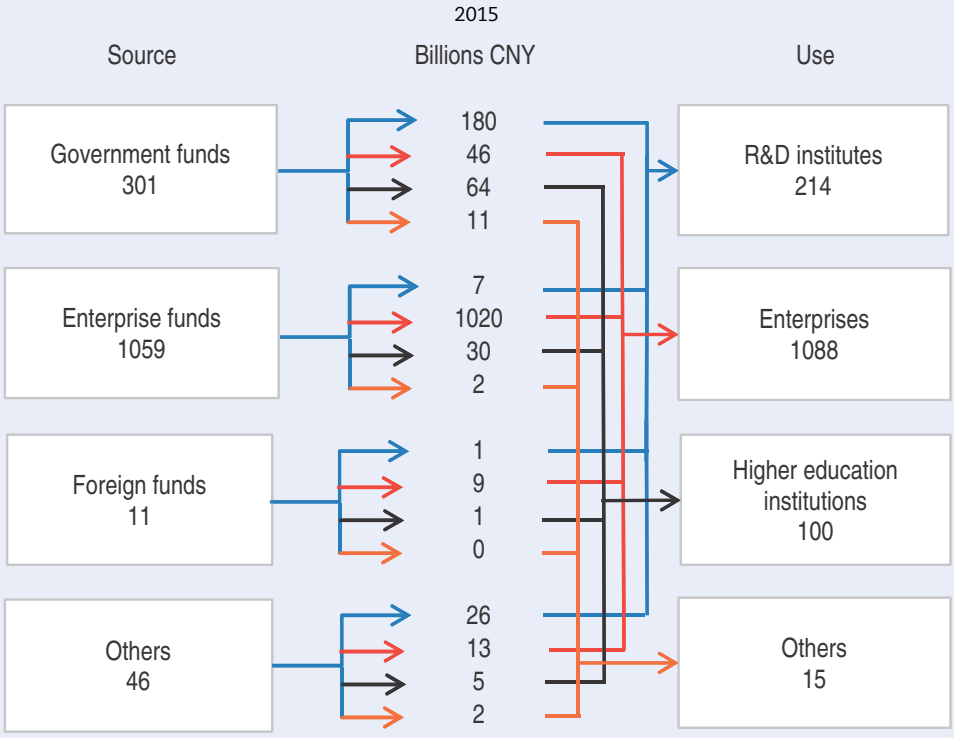
The number of patents has increased rapidly alongside the rise in R&D spending. In absolute terms, China is a leader in patents: in 2015, its patent filings exceeded one million, making up over a third of the world's total. In that year, China also surpassed the United States as the largest patent issuer. Moreover, China has been a frontrunner in fast-track "green" patent applications. The elasticity of patenting with respect to R&D spending, however, is small (Dang and Motohashi, 2015). Indeed, beyond R&D spending, the surge in patenting in recent years has been driven by FDI and institutional change (Hu and Jefferson, 2009), technology transfer (Lin et al., 2015) and subsidies: around a third of the increase can be ascribed to subsidisation (Dang and Motohashi, 2015).

On average, the impact on productivity of new patents has declined, though private firms appear to achieve greater productivity gains from their R&D efforts (Boeing et al., 2016). The decreasing productivity impact of soaring patenting activity is largely related to quality and relevance issues. Most Chinese patents are utility or design patents and only a smaller share are genuine inventions. Furthermore, only a fraction of Chinese patents are also registered in the United States, the European Union and Japan. On this measure, China lags behind most OECD and many emerging economies (Figure 1.4). As the 2015 *OECD Economic Survey of China* pointed out, the utilisation rate of university patents is low

Box 1.3. **Where is R&D money coming from and who spends it?**

Over three quarters of R&D spending in China is attributable to enterprises (Figure 1.2). Most of the R&D money firms spend is raised by them, only 4% comes from the government budget and even less from foreign and other sources. Thus, the business sector is both the main source and the main spender of R&D funds. In addition to its own spending, 3% of its total spending on research is directed to universities and 0.6% to public research institutions. Within enterprises, State-controlled firms (including enterprises of different types with absolute or relative State control) commanded a 32% share in 2014, a sharp fall from 55% in 2005.

Figure 1.2. **Firms are key suppliers and spenders of R&D funds**



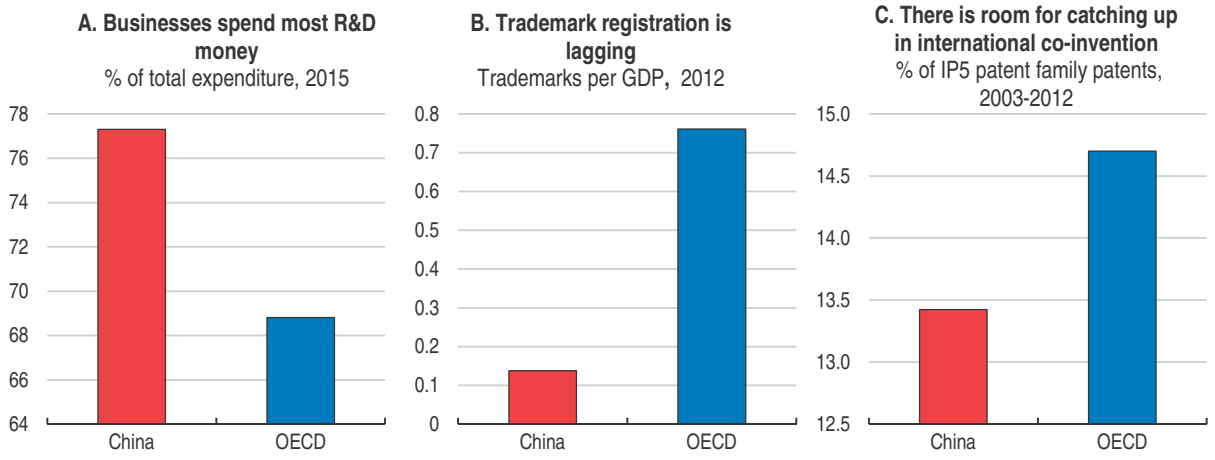
R&D institutions, mostly relying on government funding, are another key dispenser of R&D funds, though their share is less than a fifth of that of enterprises. Higher education institutions follow in importance, with spending nearly half of that of research institutions.

Public R&D spending at the central government level is disbursed to several dozens of agencies, with the Chinese Academy of Sciences, the Ministry of Science and Technology, the Natural Science Foundation, the Ministry of Agriculture, the Ministry of Industry and Information Technology and the Ministry of Education jointly commanding 35% of the total. From publicly available data, roughly half of central R&D spending is disbursed by government agencies, the other half most likely by SOEs.

Direct R&D spending, however, is not the only way the government supports research activities. Support through R&D tax incentives in China is of the same order of magnitude as direct support.

Source: *Yearbook of Science Statistics*, 2016 and Departmental Budgets of budgetary institutions.

Figure 1.3. **China leads in some aspects of innovation and lags in others**



Note: IP5 patent families include patents filed at one of the five patent offices the European Patent Office, the Japan Patent Office, the Korean Intellectual Property Office, the State Intellectual Property Office of the People's Republic of China and the United States Patent and Trademark Office (the so-called IP5), according to the earliest filing date and the applicant's residence. IP5 patent families have at least two members, one of which is in the IP5. For further details on the definition of IP5 families see pp. 20-21 at *www.oecd.org/sti/inno/World_Corporate_Top_RD_Investors_Innovation_and_IP_bundles.pdf*. The number of trademarks is normalised by GDP in USD PPP to take country size into account.

Source: OECD Science, Technology and innovation Outlook (2016), based on OECD (2016), Main Science and Technology Indicators, December, *www.oecd.org/sti/msti*; OECD (2016), STI Micro-data Lab: Intellectual Property Database, December, *http://oe.cd/ipstats*.

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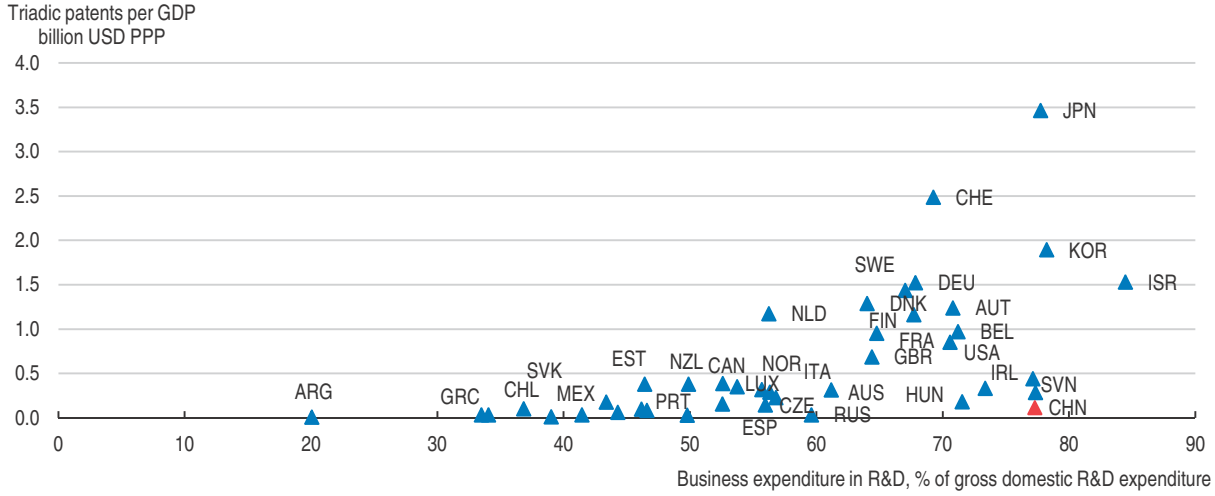
Figure 1.4. **Innovation outcomes are not on par with R&D spending by the business sector**

2014 or latest year



Note: R&D spending data are from 2014 or the latest available year, patent data 2013 or the latest available year. Triadic patents are those registered in the United States, the European Union and Japan.

Source: OECD calculation based on OECD Main Science and Technology Indicators (MSTI) database.

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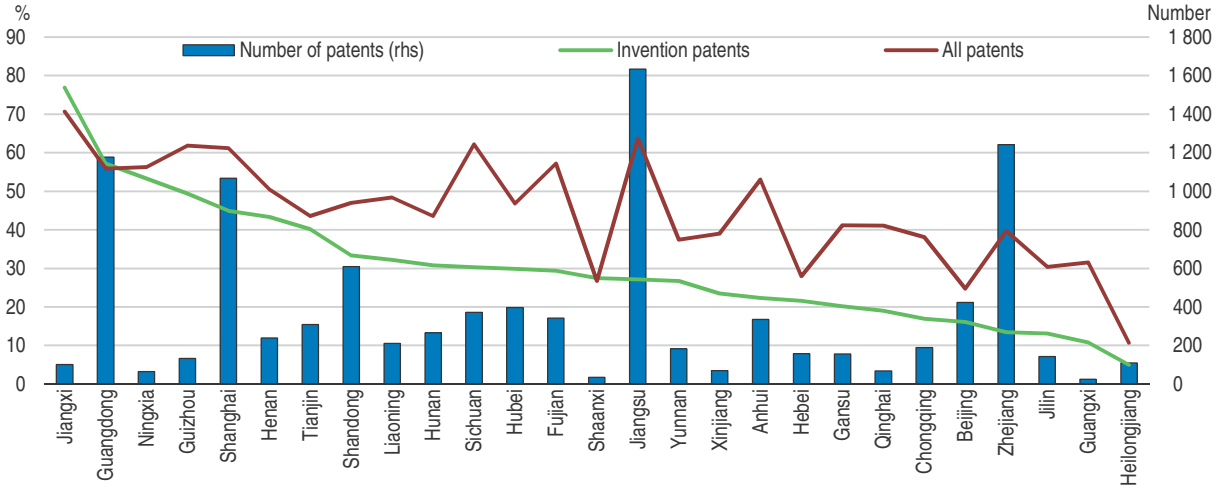
at around 5% compared to 27% in Japan (OECD, 2015d). In contrast, for firms it approaches nearly two-thirds, comparing well with other countries. A successful example of increasing utilisation is the applied laboratory for nanotechnology under the Chinese Academy of Sciences established in 2015.

Utilisation of patents is not necessarily related to the number of registered patents in the province (Figure 1.5). Moreover, patenting or even patent utilisation is not necessarily related to enhanced productivity. Notwithstanding the large number and high utilisation of patents in Guangdong, there is no concentration of high-productivity firms there unlike in the Yangtze River delta (OECD, 2014b). This might be related to the highly concentrated holding of patents by a small number of firms without much spillover to the surrounding firms in Guangdong.

Figure 1.5. **Patent use varies considerably across provinces**

Share of effective patents used in production and put on the market (LHS) and number of patents (RHS), 2014



Note: The survey on which these shares are based has been conducted on a representative sample of patent holders, stratified by province. Patents include invention patents, utility patents and exterior design patents.

Source: 2014 Nian Zhongguo Zhuanli Diaocha Baogao (2014), in Chinese, 2014 China Patent Survey Report, State Intellectual Property Office.

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Innovation and the diffusion of its benefits are hampered in China by limited collaboration across firms, as shown by the patent survey by the State Intellectual Property Office (SIPO, 2015) and documented in the literature (Zhao, 2015). In the Chinese ecosystem of innovation, vertical linkages or interactions with suppliers and customers are well established but horizontal linkages are more limited (Zhao, 2015). Most R&D projects are carried out by the firm alone, collaborative projects with research institutions are rare and with other firms even scarcer. This silo effect is detrimental to potential spillovers and the exploitation of complementarities across firms. The first national-level manufacturing innovation platform, established in June 2016, aims to exploit synergies and complementarities across activities and to strengthen the link between development and commercialisation.

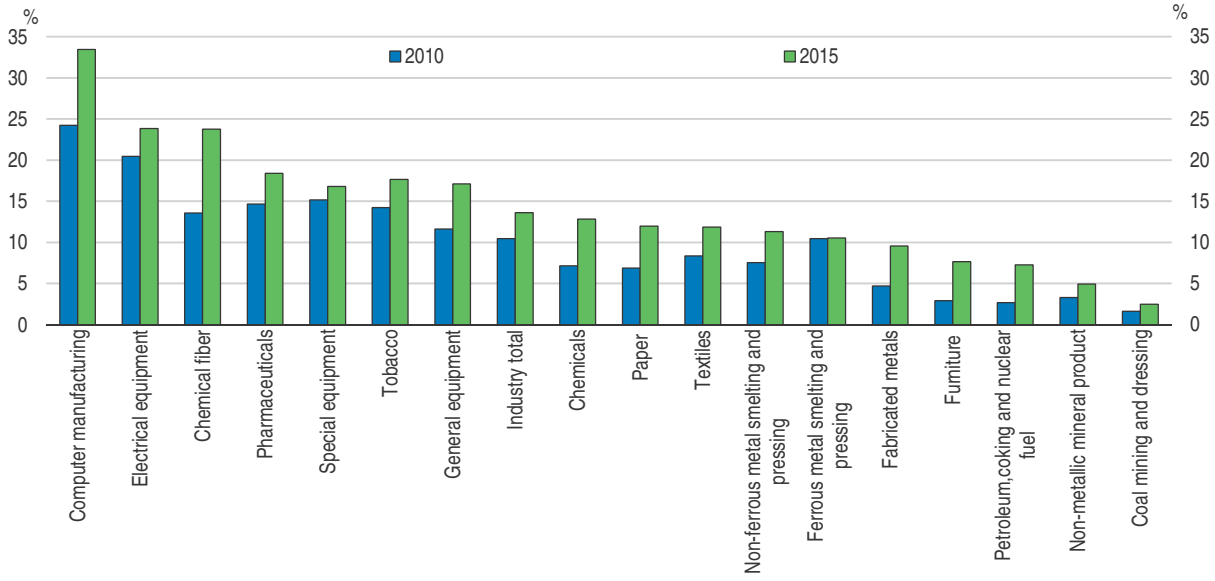
Even though patents may be good indicators of innovation activity, not all innovations are patented. Weak protection of intellectual property rights (IPR) has hampered innovation and patenting in China. Companies often do not bother registering patents: two-thirds of them think that patent rights cannot effectively prevent others from copying their inventions. According to a country-wide representative survey of patent holders by the State Intellectual Property Office, 18% of patent owners have experienced violation of their rights, but 37% of them did not take any measure in response (SIPO, 2016). The problem is especially acute for micro-enterprises. Domestic firms are more likely not to

take any measure than foreign-invested firms. According to survey respondents, violation of commercial secrets causes a greater damage to firms than that of patents, but damage related to violation of trademarks, copyrights and topographies of integrated circuits is relatively low. Over half of the firms think that better protection by patent rights would effectively stimulate innovation at firm level and 87% say that IPR protection should be strengthened. In addition to IPR protection, most firms try to: i) reap the first-mover advantage by quickly marketing their invention; ii) sign confidentiality agreements with staff; or iii) change products quickly so that competitors cannot catch up.

In addition, not all inventions are patentable and other metrics such as the share of new products or trademarks can help gauge innovation performance. New products make up over a fifth of sales in some high-tech industries, such as chemical fibres, electrical equipment or computer manufacturing (Figure 1.6). To be classified as such, products need to be fundamentally different from existing ones in function, components or technology. They can be designated as new by the Ministry of Industry and Information Technology or, only for one year, by the producer. Firms recognised as producing new products are eligible for tax reduction and support from sub-national governments. In contrast, China appears weaker on trademarks (Figure 1.3) – an indicator of non-technological innovation that is particularly relevant for services. To overcome the lack of branding in general, notwithstanding the success of some local brands, acquisition of brand names through overseas M&As has been on the rise in recent years prompting the Government to call for stronger branding and upgrading of consumer products.

Figure 1.6. **New products make up a substantial part of revenue in some high-tech industries**

Share of new product sales in total



Note: New products need to be fundamentally different from existing ones in function, components or technology. They can be designated as new by the Ministry of Industry and Information Technology or, only for one year, by the producer. Industry classification follows the Chinese system.
Source: National Bureau of Statistics.

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Innovation activities can be affected by corporate governance. Historically, patenting by small and medium-size enterprises has been correlated in China with enterprise ownership concentration and some corporate governance features such as the size of the board, the number of independent directors sitting on the board and whether the CEO is hired externally (Shapiro et al., 2015). Patenting activity first increases with ownership concentration as block owners care more about the company's long-term development and therefore are more willing to invest in innovation activities. Beyond a critical threshold, however, ownership concentration appears to affect patenting negatively. This may be related to increasing risk aversion in the case of private firms as often their personal wealth is invested in the firm and they have limited options for portfolio diversification.

Policy support for innovation is becoming more comprehensive

Innovation – or more precisely science and technology – has long been considered in China as key for development and is therefore supported by a plethora of industrial policies. The innovation system has traditionally been segmented between the public and the private sector (Zhao et al., 2011). Public funding has been geared to SOEs and public research institutions, which boast remarkable scientific and technological achievements in a wide range of areas, including 3D printing, nanotechnology and robotics (OECD, 2017). Private enterprises using foreign technology, mainly in the South of the country, have relied on private funding and engage in fierce competition with each other. Also, funding has been biased towards frontier-technology projects. Researchers interested in developing new technologies in traditional industries receive scant encouragement as such research activities are not included in the national support catalogue, and are therefore not eligible for public funding.

In addition to directed government spending on projects of high importance, a number of subsidies have been extended to firms engaged in high-tech industries. The designation as high and new-technology enterprise, however, is done in differing ways across the country, creating an uneven playing field. Moreover, the 2016 revision of the definition includes more stringent standards for IP ownership implying that a global exclusive licence for over five years can no longer be the basis for obtaining high and new technology enterprise status. This would deprive many foreign high-tech firms of their existing or prospective status, as they tend to own a large part of their IP outside of China (European Chamber of Commerce, 2016). Ultimately, fewer foreign firms might choose China as a research base, potentially reducing knowledge spillovers to the domestic economy.

Subsidy policy is evolving in other ways as well. Patenting has long been enjoying generous support. Since the late 1990s, sub-national governments provide exemptions from application and/or examination fees and/or offer prizes for successful patent filers. More recently, the patent fee-exemption scheme adopted in 2006, which benefits some 70% of applicants, has been streamlined. Since September 2016, individuals with an income below CNY 3 500 per month and firms with pre-tax revenue below CNY 300 000 per year are eligible for an exemption of up to 85% of fees related to application, examination, maintenance and re-application of a patent. Subsidies at the filing and examination phase tend to be particularly harmful as the former encourage filing non-patentable or low-quality/low-value inventions and the latter hinder the filtering effect of examination fees and overload patent examiners, imposing a congestion externality on other applicants. Grant-contingent subsidies may be the least harmful, though they still boost low-value and/or low-quality patents. Streamlining patent subsidy policies could lead to higher quality and more relevant patents.

Another recent initiative is to grant company shares to technology personnel in technology-oriented SOEs to reward good performance. The specific scheme, which is still to be disclosed, should strike a balance between being sufficiently attractive to encourage better research performance and avoiding the leakage of state assets. Upon leaving the company, staff could be required to sell their shares back to the company at the prevailing market price in the case of listed firms or according to pre-determined rules if not listed.

Specialised IPR courts have been set up since 2014 in Beijing, Shanghai and Guangzhou. Together, they dealt with around 8% of all concluded IPR cases in 2015. Of the 120 000 cases, 62% were related to copyrights, 22% to trademarks, 10% to patents and the remaining 6% to technology contracts, unfair competition and other disputes (Supreme People's Court of the PRC, 2016). Specialisation is justified on the basis of training qualified specialists for an effective handling of cases. Those specialists are expected to understand both technology and law and therefore are hard to recruit. In China, such courts are expected to strengthen IPR protection. A key difficulty experienced elsewhere, however, is that a specialised court system is more likely to lead to interest-group capture (Dourado and Tabarrok, 2015).

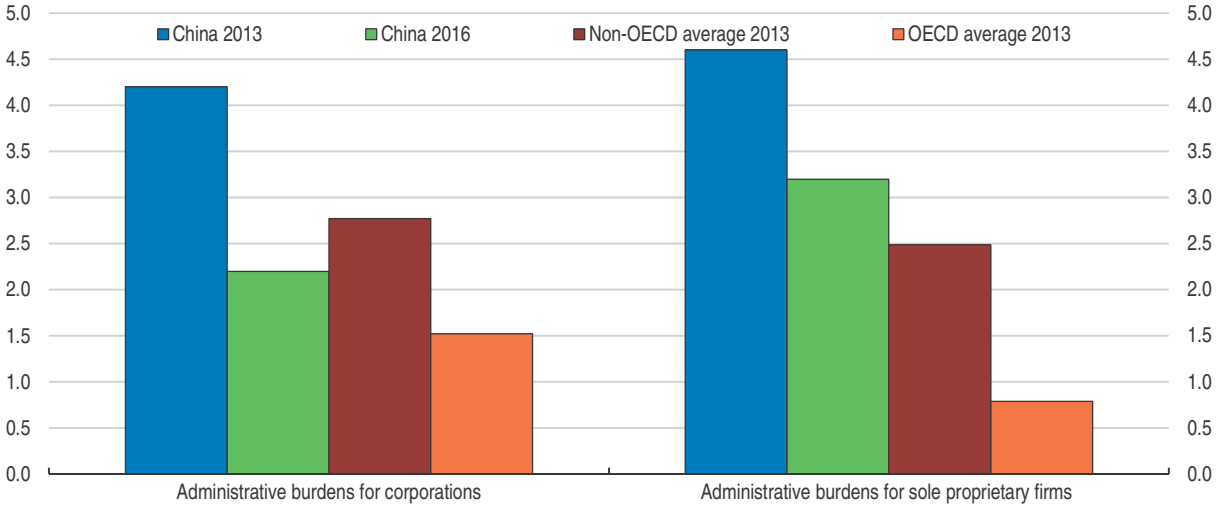
Like in many OECD countries, high-tech parks play an important role in nurturing innovation (Ou et al., 2014 and Sun and Liu, 2014). They numbered 146 in 2015 at the national level, accommodating over thirty thousand high-tech firms (41% of the country's total), accounting for 32% of enterprise R&D spending and boasting 8.5 times more invention patents per employee than the national average. Some high-tech parks provide an integrated service package including technology trade, incubator guidance, international liaison and finance. For example, the Shijiazhuang high-tech park (in Hebei Province) established an administration and licensing bureau, which incorporates 151 functions of nine agencies, thereby reducing the number of stamps from 21 to a single one and economising costs. To facilitate the next upgrading, however, and to remain a major actor in the field of innovation, high-tech parks need to move from managing science and technology activities to tailoring services to the ever-evolving needs of enterprises.

