China – Rebalancing and Sustainable Convergence*

Géza Rippel

The People's Republic of China has experienced buoyant economic growth in the past decades, managing a remarkable convergence to advanced economies. The growth rate of GDP slowed down significantly after the outbreak of the global crisis, due to both cyclical and structural factors. Serious imbalances inherited from the pre-crisis growth model have emerged, challenging the sustainability of rapid economic convergence. In the 'new normal', China has been rebalancing its economy by emphasising household consumption, although the importance of the private sector needs to be further strengthened. To avoid the middle-income trap, China must raise productivity driven by domestic innovation, higher value added production and a more flexible financial system. Shifting to a more balanced and sustainable growth path requires the reduction of present imbalances, such as the remarkable regional disparities and the weaknesses of the Chinese financial system. This study highlights the criteria for successful convergence using the conclusions of convergence theory and the experiences of East Asian countries.

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Keywords: China, economic convergence, middle-income trap, aggregate productivity, economic structure

1. Introduction

In previous decades, China was characterised by rapid economic growth, which was primarily explained, *inter alia*, by the size of the country, its access to raw materials and its unique history. The opening of the Chinese economy in the late 1970s increased its ability to attract foreign capital and to deepen the links to global value chains. Economic growth rate picked up remarkably in parallel with the Open Door policy, especially after the WTO accession in 2001. Exports increased by nearly 20 percent on average between the WTO accession and the outbreak of the global crisis, which was more than three times the average of world trade. Services gained relative importance compared to the Mao era, and the increase in productivity also positively affected economic performance.

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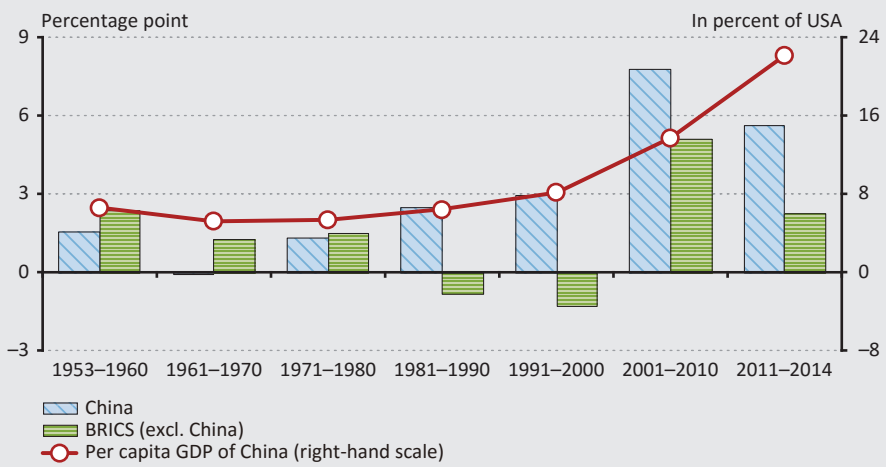
China's gross domestic product expanded at a rate of nearly 8 percent on average over the last two decades (over 9 percent from 2001 to 2010), fuelling global trade and economic growth. Other large emerging economies such as Brazil, Russia, India and South Africa (BRICS countries) also grew rapidly in recent decades, outperforming advanced economies. On average, China's GDP increased 4.5 percentage points faster than US GDP since 1978, and 6.7 percentage points faster since 2001 (*Figure 1*).

In assessing rapid growth from the perspective of economic development, the most widely used indicator is per capita gross domestic product at purchasing power parity (PPP), rather than GDP measures. China's outstanding GDP growth in past decades also resulted in a remarkable development in terms of GDP per capita. China's development level was nearly 5 percent of the USA in 1978, which increased notably in recent years to reach 24 percent in 2014.

Figure 1
Additional GDP growth and GDP per capita compared to USA



Note: Data for the Russian Federation is available from 1990.
Source: Penn World Table 9.0.

While China's GDP per capita still significantly lags behind the USA and other advanced economies, the robust growth in recent decades nonetheless bears out the relevance of this analysis. Rapid economic growth was not inclusive in the period covered, resulting in increasing imbalances and challenges to further economic development. Various sectors of the economy have been affected in different ways, distorting the structure of incomes and productivity. Since the outbreak of the crisis, China has faced a slowdown in its GDP growth rate, which can both be linked to cyclical and structural factors.