The business environment needs to become more conducive to innovation

The easing of administrative burdens on start-ups and streamlining of procedures have reduced overall barriers to entrepreneurship (Figure 1.7). This has spurred business creation, which is an important source of innovation and productivity growth, and has accelerated recently as over 350 administrative procedures were either abolished or delegated to the sub-national level. In 2016, 16.5 million new business entities were registered, making up nearly 19% of all registered business entities. Nearly a third of them chose to register their business as a company, and over two-thirds as individual businesses (*getihu*). In 2016 there were 87 million business entities in China, a doubling in seven years. Among the newly registered companies, over 80% operate in the service sector, a slight increase from a couple of years before. Two-thirds of all new firms were registered in the Eastern region of the country, which is the most prosperous. Nevertheless, there is ample room to make the business environment more entrepreneurship-friendly.

Figure 1.7. **Barriers to entrepreneurship are falling rapidly**

Barriers to entrepreneurship component of the OECD Product Market Regulation indicator, 2013 and 2016



Note: The value of the indicator ranges from 0 to 6, with 6 being the most restrictive.
Source: OECD Product Market Regulation database and OECD updates for China for 2016.

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Indeed, competition remains low in many sectors, particularly in network industries. In the energy sector, introducing competition, shifting towards retail prices that reflect actual costs of generating, transmitting and distributing electricity, and incorporating the environmental costs of carbon-generated energy into prices are key to enhance efficiency. Electricity price reform is being piloted with cost-plus pricing or direct negotiation between the generator, the buyer and the grid company, which should result in lower energy prices.

In sectors such as internet services, oligopolistic market conditions hinder the formation of start-ups as the platforms which are the basis for applications are owned by a few large players. Mandatory sharing of internet platforms would facilitate the commercialisation of computer applications and thus boost start-ups where entry costs are otherwise relatively low. Furthermore, internet fees are high, speed is low and consumers often have no choice of provider, as networks are not shared.

The opposite problem arises in manufacturing industries and some services sectors, such as retail or land transportation, where companies engage in cut-throat price competition rather than innovation, endangering product quality and safety. This race to the bottom often leads to counterfeiting and ignoring product safety regulations. Establishing and enforcing standards while raising consumer awareness and enhancing consumer protection would help promote fair competition, provided such efforts do not unduly raise barriers to entry.

Efforts to reduce the costs of doing business are being broadened and intensified. These reforms are welcome to ease the burden on firms facing deteriorating profitability, but there is still ample room for more extensive reforms. With the unification of licences and procedures, the list of agencies has not been exhausted: there is still some way to go to achieve a one-stop shop. A pilot programme has been introduced in Jiangxi Province to unify all the nine procedures to register a business.

To foster innovative ideas, the government is promoting mass entrepreneurship, which is meant literally: people from all social strata are encouraged to set up a business to realise their ideas. Chengdu, the capital of Sichuan Province, is a successful model for promoting innovation through entrepreneurship. Through its development plan based on innovation as a major driver, effective implementation of administrative simplification and other measures, the city managed to attract fresh graduates with new ideas. Another important factor in attracting young entrepreneurs is the city's reputation as an IPR protection model city. As a result, innovation and start-ups are thriving with a survival rate of 70-80% after one year. Civil servants, university teaching staff and students can leave their positions to do business for a couple of years with a return guarantee. This possibility is not taken up much, however, because such an absence reduces promotion chances in the administration or academia. Migrant workers are encouraged to return to their homes to start a business and spread knowledge gained during their city life. The Internet Plus programme will be key in driving this return of migrants bringing e-commerce into rural areas and establishing 200 model counties for integrated provision of distribution services at the county, township and village levels. People willing to return to the countryside and set up a business will enjoy an opportunity to participate in training at least once by 2020 and be exempt from or subject to reduced taxes, surcharges and contributions.

The "New Normal", with lower overall growth and corporate profits, can improve the funding environment for start-ups insofar as investors seeking high returns now need to invest at an earlier stage than in the past. Indeed, in 2015, funding at the seed and early development stages accounted for around 55% of all investment, an 11 percentage-point increase relative to 2013. In addition, the increasing number of high net-wealth individuals makes for a growing pool of potential domestic venture capitalists, reducing the need for foreign or state-backed funding of new ideas. These investors appear to be diversifying their portfolios sectorally (though internet services remain the favoured target) and geographically (Box 1.4).

Box 1.4. **Where are angels investing?**

Although angel investment is relatively nascent in China, some sectors, such as internet services, telecommunications, and other IT-related activities have attracted sizeable funds. In 2015, the internet service sector commanded half of all angel investment at CNY 5.1 billion, followed by telecommunications with a 16% share and IT with a share of 8%. While internet services have remained a major destination, the past years saw diversification within this sector with internet finance, online travel services, online catering services and online-to-offline boasting the largest amounts of investment. These industries are characterised by small-scale, rapid growth and bright potential – ideal features for angel investors.

Although two-thirds of angel investment is still channelled to the three cities of Beijing, Shanghai and Shenzhen, government guidance helped to attract an increasing number of angel investors and amount of funds to Zhejiang and Guangdong provinces. In addition, the ever-fiercer competition among investors in the coastal areas provided a chance to entrepreneurs with ideas in inland provinces to realise them and provinces like Sichuan and Shaanxi have become vibrant centres of innovation in the West.

Source: NDRC (2016), 2015 Nian Zhongguo Dazhong Chuangxin Wanzhong Chuangye Baogao (2015 China Entrepreneurship and Innovation Report).

The steps taken to facilitate firm creation need to be accompanied by measures to ensure that unviable firms exit the market. By 2013, around half of all steel mills and nearly half of all developers were making losses but could still obtain loans, or were unable to discharge their interest payment obligations (National Academy of Development and Strategy of Renmin University, 2016). OECD research shows (Adelet McGowan et al., 2017) that zombie-firms aggravate capital misallocation and by preventing more efficient firms from expanding, also drag down productivity. Major impediments to bankruptcy initiation include the lack of a feasible and acceptable worker compensation plan and resistance at the local level. The length and high degree of uncertainty associated with the bankruptcy procedure may also discourage firm managers from choosing this form of exit (Box 1.5). Firms that are able to obtain new bank loans (or roll over existing loans) notwithstanding their balance sheets and the size of their debt, or those that can cover their liabilities with their assets, notwithstanding their loss-making record and prospects, do not meet the conditions and therefore cannot apply for bankruptcy. Moreover, publicly-owned firms can only apply for bankruptcy if their asset managers agree. Agricultural producers and private entrepreneurs do not need to apply, but can choose to follow the rules of the bankruptcy procedure if they wish to do so.

Box 1.5. **China's Bankruptcy Law**

The current Bankruptcy Law, adopted in 2006, applies to all entities with a legal-person status. The Law specifies the conditions for bankruptcy, which include a high debt level and little prospect for its repayment as well as a worker compensation plan. Either the company or its creditor can file for insolvency; in the former case the requirements in terms of documents are slightly more stringent. Once either side has filed for bankruptcy, the court examines whether the conditions are met and whether the documents are valid. At the time of filing it needs to be specified whether it is for liquidation or reorganisation, but that classification can change during the process. For instance, if a company filed for liquidation but during the process it records a positive valuation effect for its assets, it will be considered for reorganisation. By the same token, a company seeking reorganisation may end up being liquidated if no feasible restructuring plan can be devised.

If the court judges that the firm meets the requirement for bankruptcy, it appoints an insolvency practitioner to manage the company throughout the process. The court draws on a pool of accountancy and law firms as well as specialised bankruptcy professionals, from which it randomly assigns one. The practitioner then acts according to the decision of the creditors' committee whether to keep production going or to lay off staff. For production purposes, the company can take up new loans. In the case of liquidation, when it comes to the distribution of the proceeds of the sale of the debtor's assets, expenses of the bankruptcy procedure enjoy priority, followed by wages, social security and loans for operational purposes during the procedure, then by tax liabilities, and secured and unsecured creditors. While collateralised debt needs to be honoured before unsecured liabilities, if debt of higher priority such as costs of the bankruptcy procedure or unpaid wages is large enough, creditors may not be able to get hold of the collateral. The sale of assets must be through auction by a professional company, except when all creditors agree to the price of the assets, in which case they can be directly sold without auctioning. The proceeds are then distributed proportionately to the recognised claims.

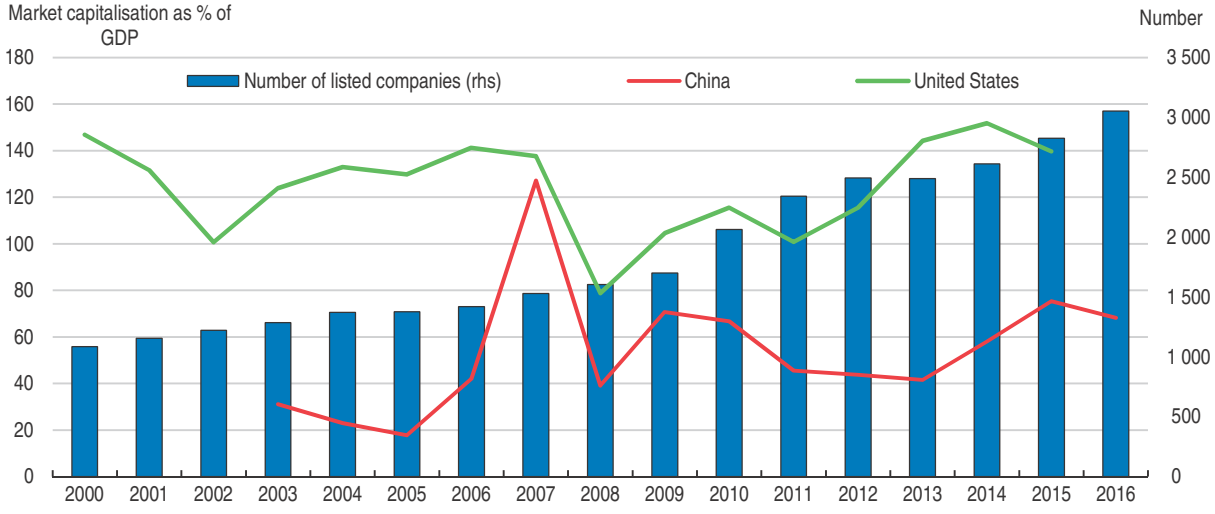
Source: Enterprise Bankruptcy Law of the People's Republic of China, available at *www.npc.gov.cn/englishnpc/Law/2008-01/02/content_1388019.htm*, accessed on 28 June 2016.

At the time of its enactment the new Bankruptcy Law was considered progressive and well-suited to the increasingly market-based economy. However, China's economy has undergone significant changes since then, and bankruptcy legislation needs to keep up, particularly as regards conditions for bankruptcy and law coverage. Compensation plans for workers should not be a condition for filing bankruptcy. Instead, workers should be compensated according to relevant laws. Financial institutions are still not covered by bankruptcy legislation and their insolvency process follows ad hoc rules. The 2015 *OECD Economic Survey of China* recommended that before full liberalisation of interest rates, a deposit insurance system and an exit mechanism be put in place. The latter is still pending. The legislation makes it possible to convert a liquidation case into a reorganisation one if creditors, who control the insolvency practitioner, wish to do so. Creditors may be demotivated by the fear of increased non-performing loans in case of liquidation of their client or by uncertainty related to the insolvency procedure. Uncertainty needs to be reduced by setting clear and reasonably short deadlines for each stage in the insolvency procedure. A major obstacle to getting rid of public zombie companies is the obstruction of the insolvency process by the insolvency manager for fear of state asset embezzlement. The ongoing reform aiming at specialisation of the industry by establishing bankruptcy divisions in intermediate courts in provincial capitals and No. 2 cities in provinces will likely increase the efficiency of case handling. Shenzhen has been a pilot and by July 2016 15 provinces had introduced this new system with nationwide coverage expected by end-year. A simplified procedure for micro- or small enterprises would also work in the same direction.

Building a more robust corporate governance framework

With slowing overall growth and a still sizeable productivity gap vis-à-vis the advanced countries a crucial question is what corporate governance arrangements can enhance efficiency and support economic growth. Effective corporate governance builds confidence in capital markets, which remain underdeveloped in China (Figure 1.8), and

Figure 1.8. **The number of listed firms and market capitalisation in China are on the rise**



Note: Data for China refer to A shares in Shanghai and Shenzhen.
Source: CEIC and World Bank World Development Indicators database.

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enhances trust in business transactions. Furthermore, good corporate governance can encourage socially and environmentally responsible behaviour on the part of firms and make it easier for foreign firms to operate in China.

Streamlining the institutional framework would boost performance

China's legal regime governing securities markets encompasses international good practices to mitigate the principal-agent problem related to asymmetric information between shareholders and managers. In addition to the Securities Law (2005) and the Company Law (2005), listed companies must also comply with guidelines and regulations of the China Securities Regulatory Commission (CSRC). However, there appears to be a gap between the law "in the books" and the law "in action" (Miles and He, 2005; Yang, 2005; Zhou, 2014). Another oft-cited weakness of the legal regime governing securities markets is inefficient (minority) shareholder protection rules (Zhou, 2014).

Both weaknesses are mainly related to weak institutional settings, in particular the lack of court independence and of expertise on the part of judges. On both fronts, recent reforms have brought about significant changes. Judges are now better qualified, partly owing to the requirements to have at least two years of experience working in law and to have a bachelor's degree or a joint law degree as prescribed in the 2001 Judges Law. Also, a recent pick-up in litigations has been increasingly exposing judges to real-life challenges of the corporate world. Following the Third Plenum of the 18th Central Committee of the Communist Party of China, pilot provinces were designated to experiment with reforming the appointment system of judges and paving a professional career path for them (instead of making judges part of the general civil service system as before) as well as lifting the financing responsibility of courts to the provincial level (so that the possibility of local interference in the courts' work is reduced). The reforms have increased the number of cases concluded per judge by as much as two to four times as in the case of Guizhou Province (Supreme People's Court of the PRC, 2016). Moreover, judges now take lifelong responsibility for the outcome of the cases they hear. All these measures are expected to strengthen court independence and enhance the effectiveness and efficiency of the system.

As securities markets in China are governed by strong administrative regulations, public enforcement through the exercise of State power comes first, followed by private enforcement through litigation. There is little role for private-monitoring market mechanisms. CSRC is not only the regulator but also the supervisor and is in charge of enforcement. A major function of CSRC as the regulator of securities markets is its authority over disclosure of information by listing or listed companies. In addition, it can grant or refuse permission for public share offerings and can punish violators of securities laws and regulations. Although CSRC cannot take violators to criminal court, it can freeze or seal accounts with the approval of the State Council. Furthermore, CSRC regulates stock exchanges including appointing their managers and nominating their chairperson.

The recent decision to shift initial public offerings (IPOs) from an approval to a registration-based system facilitates listing and is aimed at promoting direct financing through the equity market (OECD, 2015c). The new system is expected to increase efficiency. It will, however, be applied gradually so as not to hurt the market as over 700 IPOs are in the pipeline. Full information disclosure to investors is required since March 2016 as part of this transition, where regulatory focus shifts from approval before the IPO to supervision during/after the IPO. Market forces will be given an increasing role

in supervision. However, some types of information, like environmental performance, are disclosed on a voluntary basis. For 2014, only a quarter of listed firms chose to publish their environment-related information.

Another important ingredient of the transition is a sound delisting mechanism. Some companies have started to be delisted, but this remains very rare. In the past, failure to meet profitability requirements was the main reason for delisting, but recently a shell company was delisted on the grounds of information disclosure violations, potentially signalling the end of the shell company golden age. Indeed, regulations on back-door listing (when a privately-held company that may not qualify for an IPO purchases a publicly-traded company) have become tighter since July 2016, including with the introduction of an obligation to hold a news conference and accept public supervision before the resumption of share trading plus on-site inspection by the regulator. Also, companies having violated environmental rules and regulations over the past three years are no longer allowed to sell shares through IPOs. Environmental approval, however, is no longer required since October 2014 for companies wishing to sell shares through IPOs.

China's corporate governance framework, which applies to listed companies, has evolved since its Code using the OECD Principles of Corporate Governance as a reference was adopted in 2002 (OECD, 2011). Only certain regulations concerning internal control, independent directors and information disclosure have been amended since and the Code is now ripe for a revision. The CSRC is currently undertaking a systematic review of the system governing listed firms aiming at enhancing the system's ability to address corporate governance problems while ensuring consistency between relevant laws and regulations. The CSRC requires listed companies to include certain types of information in their articles of association, for instance the powers of independent directors. The CSRC is empowered to verify the articles of association of companies seeking listing, but it is less clear how to force already listed firms to amend their articles of association to ensure conformity with CSRC-designated principles, though experience shows that so far there has not been any problem with compliance (OECD, 2014c). Moreover, as the CSRC does not directly enforce those articles of association, it is hard to guarantee that the required corporate governance norms are implemented even if they are included in the foundation documents of the company. The enforcement mechanism for the articles of association would be private litigation, but the effectiveness of such action may be hindered by two factors: i) local judicial protectionism may hinder private litigation as judges have long been appointed by and loyal to sub-national governments and plaintiffs normally must sue in the court of the defendant's domicile; and ii) if private litigation is based on the Securities Law 2005, it is often conditional on official punishment by the CSRC or another government agency.

Stock exchanges may also have corporate governance rules. For example, the Shanghai Stock Exchange does on training of independent directors or the conduct of Board of Directors' meetings. The exchange is then in charge of enforcing those rules, but the conduct leading to one of the four possible sanctions (oral warning, letter of oversight, criticism notices and public criticism) is not made public. While public naming and shaming may be effective, keeping the motive confidential diminishes its impact on prospective violators. Stock exchanges can initiate investigations whether listed firms follow laws and regulations, but need to entrust the local branch of the CSRC in case on-sight examination is needed.

Strengthening external monitoring and internal control would improve outcomes

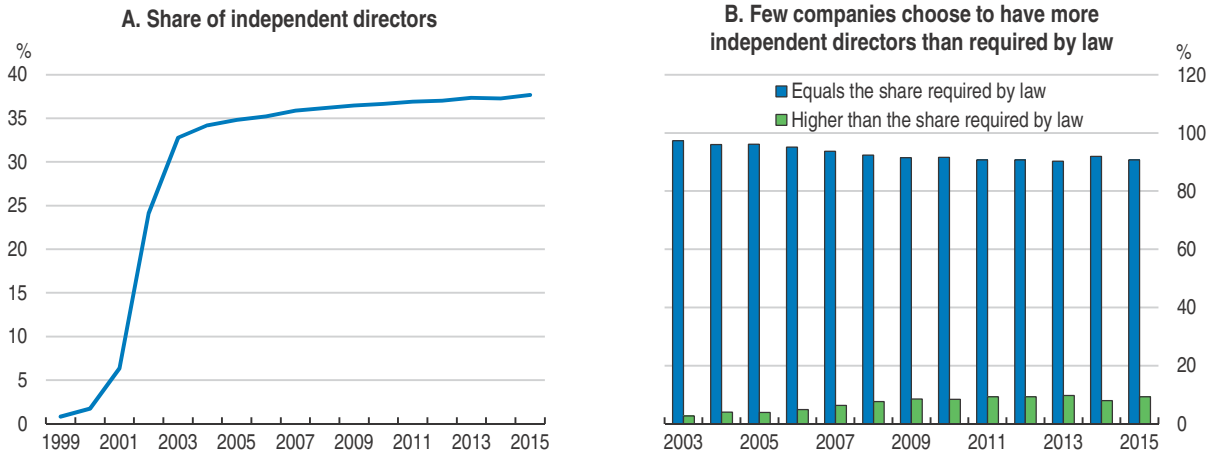
Corporate governance practices are being strengthened by enhancing both external monitoring and internal control. The self-regulatory body, the China Association for Public Companies (CAPCO), established in 2012 and representing 65% of listed companies (85% by market capitalisation), has put forward six areas in which to improve corporate governance: independent directors; boards of directors; external audit and internal control; institutional investors; controlling shareholders; and listed company supervision.

All listed firms need to have a board of directors as well as a board of supervisors, which is instrumental in protecting minority shareholders' rights. What is even more important is the quality of board members. Recruiting competent and experienced board members is a major challenge for listed firms in China as the history of corporate governance is relatively short, even on paper and a fortiori on the ground.

Almost all companies choose to have only the minimum number/share of independent directors required by law (Figure 1.9) and very few decide to have more, not recognising the potential benefits of having additional external experts sitting on the board (OECD, 2013). This may be because the marginal cost of having an extra independent director (including remuneration as well as information acquisition and communication costs) exceeds the marginal benefit (monitoring and advice). Moreover, as independent directors may not be truly independent, they may not be able to provide the monitoring and advice sought by shareholders. Data on independent directors' votes show that they rarely vote against the board, indicating that they indeed do not have the time or courage to engage on behalf of all shareholders (Ye et al., 2011). In addition, whistleblowers – be they independent directors or anyone inside the firm noticing unlawful practices – lack legal protection. Remedying this would help uncover more cases and serve as a disciplining device. Furthermore, independent directors tend to sit on too many boards, making

Figure 1.9. **Most listed firms have only the minimum legally required share of independent directors**

Share of independent directors in total directors in %



Note: Listed firms include both state-owned and private companies.
Source: OECD calculations from the CSMAR database.

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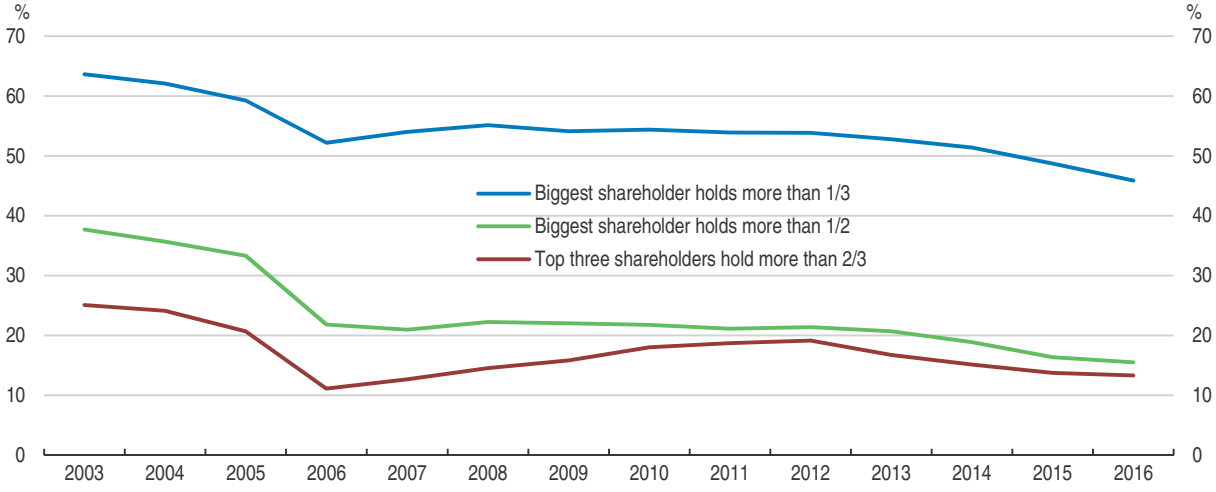
effective monitoring and advising very difficult. The usefulness of independent directors is confirmed by the appointment of such directors by non-listed firms, which are not required to have any (OECD, 2015b and Shapiro et al., 2015).

While ownership concentration has declined over the past decade, in particular as a result of the 2005 split share-structure reform, which aimed at making previously non-tradable shares tradable (see below), it remains high (Figure 1.10). The biggest shareholder owns at least a third of the shares in half of the listed firms and more than half in nearly a fifth. As noted above, beyond a certain threshold, the performance of listed firms is negatively related to ownership concentration (Shapiro et al., 2015). While large shareholders tend to monitor better and ownership concentration reduces the free-rider problem of many dispersed shareholders, control rights are more readily abused when there are too few shareholders. Moreover, coordination and consensus building among several large shareholders may be costly. The Chinese Code of Corporate Governance advocates a "reasonably balanced shareholding" structure (Article 1, Chapter 2), which can be interpreted as several large shareholders, mid-way between overly dispersed and overly concentrated ownership.

Figure 1.10. **Ownership concentration has declined somewhat**

Share of firms with top ownership exceeding certain thresholds



Source: OECD calculation from the CSMAR database.

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Protecting minority shareholders from expropriation is an acute problem given the highly concentrated ownership of listed firms. Since the establishment of the stock exchanges in the early 1990s, controlling shareholders have used myriads of ways to siphon large amounts of funds from their firms. A typical way is to "borrow" money from the company and book it under other receivables. Banning such company lending was ineffective until the State Council put forward the possibility of punishment, followed by arrests (Jiang and Kim, 2015). Tunnelling or shifting assets has often been done through non-operational fund occupancy (NOFO) whereby controlling shareholders or related companies take funds away from listed firms without matching business transactions (Jiang et al., 2015). Since 2006, the board chairperson is personally responsible for the firm's NOFO disclosure. Accounting regulations pertaining to related-party transactions have

been strengthened. Moreover, the Chinese Code of Corporate Governance requires disclosure of related-party transactions and fair pricing and the major task of independent directors is to monitor controlling shareholders. That is why they are not only barred from any position in the company, but they also have to be independent from majority shareholders (OECD, 2015b).

In advanced economies, board members, key executives and in some cases controlling shareholders have an obligation to disclose any potential conflict of interest they may face in their judgement with respect to decisions affecting the company (OECD, 2015b). In China also, the corporate governance framework should ensure appropriate checks and balance, including that all related parties are properly identified and the nature and amount of material related party transactions disclosed. One possibility is to oblige the beneficiary to inform the board about the transaction. Internal control systems covering financial and the use of corporate assets should be strengthened including by more stringent supervision by the board.

Recent empirical evidence points to the role foreign institutional investors can play in addressing the problem of wealth appropriation by controlling shareholders (OECD, 2015b, Chapter 3; and Huang and Zhu, 2015). Institutional investors can provide stability to the market as they tend to look at longer time horizons. Indeed, on average they hold stock more than three times longer than individual investors. Foreign institutional investors can have a positive impact on corporate governance to the extent that they are more likely to participate in arm's-length negotiation and monitoring (Huang and Zhu, 2015). To enhance market stability, activism and oversight, the government has long fostered the development of institutional investors. In 1998 the first closed-end fund was established, followed by open-end mutual funds and index funds. As of 2015, professional institutional investors held slightly less than 7% of tradable shares (Box 1.6), while 52% was owned by the state and legal persons (often called "ordinary" institutional investors), leaving around 42% for individual investors. Original research undertaken for the Survey shows that institutional investors boost firm performance (Molnar et al., 2017).

Market-based mechanisms are playing an increasing role economy-wide, including determining executive pay. While high remuneration of executives may create strong incentives to deliver at one's best to be promoted and boost company performance, greater pay disparity between executives and other staff may alienate workers and thus lower productivity (Firth et al., 2015). In addition to salaries, incentive mechanisms may also include distributing shares to executives (and less often, to staff). While shareholding by executives increased sharply in the late 2000s in listed firms of different ownership types, as of 2015, around one-eighth of private firms' executives owned shares in the company they managed, while this share was less than 0.5% among listed SOEs (Figure 1.12).

External audit is one area where CAPCO is pushing for improved corporate governance. Lack of audit independence, a shortage of qualified auditors and widespread corruption (Zhou, 2014) hinder the effectiveness of the audit market. To overcome the lack of qualified auditors and improve audit quality, most listed firms use foreign auditing company services.

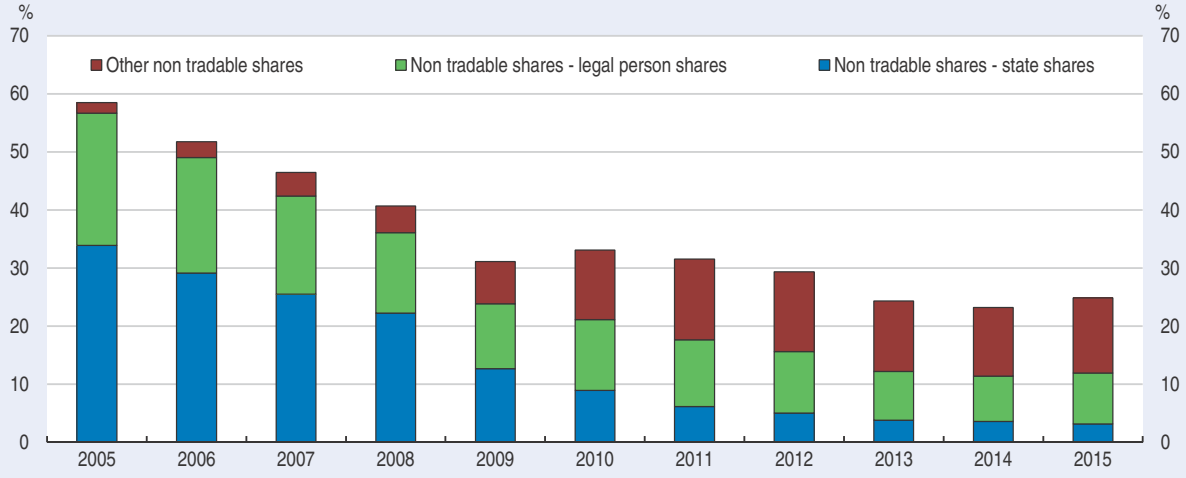
Box 1.6. **Tradable or not tradable?**

Although under the 2005 Company Law (Article 132) listed companies have only common shares, those shares can be distinguished by owner type: i) state shares, retained by the state in an IPO; ii) legal person shares, owned by legal entities, which can be companies, financial institutions, or even government bodies; iii) public shares, owned by individuals or foreign or domestic institutions. The first two types of shares used to be non-tradable, and state shares can only be owned by state bodies. The purpose of non-tradable shares was to retain control over firms and about two-thirds of shares were non-tradable. Legal-person shares cannot be traded on the market, but can be sold to other legal persons as long as the stock exchange listing the company agrees.

To reduce the distortions stemming from large blocks of non-tradable shares, a split-share structure reform was rolled out in 2005 to reclassify non-tradable shares as tradable. Distortions can relate to incentive conflicts between owners of tradable shares and non-tradable shareholders: as holders of non-tradable shares did not benefit from share price appreciation, they had little incentives to maximise share value (Jiang and Kim, 2015). This conversion would dilute the value of tradable shares and therefore holders of such shares negotiated compensation with non-tradable shareholders. The process was completed by most listed firms by 2006, but technically a large portion of shares are still not traded (Figure 1.11). Those shares are officially called "restricted" and will eventually become tradable. Restrictions on trading can relate to IPOs, where the listing firm commits not to trade its shares for two or three years or to mergers and acquisitions, in addition to the 2005 split-share reform. Tradability however does not mean actual trading as the State or even some legal persons may wish to hold on to their shares even after they become tradable.

Figure 1.11. **The proportion of non-tradable shares has been reduced but is still high**

Percentage of various types of non-tradable shares



Note: As defined by the China Securities Regulatory Commission.
Source: CSMAR database.

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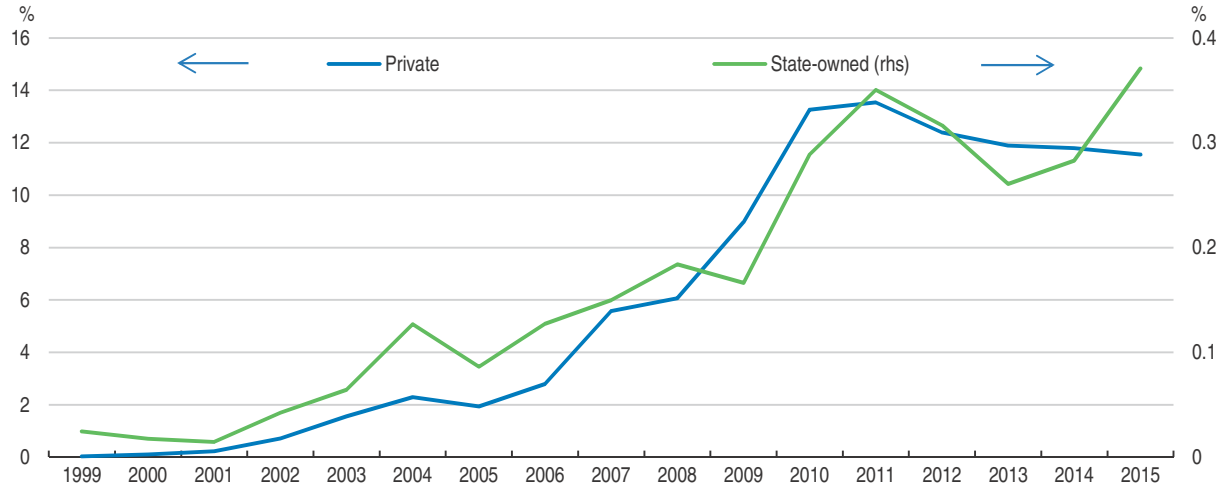
Figure 1.12. **Shareholding by executives is much more common among private firms**

Percentage of firms with executives holding shares of the firm by ownership



Note: Executives are the top five people in the company.
Source: CSMAR database.

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Taking the state-owned enterprises to market

Following the reform wave in the late 1990s, many SOEs were closed down and merged, and tens of millions of workers laid off. This efficiency-oriented process stalled in the mid-2000s when, in an attempt to counteract the impact of the Global Financial Crisis, the government engaged in large-scale stimulus, a big part of which was channelled through SOEs. This is often characterised as "public in, private out". Following the large-scale clean-up in the early 2000s, most large central SOEs are highly productive and profitable (OECD, 2015d), thereby reducing the pressure to further reform. As documented in the 2015 *OECD Economic Survey of China*, SOEs are dominant not only in natural monopolies such as network sectors, but also have significant market share in many inherently competitive industries such as construction, retail and wholesale trade or hotels and restaurants. More recently, an increasing number of SOEs have been venturing overseas, posing additional challenges to managing State assets (OECD, 2016b). SOEs can belong to different government levels and their supervision is also split across the State Asset Supervisory Administrative Commission (SASAC), the Ministry of Finance (MoF), their local arms and other government agencies (Box 1.7).

Against this backdrop, SOE debt soared in recent years and now makes up around 70% of total corporate debt (Figure 1.13, Panel A), which at around 170% of GDP in 2015 is higher than in any large OECD economy. Firms in industries suffering from excess capacity display high leverage, in particular in real estate, building materials and metals (Panel B). Leverage is a bit lower in utilities (Panel C). SOEs controlled by central government agencies saw a very sharp increase in leverage during the Global Financial Crisis (Panel D). Indeed, they served as vehicles of the large-scale stimulus to hold up growth. Central SOEs under SASAC also experienced a significant increase in leverage around the same time and for the same reasons.

Box 1.7. **The SOE universe**

Chinese SOEs vary widely by size, ownership structure, supervision and other characteristics. In total, there are around 167 000 SOEs (as of 2015) but when referring to SOEs, observers often talk about the 100 or so central government-owned enterprise groups supervised by SASAC. These include most of the mammoth SOE groups in monopolistic and oligopolistic industries. Around a fifth of Fortune 500 enterprises are from China, among which most are SOEs and most controlled by SASAC (Table 1.3). Central SOE groups managed by SASAC are often large conglomerates consisting of hundreds or sometimes even over a thousand firms. Those slow in reforming have up to dozens of public service institutions within the conglomerate.

Table 1.3. **The top 20 SOEs according to the Fortune 500 ranking are mostly central SOEs**

	2016 ranking	2015 ranking	Main business	Controlling authority	Operating revenue (USD billion)	Total assets (USD billion)	Number of employees (thousand persons)	Return on assets (%)
State Grid	2	7	Electricity	SASAC	330	479	928	2.1
China National Petroleum	3	4	Energy	SASAC	299	621	1 590	1.1
Sinopec Group	4	2	Energy	SASAC	294	317	811	1.1
Industrial & Commercial Bank Of China	15	18	Finance	Ministry of Finance	167	3 420	466	1.3
China Construction Bank	22	29	Finance	Ministry of Finance	148	2 826	369	1.3
China State Construction Engineering	27	37	Construction	SASAC	140	166	241	1.4
Agricultural Bank Of China	29	36	Finance	Ministry of Finance	133	2 740	509	1.0
Bank Of China	35	45	Finance	Ministry of Finance	122	2 590	310	1.0
China Mobile Communications	45	55	Communication	SASAC	107	251	437	4.0
Saic Motor	46	60	Vehicle manufacturing	SASAC (Shanghai)	107	79	93	6.0
China Life Insurance	54	94	Finance	Ministry of Finance	101	466	131	0.9
China Railway Engineering	57	71	Transport	SASAC	99	110	282	0.9
China Railway Construction	62	79	Construction	SASAC	96	109	284	1.0
Dongfeng Motor Group	81	109	Vehicle manufacturing	SASAC	83	57	192	2.6
China Resources National	91	115	Consumer goods, Finance, etc.	SASAC	77	153	447	1.6
China Southern Power Grid	95	113	Electricity	SASAC	75	99	303	2.3
China South Industries Group	102	–	Vehicle manufacturing	SASAC	70	60	238	2.5
China Post Group	105	143	Postal service	Ministry of Finance	70	1 157	938	0.4
China National Offshore Oil	109	72	Energy	SASAC	68	179	110	2.6
China Communications Construction	110	165	Construction	SASAC	68	141	137	1.2

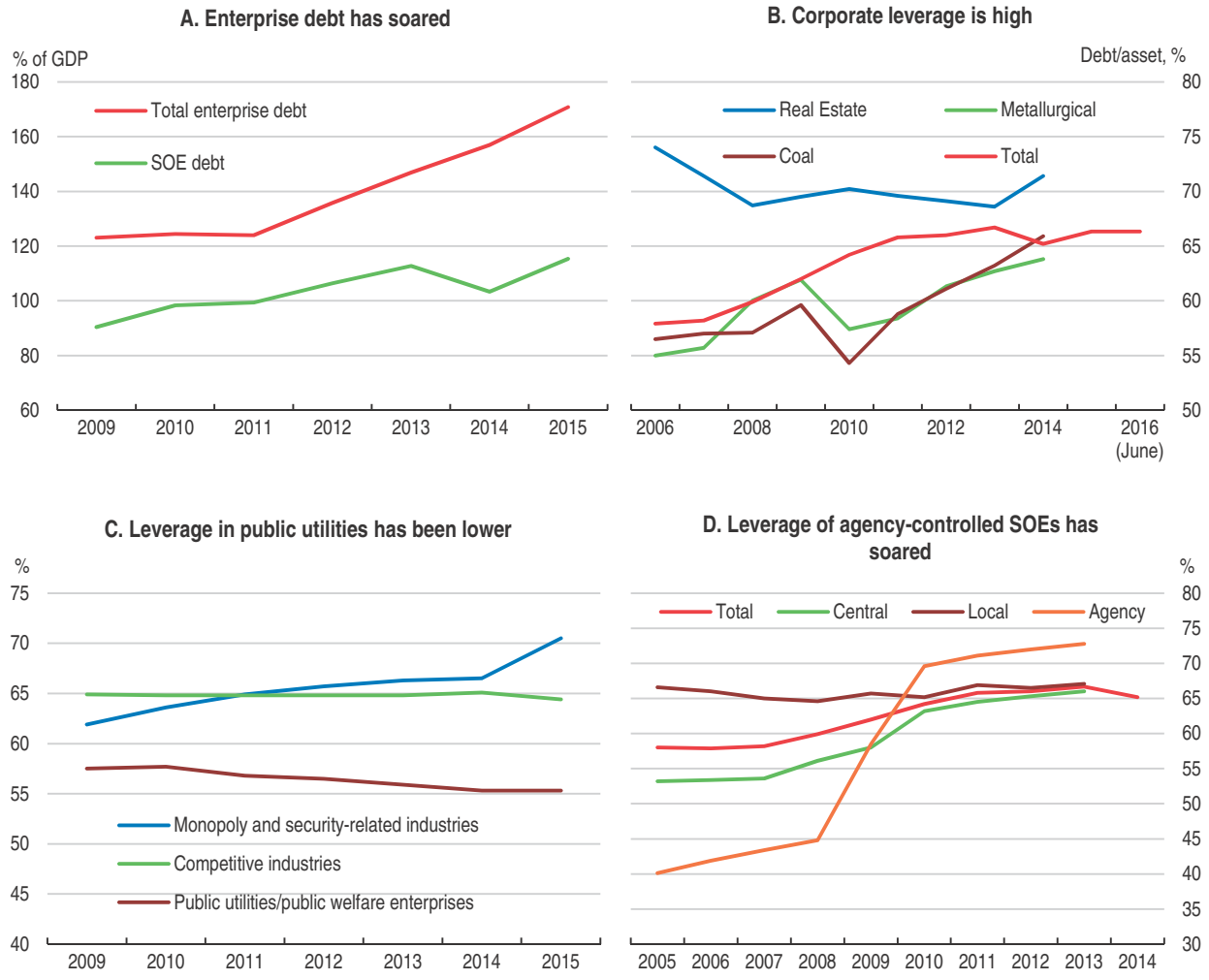
Note: Performance and employment data are as of end 2015. Among the 97 Chinese enterprises in Fortune 500 there was one, Ping An Insurance, which would be among the top 10 Chinese firms, but is not classified as an SOE, therefore not included in the table.
Source: Fortune 500 available at *http://beta.fortune.com/global500* accessed on September 6, 2016.

However, not all SOEs are managed by SASAC. One specific group of central SOEs include around 100 culture-related enterprise groups such as publishing houses and press/media groups operating in oligopolistic markets and their assets are managed by the MoF. There are also three unique mammoths, the China Tobacco, China Posts and China Railways, each alone representing a whole industry. MoF exercises ownership control in the case of the latter two on behalf of the State Council. The Huijin Corporation manages all centrally-owned stand-alone financial firms on behalf of the MoF. In addition there are finance companies in the SOE groups, which are managed by their respective groups. Several government agencies also operate enterprises, which comprise an additional type of SOEs. They are even more opaque than other SOEs as they are supervised by their respective agencies. Furthermore, local governments also own enterprises represented by local SASACs. Local financial institutions owned by local governments are sometimes supervised by local SASACs, sometimes by local finance bureaus. All major SOE group types can control listed firms. In 2015, those supervised by SASAC controlled 388 and their listed assets made up 61% of the total, while their listed firms' profit share amounted to 76%.

Source: Ministry of Finance and sub-national Finance Bureaus.

Figure 1.13. **State-owned firms led debt accumulation and debt is high in some industries plagued by overcapacity**

Non-financial corporate debt



Note: Panel A shows corporate debt as a percentage of GDP and Panels B, C and D corporate leverage defined as debt-to-asset ratio. In Panel C, competitive industries include most sectors with competitive markets (*shangye yilei* or *jingzhengxing*), monopoly and security-related industries refer to industries with monopolistic or oligopolistic markets and industries related to national security (*shangye erlei* or *longduan*) and public utilities/public welfare enterprises primarily pursue public policy objectives (*gongyilei* or *gongyixing*). In Panel D, Central refers to SOEs under SASAC, local to those under local SASACs and agency to SOEs under other government agencies.

Source: BIS database, State Asset Supervisory Administrative Commission and Ministry of Finance (2014, 2015).

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The current wave of SOE reforms needs to focus on enhancing efficiency

SOE reform became a priority again at the Third Plenum in November 2013 with the aim to boost their competitiveness and profitability. The Guidelines on Deepening SOE Reforms released in September 2015 define six priority areas for reform: i) mixed ownership; ii) transitioning to a modern enterprise system; iii) professional management; iv) classifying firms according to their nature; v) strengthening supervision to avoid loss of state assets; and vi) better managing state assets with a focus on capital management. A year after the adoption of the Guidelines, progress has been uneven, partly related to how difficult or controversial reform measures appeared but also to which agency manages the firm.

Mixed ownership reform has been quite successful with 68% of SASAC-controlled central SOEs having introduced non-State owners by end-2015 (Xiao, 2016). Sub-national governments also came up with plans to restructure SOEs through mixed ownership reform, but progress at agency-controlled SOEs has been much slower. SOEs in fully competitive sectors pioneer the process. Mixed ownership is achieved in various ways: restructuring, IPO, introduction of a strategic investor, conversion of part of the State-owned shares into preferred shares or employee share ownership. Technology-seeking acquisition of private firms with a share offer to the private owner in exchange is another, less common, example. Opening up ownership often needs to be preceded by improvements in transparency, corporate governance and returns to shareholders as private firms would otherwise have little interest in injecting funds into SOEs. While only a small portion of the shares is typically transferred to private owners, mixed ownership makes an important difference by bringing in an additional monitor. A private owner may not be able to prevent the expropriation of wealth from minority shareholders and tunnelling, but at a minimum can enhance transparency. With such monitoring, the value of state assets is more likely to be preserved and grown. Experience of OECD countries, however, shows that the pressure private owners are able to exert depends on the extent to which their rights are protected and enforced (OECD, 2016a).

The current Chinese notion of a modern enterprise system includes separation of business from politics, corporatisation, establishing a board, managing executives by type and level of enterprise and choosing a remuneration system that fits the country's economic system (SASAC Research Centre, 2016). A major link between business and politics is the appointment system and the intertwined career paths in the public administration and the SOE system (Box 1.8), where progress has so far been modest. In the area of corporatisation, in contrast, progress is tangible: over 80% of SOEs have been corporatised and have set up or are in the process of setting up a board. Reforming SOEs under the MoF is slower as some represent entire industries.

Sometimes SOE managers appear to fare worse than their private peers in profit maximisation or raising the market value of the firm but those may not be their primary goals, which may include public policy objectives. The principal-agent problem is more complex at SOEs. In the case of private firms, management is the only agent to shareholders (although in China there are few purely private firms and most of the large ones also have large public sector shareholders, where the principle-agent problem is more complex). For SOEs instead, government officials, acting as the principal to the management team, are also agents of the owner – the State, which in turn, exercises ownership on behalf of the general public. Moreover, as in the case of private firms, information asymmetry, conflicts of interest and mismatched obligations allow agents (i.e. the management) to pursue their own interest such as personal benefits or perks, rather than those of the principal (i.e. the State). The complex nature of the principal-agent problem at SOEs complicates some of the usual corporate governance issues. The "other people's money" problem may be more pronounced, as appointed managers often have little stake in the corporations they manage. To mitigate the problem, under the new incentive mechanism, top executives can be rewarded for their performance in the form of company shares. The entrenchment problem is also prevalent as executives are rarely removed for bad performance. Moving towards a professional management system, which is underway, can help address this issue.

Box 1.8. **How are centrally-owned SOEs managed and their top executives appointed?**

Governance of centrally-owned SOE groups under SASAC broadly follows four patterns in terms of separation of Party Secretary, Chair of the Board and CEO functions: i) the Chair of the Board is also the Party Secretary, and the CEO is also Vice Chair or Deputy Party Secretary – this is the most common arrangement; ii) the CEO is also the Party Secretary in enterprises not yet corporatised; iii) the Chair of the Board, the CEO and the Party Secretary are three different people – this is rare; and iv) all the three functions are held by a single person – this is also very rare.

Among the 100+ centrally-owned SOE groups, the No. 1 executive of the top 51 is appointed by the Central Party Organisation and the deputies by SASAC. SASAC also appoints the top executives of the remaining central SOEs with approval from the State Council Party Committee. The heads of the top 15 financial institutions are appointed by the Central Party Organisation, those of the remaining 12 by the respective specialised agency such as the CSRC or the China Insurance Regulatory Commission. The Party also appoints the top leaders for China Railways, China Tobacco or China Post. Also for China Publishing the Party appoints the leader, while the Central Propaganda Department is in charge of choosing the second in command.

The key SOEs' top managers have a rank equivalent to a Vice Minister in the government administration or even hold ministerial rank (in the case of China Railways, for instance). Mobility between government and SOEs also confirms this administrative hierarchy in the SOE sector. Most common is to move from a bureau head or deputy bureau head to a No. 2 position in the top 51 firms. Less common is to move from minister level or SASAC bureau head level to a No. 1 position in firms other than the top 51. In the other direction, most common is for mid-level managers in first-tier SOEs or heads of second-tier SOEs to become bureau heads in the administration.

Source: Various issues of *Guozi Bao* (*State Asset Journal*).

New regulations for senior executive compensation are being introduced and performance-based incentive plans will be put forward. SOEs enjoy large discretion in setting executive salaries. In addition to the base salary, part of executives' salary is based on annual performance and a third part is paid upon the end of the term. Some central SOEs link only a negligible part of the salary to performance, and others most of it. The salary differences related to performance vary considerably. While some firms tolerate only a 5-10% difference in salaries owing to performance, on average, a variation of around 50% appears to be common. Differences among executive salaries at various enterprises are much larger as a result of linking salaries to firm performance. To mitigate social issues related to high salary differences, the government has capped executive salaries at 20 times the average staff salary.

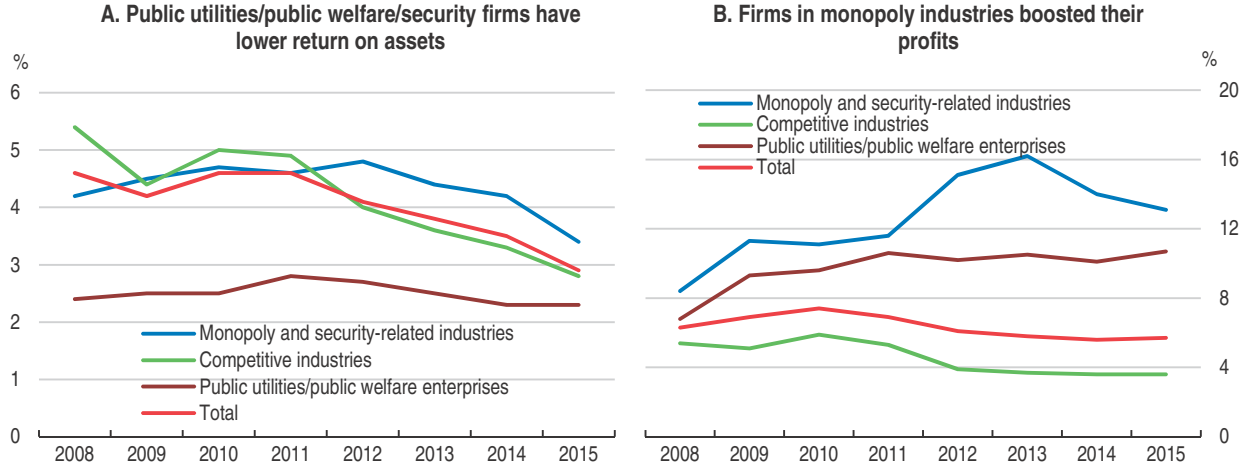
Tunnelling or transferring assets across firms is common as corporate holdings often consist of hundreds of firms and managers in control can move assets across affiliated firms. Listing the company at the level of a corporate group can be a way of mitigating the tunnelling problem as higher disclosure requirements and monitoring would make it harder to shift assets across listed firms. Even before listing, however, SOEs could be subject to the same quality accounting, disclosure, compliance and auditing standards as listed companies recommended by the OECD Guidelines on Corporate Governance of SOEs (OECD, 2015e). Listing of full groups needs to be preceded by reorganisation in case the

company performs social functions and owns non-operational assets to sever the former and strip out the latter (2002 Code of Corporate Governance). Furthermore, enterprises or institutions providing services for the listing company will need to enter into relevant agreements with it in accordance with commercial principles.

Boards can mitigate the agency problem, but even when there are boards they cannot always operate effectively. Indeed, the number of independent directors is often low (around three out of some eight directors) and they are chosen by the company from a SASAC pool, so may not be truly independent. Moreover, the Chair of the Board, who *de facto* manages the company, is often a civil servant without extensive prior practical experience (Box 1.7). In most OECD countries, there are one to two civil servants on an SOE board, subject to the same fiduciary duties as other board members. Less frequently, such as in New Zealand, civil servants are not allowed to act as board members; moreover all board members need to be independent and selected through a competitive process (OECD, 2016a). Hiring of professional managers is expected to mitigate the agency problem and thus improve corporate performance. While professional managers, including international professionals, are found in many listed subsidiaries of SOEs, their share in the total is still minuscule.

SOEs are in the process of being classified into competitive, monopoly and security-related and public utility/welfare firms. In the future, their performance evaluation will be conducted according to which category they belong to. For enterprises belonging to the competitive category, net profit or other profit-related variables will carry a bigger weight while for other types of enterprises safety indicators, public welfare and similar measures will be more relevant. Firms pursuing public policy objectives have lower return on assets and their profit ratio (profit to costs) has been stable, likely owing to pricing policies (Figure 1.14). Until recently the major performance evaluation indicator SASAC used was gross profit. Accordingly, most of the 100+ central SOE groups set profit as

Figure 1.14. **Profitability differs widely across SOE types**



Note: Data include non-financial state-owned or state-controlled enterprises at the central and local levels. Competitive industries include most sectors with competitive markets (*shangye yilei* or *jingzhengxing*), monopoly and security-related industries refer to industries with monopolistic or oligopolistic markets and industries related to national security (*shangye erlei* or *longduan*) and public utilities/public welfare enterprises primarily pursue public policy objectives (*gongyilei* or *gongyixing*).
Source: Ministry of Finance (2014, 2015).

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a major objective for themselves and for their subsidiaries. As the results of a survey of these SOE groups carried out for this *Economic Survey* indicate, other objectives may vary widely depending of the nature of the group's business. At the group level, many of the objectives are relatively broad and hard to measure such as State building or implementing a State mission, while others are more specific such as increasing the value of State assets, scale and profit growth targets, green production or maintaining or improving Fortune 500 status. Capacity reduction has also been adopted as a new variable to evaluate SOE executives. At the affiliate level, objectives are more specific and related to profit or growth such as return on assets, return on equity, net profit, gross profit, revenue growth, asset growth, market share, production efficiency, safety indicators, new products, leverage or asset turnover.

The strengthening of supervision to avoid loss of government assets is mainly being done through fortifying the Party organisation within the company and reinforcing internal and external supervision. Past mechanisms to safeguard government assets, however, did not appear to function well, leading to series of arrests related to State fund embezzlement. Fortifying whistle-blower protection may encourage insiders to report unlawful conduct, including State-asset embezzlement. Moreover they would need to report to an independent investigator body to make such protection meaningful as supervisors and regulators may be subject to capture. In OECD countries independence of investigators is common. People noticing corruption in Australia, for instance, can turn to the Independent Commission Against Corruption.

SOEs pay only limited dividends to shareholders (centrally-owned financial institutions pay none) and the little they pay to their largest shareholder, the State, tends to be recycled back to SOEs through various channels. Currently a five-tier system is applied according to firm type/industry: joint ventures pay 25%, resource-based firms 20%, most other firms pay 15%, public service institutions 10% and some like the company in charge of grain reserves are exempt. In the past, they paid even less: 0% of profits between 1994 and 2007 and 0-10% from 2007 to 2011. Since 2011, they have been paying 5-15% and the target set by the Third Plenum is to increase dividend payments to 30% by 2020, which will be in line with dividend payments in those OECD countries that set explicit targets (OECD, 2014a). Thus dividend payments do not significantly constrain managers' use of cash flow. Wasting of company revenue is instead being tackled by restricting spending on travel, entertainment or other perks.

Shifting the focus to more actively managing assets (*ziben touzi yunying*) is considered as a promising way to ensure an increase in the value of State assets. For this purpose specialised companies in charge of both operation and investment of State assets are being proposed. The first pilots, COFCO and China Investment Corporation were designated in July 2014 and the pilot programme was extended to two more enterprises in early 2016 and seven more in July of that year. In July 2016 a company managing coal reserves was established jointly with coal-making central SOEs under SASAC. Capital management and investment companies are organised on a sectoral basis, though not necessarily with one per sector. SASAC has delegated some important powers to them such as long-term development and annual investment planning, staffing and in the case of COFCO, also reallocation or disposal of assets.

Renewed efforts to fix SOEs are under way

Consolidation (Box 1.9) is expected by policymakers to drive efficiency gains, the major challenge remaining how to ensure that merging inefficient groups will result in higher efficiency. Horizontal mergers may lead to economies of scale in production, but central conglomerates are already sizeable enough alone, so it is less likely that small scale was their problem. Horizontal mergers can be harmful to competition as they reduce the number of competitors. Vertical mergers can be harmful to competition as they hinder the entry of competitors at various stages along the production chain. The effect of mergers on competition needs to be assessed by competition authorities before they are approved.

Box 1.9. **Where are the recent reforms headed?**

Following the State Council's *Guidelines on Deepening SOE Reforms* released in September 2015, the *Guiding Opinion on Promoting Structural Adjustment and Restructuring of Central SOEs* was issued in July 2016, which aims at clarifying central SOEs' strategic position, ensuring their effective functioning, improving their overall structure, significantly boosting the allocative efficiency of state assets and forming a group of innovative and internationally competitive firms.

Restructuring of conglomerates picked up in the first half of 2016. The aim is to bring down the number of groups from around 110 to below 100 by end-2016. Four routes have been identified to handle central SOEs: i) strengthening; ii) reinventing and developing; iii) restructuring; and iv) exit.

In the restructuring process, alliances among conglomerates in the equipment manufacturing, construction, steel, non-ferrous metals, air transport, tourism and air service industries will be promoted. In particular, vertical integration along the supply chain is encouraged. Pilot conglomerate-pairs are already being implemented, such as the acquisition of China Huafu Trade & Development Group Corp. by COFCO Group, where COFCO with strong up- and downstream businesses benefits from Huafu's midstream liqueur-manufacturing business.

The reorganisation wave goes in the direction of specialisation. Resources are expected to flow to more efficient firms through asset restructuring, asset swap, non-remunerated asset transfer, strategic alliances, joint development, etc. The *Guidelines* encourage enterprise groups in energy, automobile, new materials, new energy, oil and gas pipelines, marine equipment, air cargo, etc. to set up jointly-owned shareholding platforms.

In addition, the *Guiding Opinion* calls for accelerating the consolidation of intra-firm resources in the specialisation-driven consolidation wave via capital injections and restructuring of operations.

Another important direction is reducing the number of governance levels and absorbing firms from the fifth affiliate level downwards so that investment decisions are concentrated at the third level and above.

A fourth measure advocated by the *Guiding Principles* is M&As. Here higher market concentration is seen as facilitating access to key technologies, core resources and marketing channels.

The *Guiding Principles* also touch upon the exit mechanism. First of all obsolete and excessive capacity needs to be cut in steel, coal and other industries. The next targets are loss-making firms with grim prospects for turnaround in the coming two years and finally inefficient firms. In the following three years SASAC plans to handle 345 zombie enterprises.

Getting rid of non-core activities and assets through liquidation is encouraged to enhance efficiency. In addition, social functions and legacy-related obligations (medical, education, civil affairs, fire prevention, residential management. Services and the like) will also be taken off firms' shoulders.

Source: Guiding Opinion on Promoting Structural Adjustment and Restructuring of Central SOEs, 26 July 2016.

Between 2012 and 2015, central SOEs controlled by SASAC shed assets worth CNY 108 billion, equivalent to 1.6% of their total assets in 2015. Stripping off assets is quite complicated as the suspicion of State asset embezzlement always looms large. Social functions still constitute a significant burden for SOEs. The pilot reform of central SOEs in Heilongjiang starting in 2011 to strip off public utility functions (water, electricity, heating and building management services) was extended to more provinces in 2012 and the whole country in 2016, though it only covers those functions. In addition to public utilities, SOEs also control hospitals and other public service providers.

Employee shareholding is now being made possible, though only in enterprises in competitive industries and only in affiliates at third tier level or below. Employees can buy up to 1% of the shares each or 30% of the shares jointly, but at a minimum 34% must remain in State hands. Not all employees, but mainly executives and persons in technology development, strategic decision making and other key positions are targeted as a way to enhance incentives. Managers with administrative rank cannot hold shares. While the ownership of shares increases commitment to the enterprise, the stringent conditions to dispose those shares are likely to lock up professional or management staff, decreasing overall efficiency. Also, management's bargaining power may increase towards staff that invested heavily in the firm's shares.

Reform measures and proposals are plentiful, often with ambitious targets. The success of reforms should be judged by how much SOEs improve their profitability, innovation capabilities and ability to compete in a level playing field.

Recommendations to boost firm dynamism and performance

Key recommendations

- Strengthen intellectual property right protection by more systematically prosecuting violators and raising fines. Broaden the number of sectors benefiting from government support for innovation.
- Require the regular publication of company accounts and enhance disclosure standards for all firms. Raise penalties for individuals committing fraud.
- Gradually remove implicit guarantees to SOEs and other public entities to reduce contingent liabilities. Reduce state ownership in commercially oriented, non-strategic sectors. Let unviable SOEs go bankrupt, notably in sectors suffering from overcapacity. Professionalise the state ownership system to make a clear division between business and politics. Strengthen the independence and decision-making role of the board by hiring truly independent directors and giving it authority to appoint and evaluate management as well as to decide management salaries and promotion. Where possible carry out social functions separately from commercial operations to boost the efficiency of the latter.

Recommendations to boost firm dynamism and performance *(cont.)*

Further recommendations

Fostering innovation

- Streamline the innovation policy system to better serve prospective innovators, enhance coordination across agencies in charge of implementing innovation policies and to avoid duplication.
- Enhance the screening of patent applications to avoid perverse incentives and congestion costs at handling institutions.
- Increase public spending on basic research, financed partly by economising on inefficient subsidies through better screening.
- Mandate the sharing of internet platforms to foster the commercialisation of computer applications.
- Further reduce the costs of doing business by increasing firm disclosure, extending one-stop shops to the whole country, making the negative list for entry as short as possible and boosting internet speed while reducing its costs.
- Incorporate achievements of civil servants and academics on leave in their performance evaluations to encourage more academics and civil servants to temporarily engage in innovative activities.
- Accelerate the bankruptcy process to reduce uncertainty and compensate the laid-off according to relevant laws.
- Remove other barriers to exit such as subsidies, environmental clean-up costs and social liabilities, notably in sectors affected by excess capacity, thus facilitating the reallocation of resources from less efficient to more productive uses. The removal of subsidies could partly finance clean-up costs and social liabilities.

Improving corporate governance

- Implement the registration-based system for stock-market flotations and streamline de-listing procedures.
- Enhance board independence by ensuring that independent directors are not influenced by the controlling shareholder or others. Boards should declare who they consider to be independent and the criterion for this judgement.

Reforming SOEs

- Categorise SOEs according to their degree of commercial/social orientation.
- Strengthen whistle-blower protection to encourage reporting of unlawful conduct to investigators, who should be independent.

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Chapter 2

Sharing the benefits of growth by providing opportunities to all

Living standards in China have greatly improved over the past few decades. Both sustained economic growth and an expansion of the social security system have contributed to a sharp reduction in the number of people in poverty. However, urban-rural inequalities remain large and some of the poorest households are being left behind. Further reforms are needed to ensure that the benefits of future growth are shared and that marginalised groups have the opportunity to actively participate in the economy. In particular, policy settings should be adjusted to increase access to good quality education and healthcare for rural and migrant workers and to improve the portability of social security benefits. Changes to the social assistance system that raise work incentives and protect low-income households in poorer locations are also a priority. New spending measures can be funded by adjustments to the tax system which will, in themselves, benefit inclusiveness.

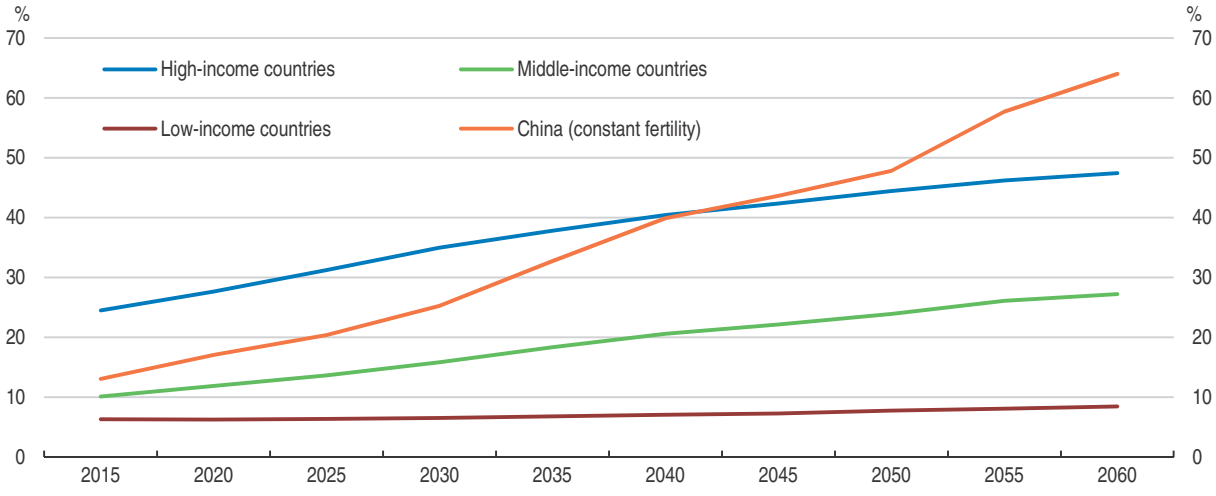
Introduction

China's economic performance over the past few decades has been remarkable, but has been accompanied by rising inequality. The goal of the Chinese government to achieve a "moderately prosperous society in all respects" by 2020 emphasises a strong commitment to improving social welfare throughout the population, and to eradicating poverty one decade ahead of the United Nations Sustainable Development Goals deadline. This can be achieved by pursuing inclusive growth, a concept that focuses on sharing the benefits of increased prosperity across socioeconomic groups that goes beyond just monetary conditions to consider other aspects of wellbeing. At the same time, a more equitable distribution of the benefits of economic growth should support the rebalancing of the economy to a more consumption-based growth model. It can also help the government garner popular support for undertaking the necessary growth-enhancing reforms highlighted in Chapter 1.

Improvements in living standards for some marginalised groups are also vital to the supply-side of the economy. Although old-age dependency varies significantly across provinces (OECD, 2015a), China is facing a much steeper increase in the share of the elderly-to-working-age population in the coming decades than most other economies (Figure 2.1). Any pick-up in the fertility rate that may result from the recent relaxation of the One-Child Policy will only slightly mitigate this trend. With such significant demographic pressures, it is critical that all members of society have the opportunity to fulfil their potential and make a productive contribution.

Figure 2.1. **The share of the working age population is shrinking**

Projected proportion of 65+ age population to the 15-64 age population



Note: Projections for China are shown under a constant-fertility assumption of 1.55 children per woman.
Source: United Nations *World Population Prospects, the 2015 Revision.*

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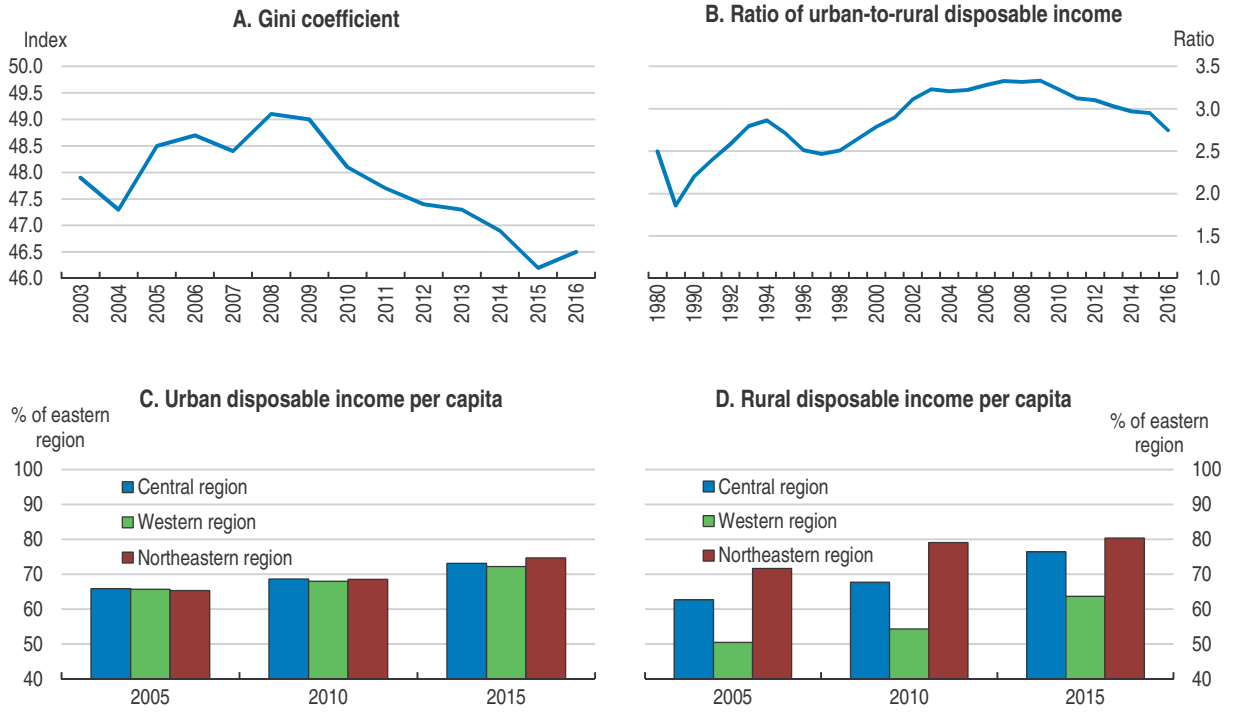
Income and wealth inequality remains high

Income inequality, as officially measured by the Gini coefficient, has declined since 2008 after rising to a very high level in the years before (Figure 2.2, Panel A). This partly reflects a decline in the urban-rural income gap, a major source of income inequality in China (Panel B). The narrowing of the urban-rural divide has been most notable within the Western part of the country, but has been observable across all regions.

Figure 2.2. **Income inequality has declined**



Note: The Gini coefficient presented here is based on income and has a range from zero (when everybody has identical incomes) to 100 (when all income goes to only one person). Increasing values of the Gini coefficient thus indicate higher inequality in the distribution of income.

Source: China National Bureau of Statistics, authors' calculations.

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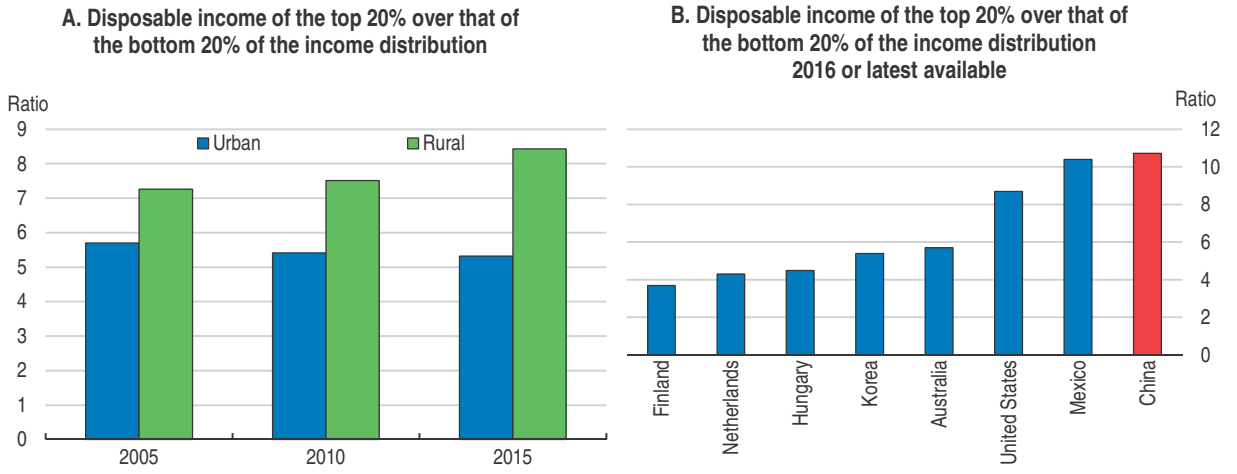
Within the urban and rural economies, there has also been some income convergence. Urban incomes in central, western and north-eastern regions have caught up with urban incomes in the east (Figure 2.2, Panel C). Similarly, rural incomes in central, western and north-eastern regions have grown relatively fast (Panel D). In part, this is a legacy of various government projects launched in the early 2000s including the Northeast China Revitalization Campaign, the Rise of Central China Plan and the Western Development Plan.

Despite the reduction in aggregate income inequality, many of the poorest households have been falling behind. There has been relatively strong growth in the middle part of the income distribution, matching the experience of many other emerging countries through the era of globalisation (Milanovic, 2016). However, the gap between the richest and poorest urban households in terms of disposable income has barely narrowed. In rural areas, it has even widened: in 2005, the richest 20% of rural households had an income share that was 7.3 times higher than the poorest 20%, but by 2015, the ratio had increased to 8.4 (Figure 2.3, Panel A). This was principally due to the sluggish income growth of the poorest 20%. The

Figure 2.3. **The income share of the poorest people is low and has been falling in rural areas**



Note: In Panel B, data for China are for 2016, but data for all other countries are for 2014 (the latest available observation). Incomes are not equivalised and, while conceptually identical, the data for China and the other countries presented in Panel B are from different sources.
Source: China National Bureau of Statistics, OECD Income Distribution Database.

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ratio is even higher when considered nationwide, at 10 in 2015 – significantly above most other countries for which recent data are available (Panel B). High relative income inequality has been reflected in measures of life satisfaction. While such indices are fraught with measurement issues, Easterlin et al. (2013) find that since 1990 life satisfaction has declined for Chinese people in the bottom third of the income distribution and increased for those in the top third.

Over the past two decades, the share of wealth held by the top segment of the income distribution has been rising (Xie and Jin, 2015). Recent analysis using household data suggests that the Gini coefficient for total wealth rose from 0.45 in 1995 to 0.73 in 2013, at which time the top 1% of the population held one-third of total assets (Peking University, 2014). Such a surge in wealth disparity contrasts with the trend in the Gini coefficient for income presented above and signals a weakening in intergenerational mobility which is detrimental to both economic growth and equity (Cingano, 2014). The increase in wealth inequality over this period partly reflects the impact of reforms that transferred housing assets from state to private ownership, combined with disparities in housing values across locations.

Notwithstanding the wide gap between the richest and poorest, poverty has declined substantially: the share of the rural population living below the poverty line (as measured by the current rural poverty standard of CNY 2 300 per capita net income in 2010 prices) fell from 30% in 2005 to 5.7% in 2015. This reflected China's strong economic growth and improvements in the social welfare system. By the end of 2016, there were 43.3 million rural people still in poverty. The government is aiming to lift all of these above the current poverty line by 2020.

The marked reduction in poverty without the lowest income quintile gaining income share suggests that while many households have been lifted above a subsistence level, there has been less success in creating the necessary conditions to encourage further growth in the incomes of the lowest earners. The tax and transfer system, labour market institutions, as well as education, health and pension systems must all contribute to further lifting people

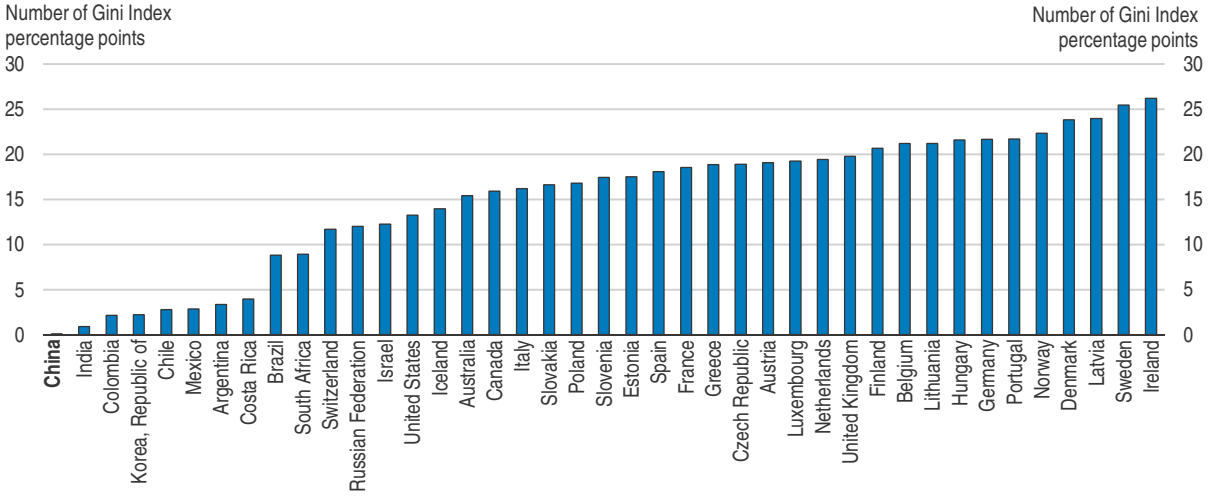
from poverty as well as ensuring that all members of society have the opportunity to continue raising their living standards. Subsequent improvements in social mobility will benefit economic growth, especially given the nascent demographic headwinds.

Redistributing through the tax and transfer system

The overall redistributive impact of the tax and transfer system in China is very low despite relatively high market income inequality (Figure 2.4). In the past decade, the redistributive potency of taxes and transfers has even diminished (Cevik and Correa-Caro, 2015). This contributes to the large gap in disposable income share between the richest and poorest households highlighted above.

Figure 2.4. **Redistribution by the tax and transfer system is very limited**

Reduction in market income inequality due to taxes and transfers, 2013/15



Note: Data for China are for 2013. Data for other countries are the latest available observation (2013 to 2015), with the exception of India (2011) and South Africa (2012). The metric presented here is calculated from data that are standardised to allow cross-country comparisons. Potential remaining comparability issues are detailed in Solt (2016).
Source: Standardised World Income Inequality Database (SWIID) Version 5.1.

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Some aspects of the tax system disadvantage low-income earners

The design of the employee social security contribution scheme is a major factor in the weak redistributive effect of China's tax and transfers system. Social security contributions are made by both employers and employees to fund pensions, medical insurance and unemployment insurance. While the employee contribution is levied as a nominal flat rate, all employees are required to at least make a minimum contribution which is calculated on an imputed value of earnings (irrespective of the employee's actual income) equivalent to 60% of the previous year's local average wage. Contributions are also capped at the payment required by an individual earning three times the local average wage. As a result, of those households making social security contributions, many in the lowest income quintile pay a much higher share of their income in social security payments than those with higher incomes (Lam and Wingender, 2015).

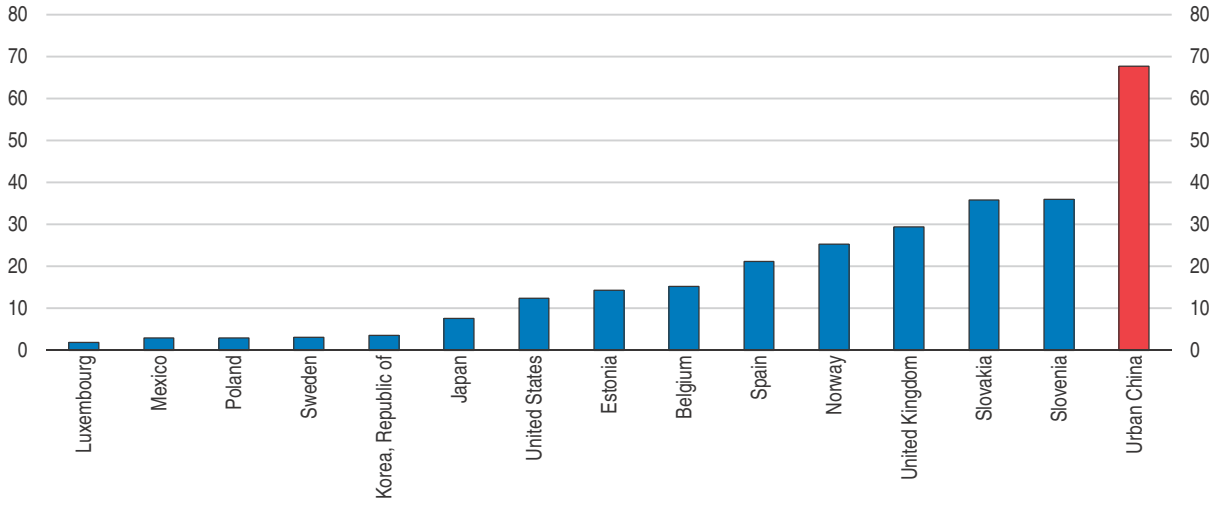
The requirement for employees to pay a minimum social security contribution irrespective of actual income earned contrasts with the situation in most OECD countries (Brys et al., 2013). Indeed, governments often seek to reduce contribution rates for low-income workers to encourage their participation in the formal labour market (OECD, 2011). Workers who are outside the formal labour market (as well as those unemployed or self-employed) are not required to participate in the pension and medical insurance schemes in China, potentially increasing their financial vulnerability to future shocks. To the extent that the existing system encourages low-income workers to seek informal employment, it may also have negative implications for job security and skill accumulation. This can be addressed by reforms that base the calculation of social security contributions of low-income workers on actual income earned. This could be partly financed by reforms to the personal income tax (PIT) system that increase government receipts.

The PIT system currently raises little revenue due to a narrow tax base, which limits its redistributive impact (Brys et al., 2013). In 2016, PIT revenue amounted to 1.4% of GDP, below those OECD countries with the lowest personal income tax-to-GDP ratios (Chile, 1.5%; Slovak Republic, 3.2%; Mexico, 3.4% and Czech Republic, 3.6% in 2015).

While the PIT schedule is progressive, there is a very generous allowance for all wage earners – equivalent to two-thirds of the average urban wage – so most workers do not pay income tax (Figure 2.5; Lam and Wingender, 2015). The value of this allowance increases with the taxpayer's marginal PIT rate, meaning it disproportionately benefits richer workers. Furthermore, the tax authorities face challenges in taxing some of the income of the wealthiest individuals, and especially income held overseas. The Ministry of Finance recently established an office dedicated to the much-needed reform of the PIT system and the State Administration of Taxation have now published draft regulations which aim to reduce the scope for cross-border tax avoidance (State Administration of Taxation, 2016).

Figure 2.5. **The PIT allowance is very high**

Basic PIT allowance as a % share of average wage, 2015



Source: OECD Taxing Wages, China Statistical Yearbook 2016, authors' calculations.

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In the context of reforms to the PIT system, tax exemptions that favour high-income individuals should be abolished. For example, interest receipts from government bonds or from savings in a deposit account with a Chinese bank are currently excluded from taxable income. There are also tax exemptions on income from the sale of most shares of Chinese listed businesses (only income from the sale of "restricted shares" is taxed).

Partly reflecting low income tax revenues, indirect taxes are relied upon to a greater extent than in most OECD countries (Lam and Wingender, 2015). China has a domestic consumption tax on specific luxury goods, alcohol and cigarettes as well as a value-added tax that has recently been expanded to services. Together, these two types of tax contributed over one third of total tax revenue in 2015. While such indirect taxes are not necessarily regressive, especially given China's exemptions for some items predominantly consumed by low-income earners, they are less redistributive than a well-functioning progressive PIT system.

The authorities could consider transferring some of the tax burden to an inheritance tax as they reform the PIT system. Inheritance taxes tend to be less distortionary than personal and corporate income taxes and can reduce inter-generational inequality (Brys et al., 2016). Furthermore, an inheritance tax could help reduce the aforementioned very high level of wealth inequality. The introduction of such a tax could be accompanied by some reasonable basic inheritance allowance to ensure it only impacts beneficiaries at the top end of the wealth distribution. Nevertheless, the proportion of total revenue raised through inheritance and gift taxes in OECD countries is relatively low. Moreover, if implemented, complementary systems are needed that can adequately value the underlying assets and monitor wealth transfers that are designed to circumvent the levy.

There are currently a range of property taxes in China, though most of these are levied on transactions. The government has long been working towards the introduction of a nationwide recurrent tax on residential immovable property. This would provide less of a disincentive for the reallocation of property and may provide a more stable source of tax revenue for sub-national governments. However, given China's very high rates of home ownership, policymakers should consider potential adverse consequences for households at the lower end of the income distribution.

Since 2011, a recurrent property tax for new home purchases has been trialled in Chongqing and Shanghai, while similar measures have been introduced in other areas (e.g. Shenzhen). While the policy design differs under the Chongqing and Shanghai pilot programmes, both have features that may benefit inclusiveness such as exemptions for smaller dwellings and higher tax rates for those with a greater market value. Even so, the majority of households are exempt from paying the tax. In Shanghai, for example, an individual who has lived in the city for more than three years and does not own a second dwelling is exempt. Any introduction of a national recurrent property tax should maximise the tax base by taxing existing dwellings and limiting the scale of exemptions. At the same time, some progressive features of the pilot schemes should be retained in the move to a national tax, such as higher tax rates for second and high value homes. A challenge for introducing a nationwide measure is that the government is still in the process of developing a countrywide property registration system that includes both new and existing dwellings. Nationwide property valuation guidelines may also be needed to ensure the measure is applied consistently across areas.

The social assistance system has increased coverage but may distort work incentives

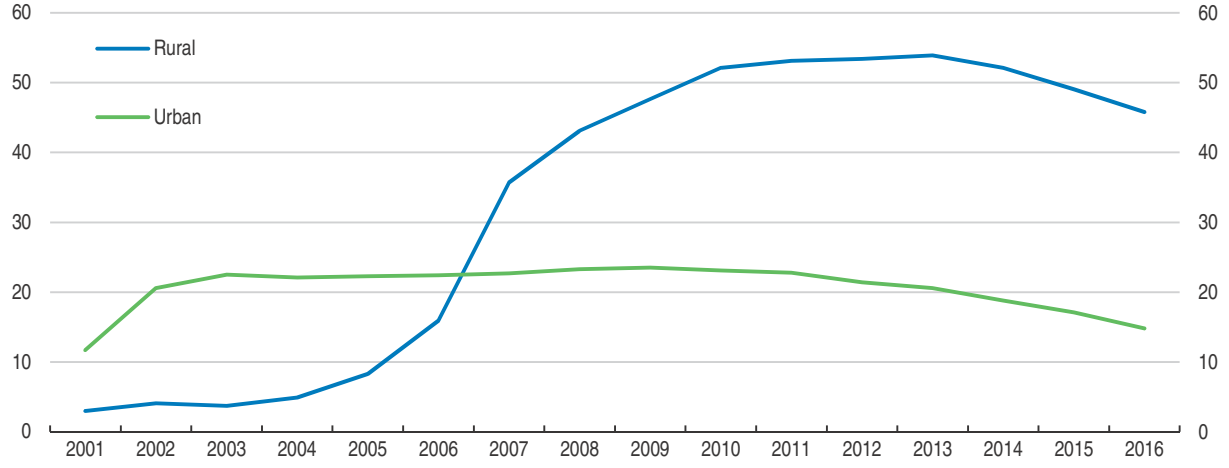
The coverage and targeting of the social assistance system has improved in recent years, contributing to the steady decline in the number of people in poverty. China does not have conditional cash transfer schemes such as those in place under Mexico's *Prospera* and Brazil's *Bolsa Familia* programme. The main social assistance scheme is the minimum living standard (or *dibao*) programme, variants of which exist in both urban and rural areas. The *dibao* is a non-contributory cash transfer to help those in poverty purchase necessities such as food, clothing and shelter. Under the scheme, a direct payment is provided to households equal to the difference between average income per person in the household and a minimum income standard. While the programmes are designed at central government level, and boast similar features, they are implemented by local officials. The minimum standard, the value of the transfer and the selection of recipients are all determined locally.

The coverage of both the urban and rural *dibao* schemes has expanded considerably since 2000. The number of urban recipients rose from 11.7 million people in 2001 to peak at 23.5 million people in 2009 (Figure 2.6). Recipients under the rural scheme increased from 3 million in 2001 to peak at 53.9 million in 2013. Absolute coverage has declined over the past few years even though average minimum income standards substantially outpaced average incomes at the lower end of the income distribution. Between December 2010 and September 2016, the average minimum income standard across counties rose by above 90% and 150% in urban and rural areas respectively.

One reason for the decline in coverage in urban areas may be household members starting to claim a pension. While pension income in rural China is not included in the calculation of household income for determining the *dibao*, it is in urban areas. Nevertheless, the increase in the number of new urban pension recipients has not been sufficient to fully explain the decline in *dibao* coverage. It may be that improvements in the targeting of *dibao* payments have also played a part. Past analysis using rural household survey data from 2009 suggests that there were significant targeting errors: close to 90% of *dibao* recipients had ex ante income above the county minimum income standard (Golan

Figure 2.6. **The coverage of the *dibao* programme has peaked in both urban and rural areas**

Number of *dibao* recipients, million people



Source: China Civil Affairs Statistical Yearbook.

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et al., 2015). There is also evidence that the targeting error for the urban *dibao* was high and rising between 2002 and 2007 (Gao et al., 2015). Along with the introduction of fines for local government officials or *dibao* recipients found to be acting improperly, databases are being gradually developed to help verify payment eligibility. Various ministries have collaborated on a database that provides information about household income sources and asset holdings, accessed conditional on prior authorisation by the household. This tool is only operational in a few of the most developed cities such as Shanghai and Guangzhou, but there are plans to roll it out nationwide.

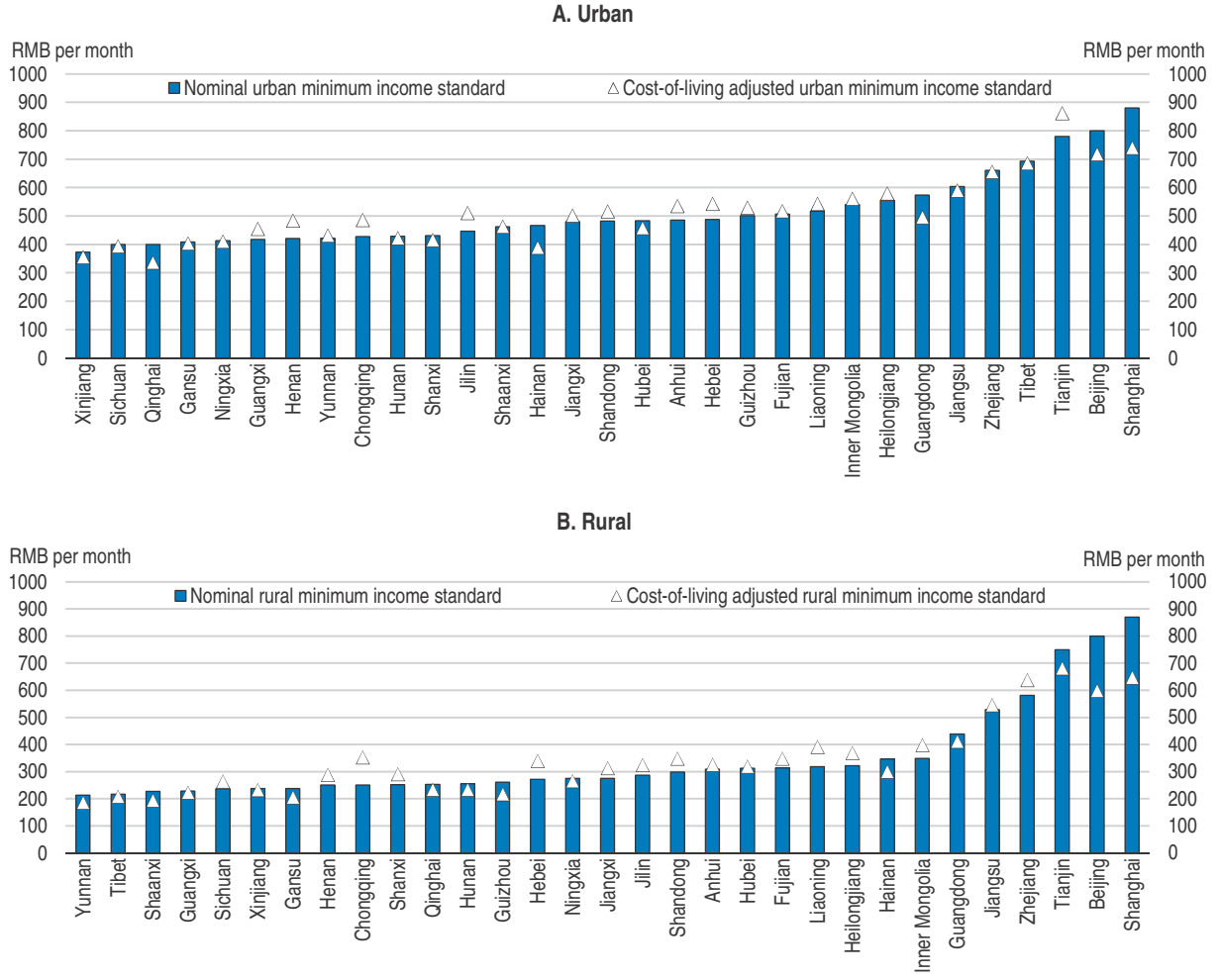
Part of any remaining targeting errors may be due to the decentralised nature of the scheme and variations in practices for assessing *dibao* eligibility. Household assets are meant to be taken into account for deciding if an applicant can claim *dibao*. However, there is no national procedure specifying the types of assets that should be considered. Similarly the method for calculating the income of family members living outside the local area is not uniform. While some counties may use actual income, others use the average or statutory minimum wage in the location where the family member is working. The government has made various attempts to clarify the planned regulation of the *dibao* system, including a circular on "Interim Measures for Social Assistance" in 2014 (MCA, 2014). However, more needs to be done to monitor the effectiveness of local systems. An increased number of inspections by representatives of the central government and greater efforts to ensure that citizens are able to easily report corruption or unfair practices in the administration of *dibao* are paramount.

The local administration of the *dibao* has led to significant differences in the minimum income standard both between and within provinces. In September 2016, the average urban minimum income standard in Shanghai was double that of 11 other provinces (Figure 2.7). At the same time, within Guangdong Province, for example, the standard in parts of urban Guangzhou was over double that in urban Leizhou, a county-level city located in southern Guangdong (Box 2.1). Part of such differences can be attributed to cost of living variations between locations. However, this only partially accounts for the discrepancies. When controlling for absolute price levels between provinces, there are still substantial differences between minimum income standards (Figure 2.8). These residual differences largely reflect the financing capacity of local governments, with poorer areas tending to have lower minimum standards and *dibao* transfers than richer areas (Leung and Xiao, 2015; Golan et al., 2015). While both the central and provincial governments channel fiscal transfers to locations in greatest need, this does not seem to be sufficient. As such, existing inequalities between regions may be reinforced through the current system. Central and provincial governments should increase transfers to the poorest areas to enable a cost-of-living adjusted subsistence payment that is more in line with that in richer locations.

Internal migrants cannot apply for *dibao* in the location where they reside, but only in the county where their household registration (*hukou*) is located. This policy and the differences in the minimum income standard mean that an eligible migrant from a rural area in Yunnan Province living in Beijing will, for instance, receive a much lower *dibao* transfer than one from rural Jiangsu. This creates horizontal equity issues and means that the relative living conditions and opportunities of some migrants are impaired due only to the province or county they happen to come from. While providing *dibao* for migrants according to their destination city is problematic, as it may encourage welfare migration, increasing the *dibao* payments in poorer areas through increased central and provincial government transfers would reduce the inequities between migrants from different locations.

Figure 2.7. **The minimum living standard varies significantly across provinces**

Average provincial minimum living standard, CNY per month (September 2016)



Note: Separate spatial price deflators for rural and urban areas in each province are taken from Brandt and Holz (2006) and then extrapolated using the province-specific consumer price index. Li and Gibson (2013) outline potential limitations with such a methodology.
Source: China Ministry of Civil Affairs, CEIC, Brandt and Holz (2006), authors' calculations.

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The design of the *dibao* system may inadvertently slow the income growth of the poor by providing a disincentive for them to take up work: an increase in household wage income will result in a proportionate decrease in the *dibao* benefit received. This implies an effective tax rate on participation of 100% on any amount of wages up to the minimum income standard. In contrast, the effective tax rates on participation of low-income earners entitled to social assistance in the United States and France were reported to be 28% and 64% respectively in 2014.

In an increasing number of OECD countries, provisions are made in the social assistance system to ensure the lowest income workers are not dissuaded from entering the labour market. Such policies have a positive impact on labour force participation (Immervoll and Pearson, 2009). One method is through the introduction of "in-work benefits", whereby those who take a low-paid job continue to receive some government income support in addition to their wage. Introducing such measures in China is advisable, especially in those locations with a relatively high minimum income standard which are likely to have the largest aggregate negative participation effects.

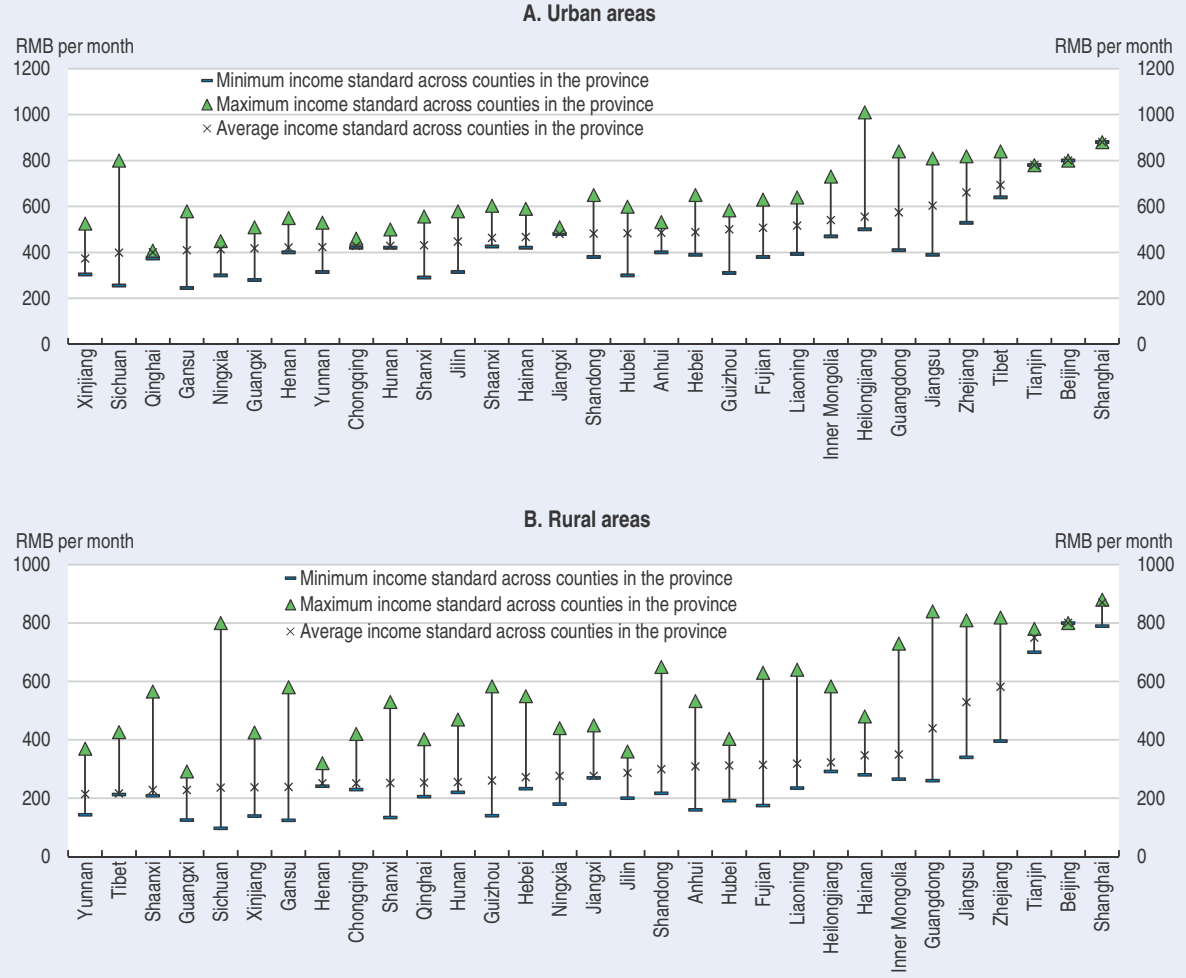
Box 2.1. **Variation in China's Minimum Income Living Standard**

China's minimum income standard is set at the prefecture level. Then, local authorities in each county within the prefecture can choose to fund an increase in the standard in their location. In 2012, the central government released the *Opinion on Furthering the Regulation on the Formulation and Adjustment of Dibao Standards* to communicate to local governments the principles that should be followed when setting the minimum income standards. Nevertheless, there is no universal model for calculating the standard. The local minimum wage, average local per capita income or the national rural poverty line may all be used as reference points for the standard depending on the location. Some local authorities also link the standard to the proportion of the household budget of low-income people devoted to basic food and to the cost of local basic necessities (Guan, 2016).

Differences in local government financing capacity and the diversity of methods used to calculate the minimum income standard has contributed to substantial variation within counties in the same province. While the municipalities of Beijing, Tianjin and Shanghai have implemented a uniform standard across counties in urban areas, the difference between the maximum and minimum county standard in the other provinces is, on average, 50% of the average minimum income standard of the province (Figure 2.8, Panel A). The within-province variation is even more pronounced in rural areas, averaging above 100% of the average provincial minimum income standard (Figure 2.8, Panel B).

Figure 2.8. **Minimum income standards vary greatly within provinces**

September 2016



Source: China Ministry of Civil Affairs, authors' calculations.

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Some locations already have measures to reduce the participation tax rate inherent to the *dibao* scheme. For example, a portion of any increase in household salary may not be included as assessable family income for calculating the *dibao* benefit for a defined period (usually three to six months). In addition, empirical studies hint that the practices of some local officials reduce the participation tax rate. In a study of seven Chinese cities, Ravallion and Chen (2015) estimate the actual effective tax rate at 7%, implying low levels of benefit withdrawal as incomes rise. They contend that this is because local officials in those areas do not reduce the *dibao* transfer payments as stipulated by the central scheme design.

In addition to *dibao*, a high proportion of low-income households receive agricultural subsidies from the government (Westmore, 2017). These payments have the purpose of providing income support, primarily to rural households, but also promote other government objectives such as agricultural modernisation and grain self-sufficiency (OECD, 2015a). There are also more targeted social assistance measures for a smaller number of extremely poor people. These include cash and in-kind benefits for the elderly, disabled and minors under the aged of 16 who have no dependents, no ability to work and no source of income. Such benefits (the *tekun* programme) are focused on five basic provisions (clothes, food, medical care, housing and burial expenses), with eligibility partly determined by local governments. In 2016, around 5 million people in rural areas received such assistance.

China also has special and temporary social assistance programmes such as medical financial assistance, education assistance and heating subsidies which provide support for poor and low-income families, often jointly funded by the central and local governments. Eligibility for these additional assistance measures is typically linked to *dibao* eligibility. Receiving the *dibao* as well as these other benefits may raise the material wellbeing of some impoverished households above that of other households whose per capita market income exceeds the minimum income standard (World Bank and DRC, 2014). This may create a disincentive for the former group to move from inactivity to work. In future, some decoupling of eligibility for these additional assistance measures from *dibao* should be considered. Local governments should also be further encouraged to assess potential perverse effects on work incentives when selecting the beneficiaries of additional social assistance support.

Unemployment insurance coverage is low

Unemployment benefits can reduce the risk of individuals slipping into poverty and improve job-search capacity. China's unemployment insurance system is partly funded by worker and employer contributions. Benefits are paid by the local government at a flat rate, conditional on the worker having paid into the scheme for more than one year and registering their unemployment status after being involuntarily terminated. While the coverage rate has increased in recent years, it remains low (OECD, 2015b). In 2015, just 43% of the urban employed contributed to unemployment insurance.

The expansion in the *dibao* scheme in recent years may have encouraged some unemployed workers to claim social assistance instead of unemployment insurance. While the *dibao* benefit is always lower than the unemployment benefit, no employee contributions are required to be eligible. At the same time, the incentive structure of local government officials may not sufficiently reward successful targeting of social welfare payments (Qian and Mok, 2016).

The replacement rate for the unemployed is low by OECD standards. This may rush unemployed workers from low-income families to take a job regardless of the compatibility with their skills, reducing the efficiency of labour market matching and the chance to forge a successful career. In 2014, the average unemployment insurance benefit in China was around 18% of the average urban wage. This contrasts with an average net replacement rate above 60% in the OECD for an individual who previously earned 67% of the average wage. While the average unemployment benefit level in China rose by around 13% per year during the 2006-14 period, this increase did not fully keep pace with nominal urban wage growth. Furthermore, the fact that benefits are not linked to past earnings may not encourage workers to take a formal sector job compared with a system where such a link exists.

Better targeted poverty-reduction benefits remain necessary

With tens of millions of people still in poverty, despite the expansion of the *dibao* programme, further improvements to the social security system and better targeting of poverty-alleviation programmes remain necessary. The importance of targeting is highlighted by the differences in poverty rates across provinces. While the published rural poverty rate in Zhejiang was around 1% in 2014, over 20% of the rural population in Gansu were in poverty at the time. Such disparities are confirmed by household level estimates computed from China Family Panel Studies data (see Box 2.2 for details). Recognising such differences, since 2013, public funding for poverty relief has been targeted at 832 counties that are mostly located in 14 contiguous "extremely poor" regions.

Box 2.2. **The impoverished households in five Chinese administrative regions**

Using 2014 household survey data from the China Family Panel Study (CFPS), the characteristics of households who lived below a defined poverty line can be examined. The CFPS is a large-scale panel survey conducted by the Institute of Social Science Survey at Peking University. The survey covers Shanghai, Liaoning, Henan, Gansu and Guangdong. The sampling strategy ensures representativeness at the province-level, allowing for province-level inferences and cross-province comparisons for these regions. The analysis below is based on the survey responses of 5543 households (for further details, see Westmore, 2017).

A poverty rate can be estimated by combining reported family income per capita and a defined poverty line. The national rural poverty line of CNY 2 300 at 2010 prices is used for rural households (extrapolated to 2014 using the national consumer price index), while the urban poverty line is defined as the average urban minimum income standard across 31 provinces in 2014 that is then adjusted for cost-of living differences between provinces.

The estimates highlight significant differences in poverty conditions between locations in 2014. Across all households living in these five provinces, the estimated overall poverty rate was highest in Gansu (25.2%) and lowest in Shanghai (2.6%). In each province outside of Shanghai, the estimated rural poverty rate was significantly higher than the 7.2% national rural poverty rate for 2014 reported by China's National Bureau of Statistics.

The CFPS survey also collects information about the expenditure baskets of households. This allows some descriptive analysis of the difference in the composition of household expenditure depending on poverty status. Across the five provinces, households below the poverty line spent a notably higher share of their income on medical care and housing, on average, than those not in poverty.

Box 2.2. **The impoverished households in five Chinese administrative regions** *(cont.)*

Table 2.1. **Poverty rates vary greatly across areas**

% of sampled population, 2014

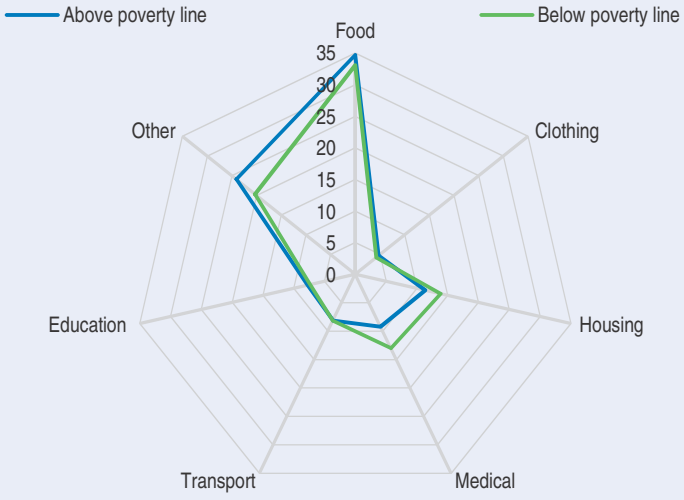
	Shanghai		Liaoning		Henan		Gansu		Guangdong	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Poverty rate	2.9	0.8	11.1	13.4	21.8	19.1	28.5	24.4	18.8	17.3

Source: CFPS, authors' calculations.

Focusing on medical expenses, the difference in expenditure share between the two groups was especially pronounced in urban Shanghai and Henan and rural Liaoning (Table 2.2). For Shanghai, this may partly reflect the large number of migrant workers, many of whom were likely covered by rural health insurance schemes that had lower reimbursement rates in 2014 (Yu, 2015).

Figure 2.9. **Impoverished households spent more of their income on health and housing**

Share of total expenditure (%), 2014



Source: CFPS, authors' calculations.

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The housing expenditure share was relatively high for those in poverty in both urban and rural areas in each of the provinces, with the exception of rural Guangdong and rural Liaoning. From 2000, housing affordability among the poor became a significant issue in many areas. This was partly due to a decline in the share of "economic housing" in total housing investment between 2000 and 2008 (Huang, 2012).

Box 2.2. **The impoverished households in five Chinese administrative regions** *(cont.)*

Table 2.2. **The impoverished in most regions spent more of their income on health and housing**

Average % of total household expenditure, 2014

	Shanghai		Liaoning		Henan		Gansu		Guangdong	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Medical share										
Above poverty line	6.9	8.1	7.8	9.5	9.1	11.6	9.6	12.2	5.6	10.1
Below p4overty line4	11.9	6.8	10.7	14.8	14.9	15.8	9.1	13.7	9.1	11.5
Housing share										
Above poverty line	10.0	12.1	10.9	10.8	10.4	9.4	12.1	15.4	11.5	10.3
Below poverty line	13.1	13.6	15.3	9.4	10.5	11.4	16.3	18.7	13.5	8.6

Source: CFPS, authors' calculations.

Poverty reduction funding is currently spread across a diverse set of rural development projects. In accordance with the government's *China Rural Poverty Alleviation and Development Programme (2011-20)*, project areas include water conservation, electricity supply, education infrastructure, roads and public transport connections, education, medical hygiene and culture (CPGPRC, 2011). Ongoing reforms that better allow rural residents to transfer land rights, such as those currently being piloted in Anhui province, will be important (such reforms were discussed extensively in the *OECD China Economic Survey 2015*). Furthermore, initiatives relating to e-commerce that allow better targeting and tailoring of policies can also benefit poverty reduction. A database has been established by the government for this purpose which has personal information about citizens deemed to be living below the poverty line.

The central government also provides financial support for the relocation of impoverished people to areas with better job prospects. By 2020, the government aims for an additional 10 million people to move either to parts of the same prefecture that have better developed public services or to thriving commercial areas that are further away. Under the programme, the relocated rural citizens retain use rights to their rural land and are given generous subsidies that cover the majority of their housing costs and other expenses. They are also provided with employment services to help them integrate into the local labour market. For each person, the central government transfers around CNY 60 000 to the local government (that manages the subsidies). Residents move on a voluntary basis, with the sum of the government subsidies thought to provide a substantial incentive. Nevertheless, past case studies have documented that voluntary resettlement programmes in China are often related to the withdrawal of government services at the migrant's original location, which gives the resident little choice but to move (Wilmsen and Wang, 2015). This highlights the need for comprehensive assistance for the relocated population to ensure that non-income elements of their wellbeing are not being neglected as a result of the programme.

Poverty may be reduced through government plans to provide household registration permits to some currently unregistered citizens. Around 13 million people have restricted access to public services and social security benefits because they do not hold a *hukou*. In January 2016, the State Council issued an opinion outlining eight types of unregistered citizens who should be given a household registration permit (State Council, 2016a). These included people born out of wedlock or with a foreign or stateless parent, people born in contravention of China's family planning policies, people not in possession of a birth certificate or complete adoption papers and those who have moved location but do not possess relevant transfer documents. Following the opinion, provincial governments were urged to develop specific plans to register these citizens. Although most provinces had released such outlines by mid-2016, a number of provinces with a relatively high share of unregistered citizens have still not articulated their policy.

Social housing

Access to decent-quality housing can be an important enabling factor for participation in the community and is associated with other aspects of wellbeing such as health, education and employment. However, housing costs can sometimes be prohibitively high for households at the lower end of the income distribution. In OECD countries, the incidence of housing cost overburden has been found to be especially high among low-income households (Salvi del Pero et al., 2016). The analysis in Box 2.2 suggests this has also been the case in some parts of China. In 2014, both the average urban and rural household living below the poverty line in Shanghai, Henan and Gansu had a higher share of their expenditure consumed by housing costs than the average household not living in poverty.

Over the past decade, the Chinese government has displayed a strong commitment to the provision of public housing for low-income households, with a large-scale public housing construction programme implemented since 2009. Public housing support in China takes many forms, with the government either providing financial assistance for housing costs or directly providing accommodation.

One method of housing support is when sub-national governments allocate free land to property developers to build housing for low-income households. Under this model, it is agreed that the profit margin of the developer will not exceed a certain threshold – usually around 3% (Huang, 2015). Qualified households can then purchase partial property rights to the housing at government-controlled prices. One problem with this approach is that sub-national governments rely heavily on the revenues derived from land sales to undertake new public investment and service debts (OECD, 2015a). Consequently, undesirable plots of land that are remotely located with poor access to public services and work opportunities are often those allocated for social housing development.

The government may also give financial subsidies to low-income households who rent housing from the private market or may directly provide rental housing at government-controlled rents. The vast majority of the public financial support is provided by subnational governments. However, partly due to this funding structure, migrants who do not have a local *hukou* tend to face difficulty accessing such support (Huang, 2015). While the government has introduced new programmes explicitly open to migrants without a local *hukou*, these have primarily been used to attract talented professional rather than those with lower incomes (World Bank and DRC, 2014).

Furthermore, local governments have increasingly been introducing inclusionary housing requirements for new private developments. Under this system, urban land is made available to property developers under the condition that a proportion of the new development must be set aside for low-income housing. In part, this is a response to ambitious social housing targets of the central government that are cascading to the subnational level. While the stock of such housing is still relatively low in China, the model of inclusionary housing can be beneficial for fostering social networks and reducing the chance that low-income housing is isolated on urban fringes. However, in many cases, the allotment for low-income housing is isolated within the development, sometimes by the erection of physical barriers from the other housing units or through the presence of separate entrances (Huang, 2015). These characteristics limit the potential social benefits of such a model.

Helping low-paid workers improve their productivity and appropriate the rewards

Inclusive growth can also be achieved by ensuring that marginalised groups have the opportunity to find jobs, improve their skills and derive the benefits from increasing their productivity. Indeed, improving market outcomes for low-paid workers should be the first priority for policymakers aiming to reduce inequality in disposable incomes. Educational opportunities at all levels are key to this process. So too are labour market institutions that help match workers to the most appropriate jobs and ensure that they receive a fair wage. Targeted policies that promote participation for those workers typically subject to discrimination, such as internal migrants and women, are also critical. The benefits of inclusive education and labour market policies should emerge through higher financial rewards for marginalised workers. However, such policies are also integral to promoting non-income dimensions of wellbeing (OECD, 2014).

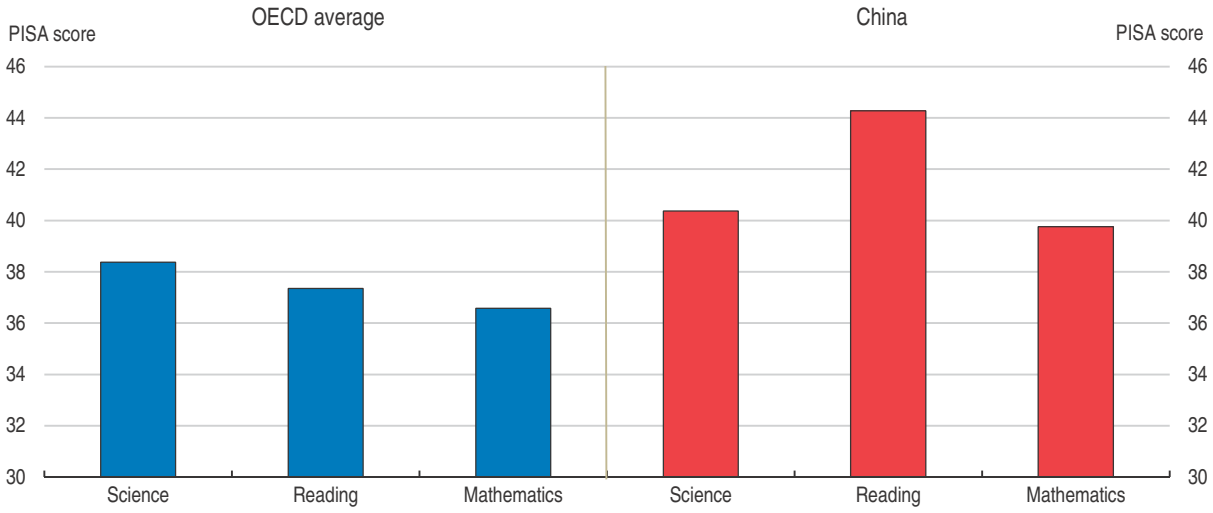
Educational opportunities are still relatively poor in rural areas

Educational opportunities shape people's destiny in the labour market, their productivity and their well-being. In 2015, Chinese students from Beijing, Shanghai, Jiangsu and Guangdong, who were tested for the Programme for International Student Assessment, outperformed the average OECD country cohort in science and mathematics and performed similarly in reading (OECD, 2016a). However, compared with OECD countries, socioeconomic factors explain a larger part of the variation in China's PISA results (Figure 2.10). This reflects broader inequalities in educational opportunities, stemming primarily from the urban-rural divide (Yang et al., 2014). Such inequalities are reinforced by China's fiscal system. In particular, the significant spending mandates of subnational governments are only partially funded through fiscal transfers (Gong, 2013).

The available evidence highlights particularly large disparities in enrolment rates between urban and rural children in pre-primary education (Chen et al., 2015). This is a concern because a lack of early childhood education can lead to poorer prospects for employment, income and health later in life (Campbell et al., 2014). As stressed in the *OECD Economic Survey of China 2015*, pre-school education should be compulsory for at least one year (OECD, 2015a). This is a key priority for making growth more inclusive and could be facilitated by greater funding from central and provincial governments. While rural enrolment rates in compulsory education have typically been almost as high as in urban areas, far fewer rural students aspire to a college education (Chen et al., 2015).

Figure 2.10. **Socioeconomic factors have a large influence on Chinese PISA scores**

Impact on PISA score of a one unit increase in the PISA index of economic, social and cultural status, 2015



Note: The PISA index of economic, social and cultural status is a composite indicator derived using principal component analysis from several variables related to the family background of students. Parent education, parent occupations, various home possessions that proxy material wealth and the number of books and other educational resources available in the home are inputs to the index.
Source: OECD.

StatLink http://dx.doi.org/10.1787/888933462028

The quality of education is also significantly lower in many areas of rural China. This reflects low teacher salaries and poor professional development. While training opportunities are currently available for teachers in many schools in poor rural areas, the low supply of staff and high number of students make it difficult for them to take time away from their classes (Peng et al., 2014). Furthermore, overcrowding in classrooms is a problem. Recognising this, the State Council issued a notification in mid-2016 stating a commitment to reducing all class sizes in rural schools below 56 students by 2020 (State Council of China, 2016b). However, even a class size of 56 would be much higher than the average of any OECD or emerging country (OECD, 2016a). The notification also indicated a willingness to fund higher rural teacher salaries in poor areas. While such initiatives should be beneficial, there is also a need to continue developing more sophisticated methods of school and teacher evaluation.

Migrant children following their parents to cities have been increasingly given access to city schools. Nevertheless, enrolment rates have been typically lower than their counterparts with an urban *hukou*, partly reflecting prohibitive enrolment conditions set by the provincial and municipal governments (OECD, 2015a). Reforms announced in 2016 that tie central government education funding to children's place of residence, rather than place of registration, may encourage local governments to welcome more migrant students into the school system. However, this would require increased funding by the central government, as education costs per student tend to be much higher in the cities with a large migrant population than in rural areas.

The low quality of education received by migrant children may reduce their opportunities later in life. The majority of such children are enrolled in low-quality public schools or in unlicensed migrant schools (Fang et al., 2016). Particularly in cities where educational resources are scarce, there are large gaps in the quality of education provided to migrant children compared with those who hold a local *hukou* (Xu and Wu, 2016).

Along with providing all citizens the opportunity for a good quality general education, there needs to be more emphasis on retraining low-paid workers during their working lives. The ongoing rebalancing of industry to more "new economy" tasks makes this a priority. China's *National Plan for Medium and Long-term Education Reform and Development 2010-20* aims to double the number of participants in lifelong learning programmes to 350 million by 2020 (Ministry of Education, 2010). Workplace-based vocational training is one channel for such programmes. However, the system is still underdeveloped, with better co-ordination between employers, teachers, students and the government needed. Furthermore, while employers are required to allocate 1.5-2.5% of the wage bill for continuous training purposes, the amount that is allocated in some cities is considerably less (OECD, 2015a). Online education has been growing rapidly and holds great potential as a platform for lifelong learning. In 2015, there were 110 million online education users, equivalent to 16% of all internet users in China (China Internet Network Center, 2016). Nevertheless, the quality of online courses varies greatly and the authorities should improve the monitoring, evaluation and quality assurance of such programmes.

Labour market institutions have been established to promote job quality and fair wages

Job-matching and training

Policies that facilitate efficient resource allocation are important for labour market matching (Adalet McGowan and Andrews, 2015). For example, encouraging greater competition in network sectors and accelerating the bankruptcy process in China (as discussed in Chapter 1) should reduce skill mismatch, thus improving worker productivity. Furthermore, institutions tasked with matching workers to appropriate jobs and implementing active labour market policies are important to this end.

The number of public employment service offices has surged in China since the early 2000s. There are currently around 11 000 such offices at the regional level and 40 000 in local areas that are co-funded by central and local governments (OECD/IDB/WAPES, 2016). Compared to many other countries, the job placement services are comprehensive. Job seekers register and administer their profiles online and a database is used to match job seekers to vacancies. The centres also organise training opportunities for job seekers and job fairs for interacting with prospective employers. The increase in government funding for such services over the past decade is likely to have contributed to narrowing inequalities in income (Solt, 2016) as well as broader measures of wellbeing.

There are various active labour market programmes through public employment services, including vocational guidance, temporary work trial programmes and self-employment schemes. These programmes are particularly targeted at marginalised job seekers, such as migrant workers, disabled persons, women, ethnic minorities and the elderly (OECD/IDB/WAPES, 2016). Nevertheless, the share of the operational budget of China's public employment services devoted to active labour market policies is below that of countries with well-established programmes such as Germany and Denmark.

Some measures are linked to the social security system. For example, able-bodied recipients have their *dibao* benefits reduced or rescinded if they reject job referrals from employment service centres three times. Nevertheless, the fact that public employment services have no role in administering *dibao* payments often leads to coordination difficulties in enforcing this policy.

Ensuring workers are paid a fair wage

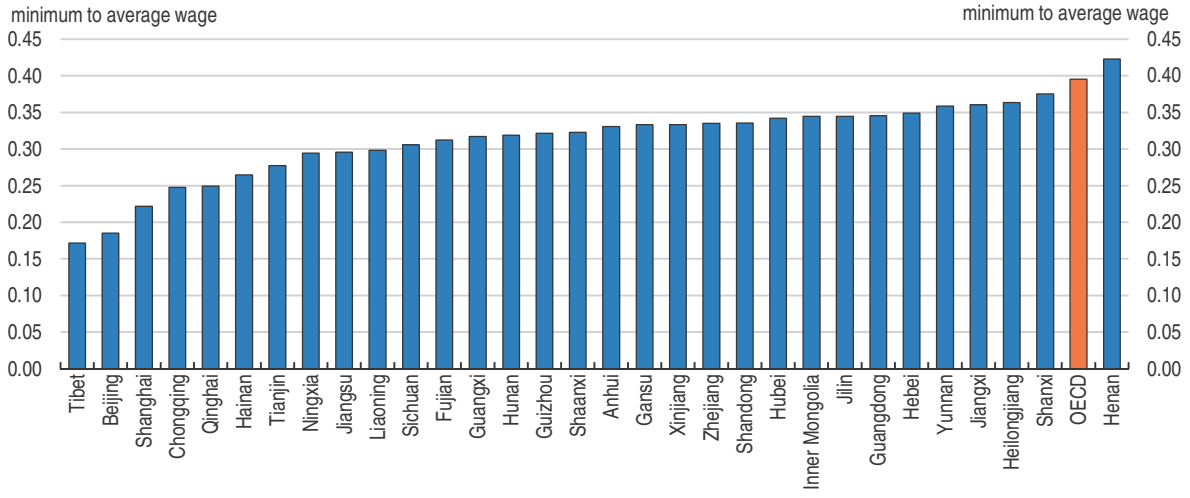
Trade unions in China play a relatively minor role in negotiating a fair salary for workers. The All-China Federation of Trade Unions, China's sole legally mandated trade union, has 288 million members and communicates with 5-6 million enterprises. However, union representatives do not negotiate wages on behalf of employees. Instead, their role is mostly to advocate adherence to labour laws and to identify areas in which they can provide support services (including financial assistance) to workers. They also ratify changes to minimum wages, after they are determined by provincial governments and approved by the Ministry of Human Resources and Social Security.

China has had a statutory minimum wage since the early 1990s in order to ensure work pays for low-income employees. Empirical evidence focusing on urban areas suggests that increases in the minimum wage have had beneficial effects on income distribution through reducing the gap between the median and bottom decile (Lin and Yun, 2015). There is no national minimum wage, but a series of local minimum wages set by provincial governments. Within the same province, the minimum wage level can vary materially. For example, in Guangdong Province, the most recently mandated minimum wage for Tier 1 cities was close to 60% higher than that for Tier 4 cities. Guidance from the central government recommends that the mandated level should consider the local cost of living and any negative consequences for employment of setting the minimum wage too high.

There is significant dispersion in the minimum wage level across provincial capitals, even when controlling for the local average wage (Figure 2.11). This highlights the discretion of provincial governments in setting the minimum wage level. On average across provincial capital cities, the minimum wage was 27% of average wages in 2014. This was notably lower than in OECD countries, where the average ratio of the minimum wage to average earnings of full-time workers was close to 40% in 2014. However, in some parts of China, there are concerns that further minimum wage increases will reduce the competitiveness of the

Figure 2.11. **Minimum wages are low compared with OECD countries**

Ratio of minimum wage to average wage by province, 2015



Note: The OECD bar is a simple average of the ratio of the minimum wage to average wage of full-time workers in 27 OECD countries in 2015.

Source: Ministry of Human Resources and Social Security, CEIC, OECD, authors' calculations.

StatLink http://dx.doi.org/10.1787/888933462031

business sector. In early 2016, Guangdong Province imposed a two-year minimum wage freeze. Furthermore, evidence suggests the adverse employment effects of some past minimum wage increases fell on groups already facing hurdles to labour market participation such as the low-skilled and females (Fang and Lin, 2013). As such, while there appears to be scope for an increase in the average minimum wage, the potential for negative employment effects in some locations should continue to be carefully considered. While the authorities could provide an in-work wage subsidy to minimum wage earners, supporting those at the bottom of the income distribution without inflating business costs, this may lead to an increase in undeclared (i.e. "envelope") wages if not coupled with stricter enforcement of regulation to prevent informal employment.

Labour market opportunities for some groups are reduced by policy distortions

Migrant workers from rural areas

Rural-to-urban migrants are one group that still face low status, badly paid and sometimes dangerous jobs. The authorities have made progress in recent years in severing the link between *hukou* status and welfare entitlements: in mid-2014, a single national resident registration system (*jumin hukou*) for both rural and urban populations was established. Nevertheless, the criteria for gaining residency in the most popular destination cities for migrants remain prohibitively strict for most migrant workers (see Box 2.3 for further details). The inability of the children of many migrant workers to access education and health services in cities has led to some 60 million children of migrant workers being "left behind" in their rural place of origin, having a negative impact on their mental health (Shi et al., 2016).

In 2015, 60% of migrant workers did not have employment contracts (Figure 2.12). As a result, such workers were not legally entitled to the minimum wage nor covered by China's labour laws, increasing their vulnerability to cyclical fluctuations and discriminatory practices by employers. Less than one quarter of migrant workers had contract duration greater than one year. This is consistent with OECD evidence highlighting that urban informal workers in China who transit to formality tend to move to temporary jobs (OECD, 2015b). For those workers with no contract or on a short-term arrangement, the incentive for either firms or workers to invest in firm-specific skills development is low. At the same time, employment protection legislation for temporary workers is particularly lax in China compared with the laws for regular workers. This may amplify the vulnerability of migrant workers, especially considering the low proportion of migrant workers who have unemployment insurance.

The low coverage rate of contracts partly reflects employers avoiding social security contributions and their other obligations. However, some workers are also reluctant to make social security contributions due to imperfect portability of benefits (discussed further below) in a context where the vast majority see their move to cities as temporary (OECD, 2015a). In any case, among rural migrants, the existence of a labour contract is associated with obtaining a higher wage (Wang et al., 2015). This suggests that such workers do not trade away employment certainty in return for higher wage benefits.

In general, migrant workers tend to earn a lower wage than those with a local *hukou*, even in the same job (Zhu, 2016). A significant body of evidence suggests that this partially reflects discrimination that is not related to job performance. While migrants from other urban areas may be afforded a wage premium to compensate for lower social security

Box 2.3. **China's migrant workers and *hukou* system**

In the Chinese context, migrant workers refer to rural workers engaged in non-agricultural activities. By 2016, there were 281.7 million such workers in China. Around 60% of these moved away from their place of origin, with the remaining 40% undertaking a non-agricultural job within their local area. In recent years, the number of rural workers living in cities has stagnated (Molnar and Chalaux, 2017).

China's National Bureau of Statistics undertakes an annual survey that sheds light on the characteristics of migrant workers. In 2015, the most recent vintage, around one third of migrant workers were female and the average age of a migrant worker was 38.6 years. Nevertheless, the migrant workforce is gradually ageing. Between 2011 and 2015, the proportion of migrants aged under 40 declined from 61.7% to 55.2%.

In 2015, the highest education level of most migrant workers (59.7%) was junior high school. However, 8.3% held either a college degree or above. The labour force participation rate of migrant workers has typically been above 95% (Lam et al., 2015) and, in 2015, the majority of these workers were employed in either the construction or manufacturing industry. Nevertheless, the share of migrants employed in secondary industry has declined in recent years, with a greater share taking up jobs in the burgeoning services sector.

A defining feature of China's migration system is the *hukou* household registration classification. The origins of this policy can be traced back to the Qin Dynasty (Wang and Liu, 2016). However, in modern China, it has mostly been used to govern the distribution of resources and prevent overcrowding in particular locations by limiting population mobility (Wallis, 2016). The system has also served to promote agricultural production, against the backdrop of China's self-sufficiency targets (OECD, 2015a), by managing the outflows of workers from rural areas. Under the *hukou* system, every Chinese citizen is required to be registered with the *hukou* authority, with their legal address and various personal details recorded on their registration book. It has typically been difficult for workers who do not possess a local *hukou* to obtain a variety of public services, notably with respect to education, health care, pension, welfare and affordable housing in their place of residence (OECD, 2015a). While data are only available to 2014, the majority of migrant workers were not covered by social insurance in their destination city at that time (Table 2.3).

Table 2.3. **Migrant workers have limited access to public services in their destination city**

In per cent

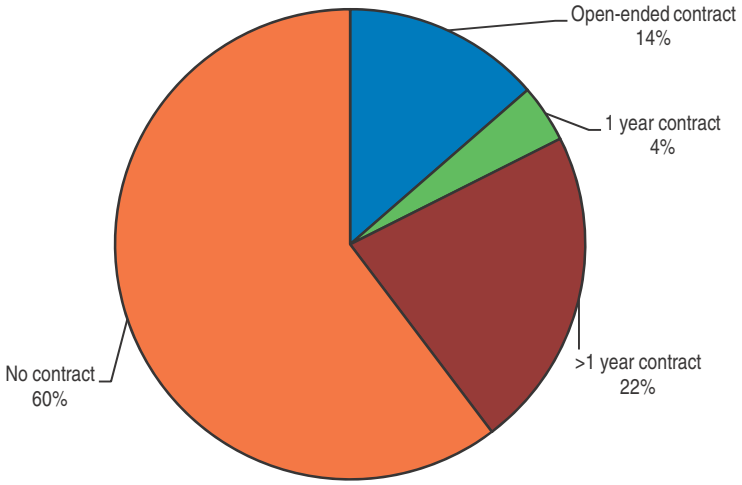
	2009	2010	2011	2012	2013	2014
Social insurance coverage						
Pension	8	10	14	14	16	17
Industrial injury insurance	22	24	24	24	29	26
Medical insurance	12	14	17	17	18	18
Unemployment insurance	4	5	8	8	9	11
Maternity insurance	2	3	6	6	7	8

Source: National Bureau of Statistics.

Under the government's National Urbanisation Plan for 2014-20, a further 100 million rural dwellers will migrate to urban areas by 2020, raising the urbanisation rate to 60%. In recent years, the government has undertaken a series of reforms to the *hukou* system to better allow migrant workers to gain residency status, and thereby access to public services, in the cities in which they live. Nevertheless, the conditions for gaining residency status vary greatly between locations and there are still tight restrictions in the most popular destination cities. For example, residency in Beijing and Shanghai is controlled under a stringent points-based system where a migrant worker needs to prove that they i) have possessed legal and stable employment for a certain period ii) live in a legal and stable residential unit and iii) have participated in the city social security system for a certain number of years. In some locations, such as in the prefecture-level city of Suzhou in Jiangsu province, reforms have instead focused on delinking eligibility for urban public services from *hukou* status. This has been done by granting resident migrants a residence permit that provides them the same rights as local urban *hukou* holders (Koen et al., 2013).

Figure 2.12. **A large share of migrant workers do not have labour contracts**

Contract status of migrant workers (%), 2015



Source: China National Bureau of Statistics.

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protection, this does not tend to be the case for rural-to-urban migrants (Gagnon et al., 2014). Such wage discrimination has been found to be particularly pronounced in urban state-owned enterprises (SOEs; Song, 2016).

Increasing labour market opportunities for women

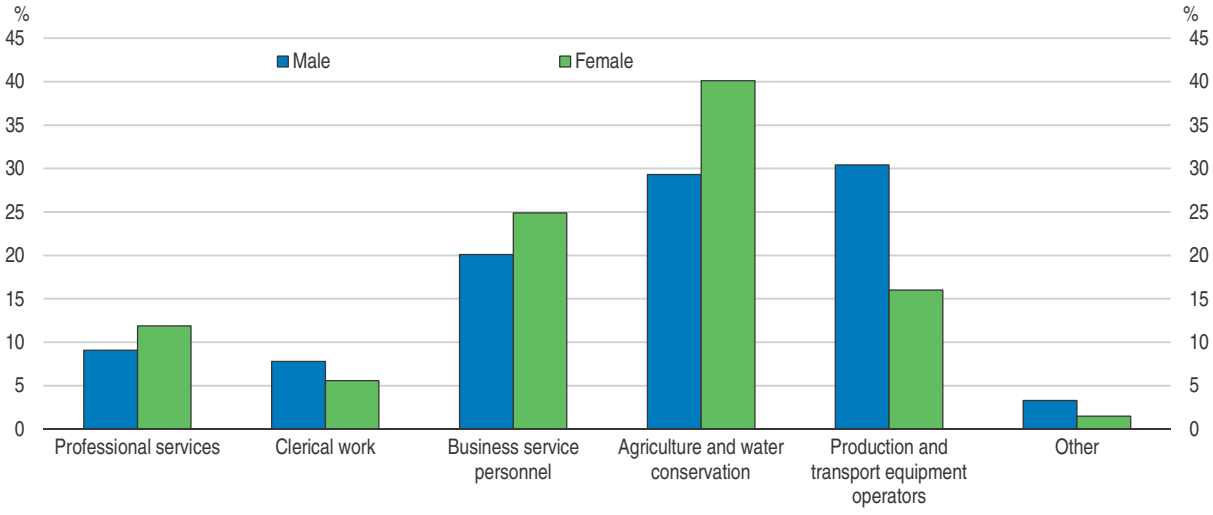
China's female participation rate is high. In 2014, around 70% of females between the ages of 15 and 64 were in the labour force, 4 percentage points higher than the average in the OECD and 16 percentage points higher than the average in BRIICS countries. Nevertheless, between 1990 and 2014, the labour force participation rate of 15-64 year old females declined by 9 percentage points. Compared with trends in the participation rate for men, there has been a particularly steep decline in the participation of women aged 25 to 34 (Dasgupta et al., 2015). This may have partly reflected rapid household income growth, giving females who wished to leave the labour force the financial capacity to do so. However, the declining role of SOEs in the economy has also been associated with a reduction in the *de facto* provision of legislated parental leave (Shin et al., 2013). Furthermore, there have been significant changes in the public provision of child care which may have negatively impacted female participation rates, especially for some vulnerable groups. This is because domestic duties continue to be largely carried out by females: 38% of urban unemployed females in 2014 attributed their unemployment to having to prioritise housework compared with 4% of the male urban unemployed.

Following reforms to SOEs in the late 1990s, the number of publicly-funded childcare places fell dramatically. Such places for children aged 0-2 years in nurseries no longer exist (Du and Dong, 2013) and the public childcare places for older children mostly benefit parents that are employees of large SOEs or the government (Cook and Dong, 2016). The number of private kindergartens has grown rapidly to fill the void and now significantly exceeds the number of public childcare institutions. However, the fees for such care are often high: in 2015, average annual private kindergarten fees amounted to 30% of average urban disposable income per capita and around 80% of average rural disposable income per capita.

The occupational profile of Chinese women in employment is different to that of men. Most notably, the agricultural employment share for women was around 11 percentage points higher than for men in 2014 (Figure 2.13). The decline in the agricultural employment share between 2006 and 2014 was also slower than for men, reflecting China's "left behind women". These are females in rural areas who are tasked with working on the household farm allocation while their husband temporarily migrates to a higher-paid urban job. Given the government's objective to encourage further rural-to-urban migration, the reallocation of women to urban jobs will be important. However, the typical education level of women currently working in agriculture is substantially lower than that of those working in the jobs typically found in urban areas. Consequently, important changes to land and household registration policies in rural areas (OECD, 2015a) that further encourage the rural-to-urban transition will need to be coupled with policies focused on improving female education.

Figure 2.13. **The employment share in agriculture is higher for women**

Occupation by gender, 2014



Source: China Labour Statistical Yearbook, 2015.

StatLink http://dx.doi.org/10.1787/888933462040

A wage gap commonly exists between men and women in China which may reduce the incentive for women to seek employment and the wellbeing of those women on low incomes. The share of women in top-management positions in China is below the OECD average (OECD, 2016b). However, a number of studies that use household level data and control for differences in seniority, occupations, locations and worker endowments find that females are paid less than males (Dasgupta et al., 2015; Xiu and Gunderson, 2013; Su and Heshmati, 2011). Focusing on migrant workers, Qin et al. (2016) find that the bulk of the difference in wages between males and females is due to gender discrimination.

Gender equality is gaining more attention with China's policymakers, as highlighted by the *Gender Equality and Women's Development White Paper* (State Council of China, 2015). However, further efforts are now needed to translate these sentiments into new policy measures. Policy changes that improve the ability of men to care for children and undertake domestic duties, thereby better enabling females to enter the labour market, will help. A recent reform in Shanghai that increases childcare leave for new fathers from three to 10 days moves in the right direction. Measures that increase the public provision

of childcare or provide subsidies to low-income families using high-quality private childcare providers are also needed (although this will need to be funded by either more tax or social security revenue). Ensuring that there is high female representation in active labour market programmes will assist women to be better-equipped to transition amid ongoing technological upgrading in the industrial sector. At the workplace level, government institutions that identify the need for upward adjustment to female wages where unexplained earning disparities exist and measures that promote gender diversity in leadership positions are vital. An example of the latter may be government support for mentoring and training programmes that are targeted at women.

Improving the health system to enhance living standards

Life expectancy at birth in China rose by five years between 2000 and 2015, to 76.3 years, thanks to rapid improvements in living standards and public investment in health. Nevertheless, it is expected that a child born in China today will live four years less than one born in the average OECD country. A strong and equitable healthcare system that supports increasing healthy life expectancy is integral to wellbeing and the ability of the population to productively participate in the labour force. It is especially important in China given the rapidly ageing population and the ongoing rebalancing of the economy away from capital-intensive industry to services.

Significant disparities exist in accessing healthcare

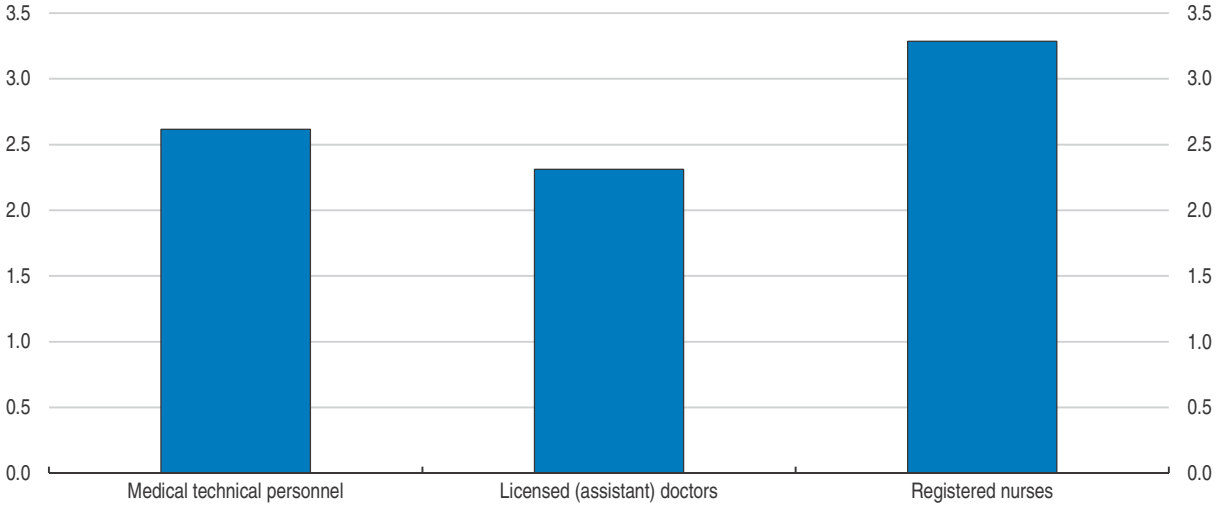
Recent strong growth in China's public health expenditure has been associated with reductions in inequalities across genders, regions and income levels (Gómez, 2015). The number of beds in healthcare institutions has risen from 2.8 per 1 000 people in 2007 to 5.1 in 2015. Outpatient care is also being provided through community health centres in some areas. For example, in Zhaoqing city in Guangdong Province, a pilot programme is underway whereby each community health centre doctor is responsible for providing outpatient care at the home of elderly or severely sick people in a catchment area. One constraint to implementing the programme nationwide is shortages of quality healthcare personnel. Even within the hospital system, patients seek higher levels of care in order to access professionals with more expertise (Sun et al., 2015). This leads to higher costs that are ultimately borne by households. Hospital congestion in many large cities has even resulted in the development of informal markets for the appointment tickets required to see a doctor.

Low availability of healthcare personnel is particularly pronounced in rural areas (Figure 2.14), contributing to child mortality rates that are over double that in urban China. The number of village clinics, which provide basic medical services in rural areas, has even been diminishing. Between 2011 and 2016, the number of village clinics declined by over 20 000 (3.2%). Since 2011, the government has implemented the Rural Compulsory Education Student Nutrition Improvement Plan, which has included the provision of free school meals for students in poverty-stricken rural areas. The standardisation and transparency of this policy has benefited from a programme created by the China Development Research Foundation that uses mobile phone technology to share and monitor the free meal initiative.

Both the nationwide shortage of healthcare professionals and the disparities in personnel between urban and rural areas reflect relative wages. Despite the heavy workload associated with a medical degree, the average monthly income for new doctors in 2014 was around 40% below that for internet developers (MyCOS, 2015). Within the

Figure 2.14. **The availability of healthcare is much lower in rural areas**

Ratio of health professionals per resident between urban and rural areas, 2015



Source: China Statistical Yearbook 2016.

StatLink http://dx.doi.org/10.1787/888933462237

health sector, wages are lower in rural areas and for professionals who work in primary care (World Bank et al., 2016). Community-based primary care has also been given relatively little emphasis in training programmes for healthcare professionals. This contrasts with the situation in many OECD countries, where resources have been increasingly dedicated to improving primary care capacity (World Bank et al., 2016).

Doctor remuneration is commonly linked to the volume of medicines prescribed or procedures performed, resulting in over-prescription. Indeed, pharmaceutical expenditures per capita far exceed those in the average OECD country. Such practices tend to increase the costs to patients and can threaten their wellbeing. The government has introduced measures in some locations to reduce such abuse, such as the establishment of computer systems that monitor the flow of prescriptions and a zero-profit drug policy which eliminates mark-ups by hospitals on some drugs. Policymakers are also considering ways to increase the salaries of nurses and doctors that do not lead to over-prescription in the public health sector.

One potential channel is for doctors to provide fee-based private services in addition to their standard hospital work. Currently, outside the network of military and police hospitals, doctors cannot lease rooms for such activities. If such services were permitted, it would allow wealthier patients to pay a higher fee to bypass hospital waiting rooms, while allowing lower-income households greater access to health professionals through the public system (provided they can afford the out-of-pocket medical expenses). Nevertheless, such a system would need to be accompanied by a robust evaluation framework for assessing such doctors. Moreover, existing regulations would need to be amended, notably the regulation for licensed medical practitioners, which rigidly dictates the structure and responsibility of the posts of healthcare workers. The government's recent "three medical linkages" policy framework is a step in this direction insofar as it stresses the need for more market-oriented health purchasing mechanisms (Ministry of Human Resources and Social Security, 2016a).

Excessive demand for medical care and the fact that outpatient services are typically not reimbursed by health insurance providers has contributed to a proliferation of unregistered practitioners. Such health providers are either untrained or have qualifications that are not recognised in their place of residence. A study related to such practitioners in Guangzhou highlighted that rural-to-urban migrants are the largest users of such services (Bork-Hüffer and Kraas, 2015). Furthermore, these health providers were not found to emphasise preventive care, worsening the health outcomes and future health costs of an already marginalised group.

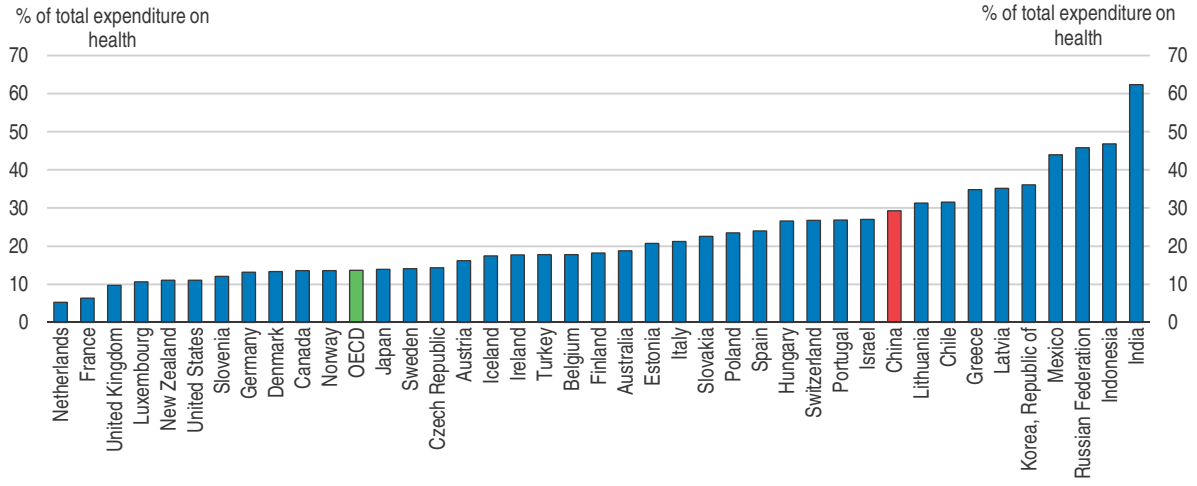
Health insurance system

Access to healthcare has been improved by an impressive expansion in health insurance coverage. Between 2004 and 2014, the coverage rate rose from around 200 million to over 1.3 billion people – the largest expansion of insurance coverage in human history (Yu, 2015). There are currently three health insurance schemes: i) Urban Employee Basic Medical Insurance; ii) Urban Resident Basic Medical Insurance; and iii) the New Rural Cooperative Medical Scheme. It is planned that the latter two will be integrated in the near future. At present, the premiums paid for the urban resident and rural scheme are lower than those for the urban employee scheme. This translates into disparities in benefits which may put sick rural or urban residents at a disadvantage relative to urban employees.

Overall, out-of-pocket payments have declined in recent years owing to increases in government subsidies. Nevertheless, by international standards, direct health outlays by households remained high in 2015 (Figure 2.15). In December 2016, the State Council published the 13th Five Year Plan objectives for the medical and health system. These included a reduction in out-of-pocket health costs as a share of total health expenditure to 28% (from 29.3% in 2015) and basic health insurance coverage for 90% of the population by 2020. Some studies have found that being covered by the urban resident insurance system increases healthcare utilisation but does not reduce out-of-pocket payments (Liu et al., 2014; Liu and Zhao, 2014). To what extent this reflects patient choice or

Figure 2.15. **Out-of-pocket health costs for the insured are high**

As a percentage of total health expenditure (%), 2015 or latest available



Note: Data relate to 2015 for China and to 2014 for all other countries.
Source: World Health Organization *Global Expenditure Database*, China Statistical Yearbook 2016.

StatLink http://dx.doi.org/10.1787/888933462058

over-hprescription is unclear. To reduce the risk of the latter, a shift from a reimbursement system dominated by fee-for-service payments to one where payments from insurers are not contingent on the volume of services provided (e.g. capitation or diagnosis-related group payments) should be considered. So too should be measures that more closely link insurance payments to the quality of services provided.

Families living below the minimum income standard, or those who can show their livelihoods have been severely affected by unexpectedly high medical costs, can receive government assistance. This either takes the form of subsidies for insurance premiums or medical financial assistance cash transfers. Nevertheless, the analysis in Box 2.2 suggests that those living below the poverty line generally spent a higher share of their income on medical expenses than those not living in poverty in 2014. Continued improvement in the targeting of medical financial assistance and further efforts to reduce out-of-pocket payments are needed to reduce financial strains on such groups.

In 2014, only 18% of migrant workers were covered by medical insurance from an employee scheme. At that time, all other migrant workers were required to return to their place of origin to claim health insurance benefits through the New Rural Cooperative Medical Scheme. Increasingly, reforms have enabled reimbursement at the place of residence if a migrant worker originates from the same province. For example, in recent years, health costs incurred in Hohhot, the capital city of Inner Mongolia, have been reimbursed regardless of the location of the individual's *hukou* within the province. In December 2016, the government announced that patients will be able to claim reimbursement in the location of the treatment regardless of which health insurance scheme they belong to or the province from which they come (Ministry of Human Resources and Social Security, 2016b). This reform should improve the utilisation of health services by migrant workers and reduce the time between when health costs are incurred and reimbursed.

Further policy measures are needed to combat air pollution

The detrimental health effects of air pollution continue to be a major concern. Stroke, heart disease, lung cancer and respiratory diseases can all be caused by high levels of ambient air pollution. Such health effects impede the ability of victims to participate in the economy and to lead a happy life. Health problems associated with pollution can have disproportionately large impacts on the poor, who may suffer greater exposure to pollution and have fewer options to relocate (OECD, 2013). Furthermore, exposure in less developed industrial provinces such as Henan is considerably greater than in some other areas that have transitioned to a more services-based economy.

There were an estimated 670 premature deaths per million people in China from exposure to particulate matter and ozone concentrations in 2010 (OECD, 2016c). In recent years, while air pollution has remained at dangerous levels, concentrations in some locations have moderated. This may have been due to the implementation of the tougher penalties for polluting businesses outlined in the Environmental Protection Law of 2015, as well as stricter standards for the sulphur content of motor fuel. Nevertheless, the number of pollution-related deaths per capita is expected to increase substantially over the period to 2060 in the absence of further government policy interventions (OECD, 2016c). There are plans to launch a national emissions trading scheme in 2017, which will reduce the types of pollution harmful for health if implemented effectively.

The main sources of air pollution in China include coal combustion, transport and agricultural waste burning. Improvements in the provision of public transport and the urban design of China's biggest cities should reduce pollution levels. Developing more compact cities can enable shorter commuting distances, better energy efficiency in buildings and a better use of land resources (OECD, 2013), according with several of the United Nations Sustainable Development Goals. This can be achieved through urban planning policies that move away from developing the "superblocks" (blocks of property organised around an arterial grid of roads that tend to be both very wide and very far apart) that exist in many Chinese cities and which tend to favour private automobile transport (OECD, 2015c). Pollution from transport may also be cut by eliminating subsidies for fossil fuels. Furthermore, recent OECD simulations suggest that replacing fuel subsidies with cash transfers can mitigate potential regressive effects and reduce poverty (Durand-Lasserve et al., 2015).

To reduce pollution from the burning of agricultural waste, improvements in the skills and technologies used in the agricultural sector are needed. China's network of agricultural extension agents should be mobilised to communicate and teach new burning strategies and methods of waste disposal. These may include crop rotation strategies and techniques for turning agricultural waste into biofuels. Better training for farmers may also help reduce soil pollution, given that it is often linked to the overuse of nitrogen fertilisers (OECD, 2015a). Water pollution is also at dangerously high levels in many parts of China, affecting health and wellbeing. The Environmental Protection Tax Law, passed in December 2016 and effective from January 2018, mandates the collection of taxes on water and air pollutants as well as on solid waste and noise, and is a welcome step in the right direction.

Tobacco consumption is high and obesity is rising

High levels of tobacco consumption continue to jeopardise the health of the male population, but recent policy changes seem to be reducing smoking rates. Smoking can lead to many of the same non-communicable diseases that derive from high air pollution exposure, reducing labour force participation and weighing on the health system. While the smoking rate for women in China is very low, a much higher proportion of men smoke than in the average OECD country. Cigarette consumption per capita rose sharply through the 2000s as smoking became more affordable (OECD, 2010). As at 2012, around half of men above the age of 15 were smokers (OECD, 2015d).

In 2015, Chinese tobacco consumption fell for the first time since 1995. This coincided with the government implementing several policy measures that accorded with past OECD recommendations (OECD, 2010). Indoor smoking was banned, with fines levied on both individual violators as well as businesses failing to enforce the law on their premises. Restrictions on tobacco advertising were also imposed and the wholesale consumption tax was increased from 5% to 11%, which translated into higher retail prices. Nevertheless, the tax portion of the retail price of packet of cigarettes remains low in China compared with other countries (Zheng, 2016). Further increases in tobacco tax rates should thus be considered to promote healthy lives.

Obesity has also become a major concern for the health system. Nationwide, the rate of obesity is lower than in some other emerging economies (Burgraff et al., 2015), but it is rising rapidly, especially in urban areas. This has partly reflected transitions to a higher-calorie diet and a more sedentary lifestyle with the change in industrial structure and rapid income growth of the past few decades. Higher obesity raises the risk of acute

and chronic diseases such as heart disease, stroke, Type 2 diabetes and hypertension, increasing costs for China's health system (Qin and Pan, 2016). However, previous work has highlighted policy packages including mass media campaigns, food taxes and subsidies, nutritional labelling and market restrictions that would result in substantial reductions in obesity levels. Furthermore, the cost of such a package would be relatively low in China compared with some other middle-income countries (Cecchini et al., 2010).

Extending the working lives of the elderly and caring for them in retirement

Improvements in the health system will be important for ensuring China's elderly population can live long active lives and be cared for in their later years. So will government policies supporting old-age participation in the labour market and the sustainability and adequacy of the pension system. These priorities are gaining prominence as China's population ages.

Along with the other facets of China's social welfare framework, the pension system has developed substantially over the past few decades. Before 1997, the only pension payments were provided by China's SOEs and were funded without regular contributions. Since that time, new funded schemes have been established for urban employees, urban and rural residents and for civil servants and public service unit employees. Over 90% of people with pension contributions belong to either the urban employee or urban and rural resident schemes. Nevertheless, pensions are administered at the local level within each of the schemes, leading to a high degree of fragmentation in the system.

The government is aiming for universal pension coverage by 2020. However, enrolment of migrant workers is low, with only 17% of them affiliated to a scheme in their place of employment in 2014. While the urban employee scheme is meant to be compulsory, some businesses offer migrant workers higher wages if the payments go undeclared so that they do not have to make employer social security contributions (World Bank and DRC, 2014). Furthermore, both those migrant workers who have labour contracts and those who do not may be discouraged from enrolling in a pension scheme due to poor benefit portability between regions. According to guidance from the central government, a migrant worker should retain the rights to their accrued pension benefits if they move back to their rural home or to another city. However, there is currently no centralised record-keeping system, with each local government applying their own administrative arrangements. Consequently, in practice, it is difficult for pension benefits to be transferred.

Benefits vary substantially across and within the pension schemes, which may stoke inequalities at older ages. Benefits under the resident scheme are generally lower, owing to low individual contributions. Residents must contribute only CNY 100 per year to be eligible for the basic pension, with the returns on excess contributions set at the one-year bank deposit rate (which is currently below 2%). There is also a component of resident pension contributions that is matched by local governments. However, in poorer regions, the matched amount is set low as it is funded from local government revenues. In contrast to the resident scheme, replacement rates under the urban employee and civil servant schemes compare favourably with those in the average OECD country (Queisser and Hu, 2016).

An emerging issue is the sustainability of China's urban employee pension scheme. Employers contribute 20% of the individual's wages to a "social pooling" account and workers contribute 8% of wages to an individual account. Employer contributions are pooled at the local level to finance current benefits along a defined schedule, while

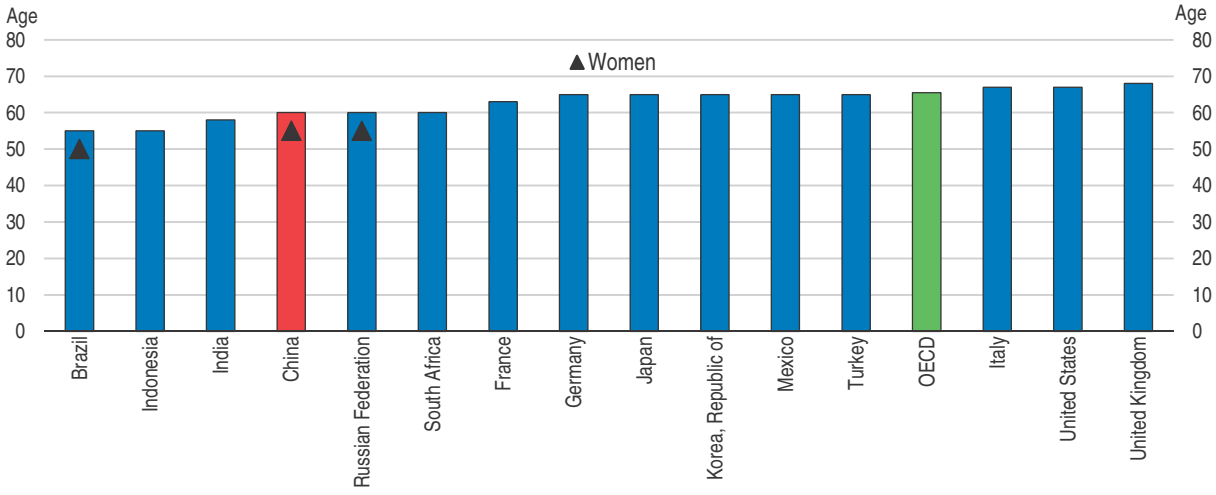
employee contributions are meant to be deposited into their individual accounts. However, in recent years, insufficient funds in the social pooling accounts have led local governments to borrow from the individual accounts to fund current payments. This undermines the confidence of households that their pension benefits will be available upon retirement, contributing to high precautionary saving rates.

To make up the current shortfall in pension accounts, a coalition of government ministries has developed a plan to transfer CNY 4-5 trillion of equity from SOEs to the National Social Security Fund (NSSF) between 2017 and the end of 2019. The central government is also now allowing local governments to invest a portion of their pension funds in riskier assets with higher average returns, such as the equity market. This is facilitated by locally-pooled funds being transferred to the NSSF. Nevertheless, parametric adjustments are needed to ensure the long-term sustainability of the scheme.

One such adjustment is an increase in China's relatively low pension age, as underlined in the *2010 OECD Economic Survey of China* (OECD, 2010). This is especially the case for women. At present, the normal pension age in China is 60 years for men, 55 for women in white collar jobs and 50 for women in blue collar occupations (Figure 2.16). Nevertheless, it may be difficult for the government to increase the retirement age when workers are unconvinced that an extra year of work will entitle them to a higher pension benefit. This suggests multiple complementary strategies are warranted, including the equity injections discussed above, to improve the overall sustainability of the pension system.

Figure 2.16. **The retirement age remains low**

Normal pension age, 2015



Note: The marker indicates where the pensionable age is lower for women than for men. For China, the marker is for female white collar workers.

Source: OECD (2016), *Pensions at a Glance*.

StatLink http://dx.doi.org/10.1787/888933462244

As well as improving the durability of pension schemes, an increase in the pension age and indexation to life expectancy is advisable to lean against the economic pressures of the ageing population. At the same time, the pension age of men and women should be aligned. These changes need to be coupled with regulations that encourage lifelong learning at later ages and stricter monitoring and punishment of age discrimination in the labour market.

In addition to pension payments, there are also some in-kind benefits provided by the government to pensioners and pilot schemes have been launched to assess the feasibility of providing medical insurance for long-term nursing care. Currently, in-kind benefits include reimbursements for various care services provided in the home. However, there is no financial support for family caregivers who need to reduce their wage-earning hours in order to care for a family member. Such a measure is advisable given that, partly as a legacy of the One Child Policy, it is becoming more common that one child must look after two parents and four grandparents.

Recommendations for sharing the benefits of growth by providing opportunities to all

Key recommendations

- Base social security contributions on actual income earned.
- Increase central and provincial government social assistance transfers to poorer areas.
- Broaden the personal income tax base and increase tax progressivity.
- Implement a broad-based nationwide recurrent tax on immovable property and consider an inheritance tax that would include some basic inheritance allowance.
- Gradually increase and unify the pension age to 65 and then index it to life expectancy.
- Improve administrative procedures to make it easier to draw a pension in a different location from where it is earned.
- Increase public funding for childcare and introduce incentives to encourage the participation of migrant children and those in rural areas in early childhood education.

Further recommendations

Enhancing the redistributive impact of the tax and transfer system

- Eliminate tax exemptions for interest income and reduce the personal income tax allowance.
- Exclude a portion of any increase in household salary as assessable family income for calculating the *dibao* benefit for a defined period.
- Increase the level of unemployment benefits through central government financing.

Improving health

- Allow doctors to rent rooms in public hospitals so they can provide fee-based medical services outside of their standard work.
- Increase the resources devoted to detecting unregistered doctors and the punishment for those caught.
- Focus on improving the provision of public transport and agricultural extension services in the areas that have the highest air pollution from transport and where agricultural waste is burnt on a large scale.

Other reforms to better share the benefits of growth

- Raise the minimum wage in those areas where the ratio to average wages is relatively low.
- Introduce regulations that require rural teachers to undertake a certain number of training days each year.

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China has continued to grow fast by international standards. While growth is gradually moderating as the population ages, GDP per capita remains on course to almost double between 2010 and 2020. As a result, the Chinese economy will remain the major driver of global growth for the foreseeable future. Notwithstanding the economy's impressive performance and unprecedented poverty reduction, imbalances have built up. China's growth has long been driven by capital accumulation, supported by high savings. However, the growth model has led to misallocation of capital and falling investment efficiency, and to excess capacity in some manufacturing industries and in the real estate sector. High enterprise investment has been financed by debt, fuelled by interest subsidies and implicit guarantees for state-owned enterprises and other public entities. Slowing growth implies lower profits for firms, and therefore greater pressure to improve efficiency. It also translates into slower growth of incomes and limits the fiscal resources available to make growth more inclusive. Income inequalities measured by the Gini index have declined but are still high. The urban-rural divide is large and the household registration system hinders labour movement to where it could be better used.

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