In order to sustain rapid convergence, China has had to change its growth model. The Chinese economy has been transitioning towards a 'new normal', although further progress is needed to evolve onto a more balanced economic growth path. China is one of the world's largest economies, therefore the effects of recent rebalancing may impact global economic performance as well. This study highlights the conditions for sustainable economic convergence along the 'new normal' and points out areas which are still in need of development. The assessment of China's rapid growth in past decades and the recent slowdown should reflect the findings of convergence theory and the transition of economic structure as well.

2. Economic convergence – theory and empirical evidence

In line with the country's outstanding economic performance, Chinese GDP per capita approached the development level of advanced economies. The characteristics of convergence and statements of economic theory are indispensable in assessing China's performance in the long run. This section focuses on convergence theory and the empirical evidence for economic catching-up, primarily to summarise the common characteristics of successful examples and to highlight the conditions which should be met.

2.1. Overview of economic convergence theory

Economic convergence is a phenomenon spanning several decades and is mostly described and analysed by long-term economic relationships and steady states of equilibrium. According to the findings of neoclassical models, the same GDP per capita is achieved in the long run by countries featuring identical fundamentals (preferences, production technology and economic policy). This kind of ignorance of the initial level of development is referred to as conditional convergence. In addition, absolute convergence involves cases characterised by countries with different initial levels of development achieving the same per capita GDP, irrespective of fundamentals (*Galor 1996*).

The conclusion of *Solow* (*1956*) and *Ramsey* (*1928*) is conditional convergence, while on the other hand several articles question the assertions of neoclassical convergence theory (*Durlauf et al. 2006; Bernard – Durlauf 1996*). Convergence clubs are referred to when countries with similar fundamentals converge towards different GDP levels as a function of their initial development level. Belonging to the same club means that economies converge towards a similar income level independent of their fundamentals, which on the other hand makes it possible for initially similar countries to follow very different growth paths in the long run. Convergence clubs are successfully identified in empirical literature, although the probability of similar economies following significantly different growth trajectories is quite low.

While the findings of convergence theory do help us to better understand a country's economic performance, China's rapid growth is difficult to interpret using basic convergence theory models. These models handle convergence as a uniform process, but countries – especially emerging economies – experience different economic and political systems and growth periods. On the other hand, only a small number of convergence clubs are identified in the literature, and therefore heterogeneity within these country groups can be relatively high.

2.2. Empirical evidence and criteria of successful economic convergence

Convergence theory offers only basic assumptions and trends regarding the convergence of a country, therefore analysing the empirical evidence and success stories of newly industrialised East Asian countries may provide additional information on the conditions of long-term convergence. To assess the phases of economic convergence, the literature usually refers to income groups. *Felipe et al.* (*2012*) defined the following income groups using *World Bank* (*2015*) income classification and the *Maddison* (*2010*) database, based on GDP per capita:

- Low-income: 0–1,999 (1990 USD in PPP)
- Lower-middle-income: 2,000–7,249
- Upper-middle-income: 7,250–11,749
- High-income: 11,750 or above

According to the authors, the number of low-income economies has decreased since 1950, in line with the expanding group of high-income countries, especially between the late 1960s and 1980 and the late 1980s and 2010. The first period is often referred to as the 'Golden Age' (*Maddison 1982*) and is characterised by remarkable productivity growth. The latter period covers the economic boom of East Asian countries.

Based on the World Bank definition, China has already reached upper-middle-income status – along with Brazil and South Africa from the group of BRICS countries. Over the past nearly half century, relatively few countries have managed to reach high-income status. According to *OECD* (*2014*), 13 of the 101 middle-income countries managed to achieve high-income status relative to 1960, while *Felipe et al.* (*2012*) highlights that only 32 countries (26 percent of sample) were described as high-income economies in 2010. Periods characterised by dynamic economic growth occurred in several countries, but these rapid growth periods were usually brief. Rapid convergence over a sustained period was only observed in a relatively small proportion of countries.

The rise from middle-income to high-income status was typically observable in East Asian countries in the past decades. Hong Kong, Japan, the Republic of Korea, Singapore and Taiwan outperformed the annual GDP growth of the United States by

4.3 percentage points on average during the periods characterised by exceptional economic growth (*Table 1*). Looking at the East Asian cases, successful convergence from middle to high development requires a robust growth period spanning 30–35 years. By the end of the covered periods, fast growing East Asian countries joined the group of most developed countries based on GDP per capita, and some of them (Singapore, Hong Kong) surpassed the United States as well.

Table 1
Features of growth in successfully converging countries

Country	Start of period	End of period	Average growth (%)	Relative development to USA at the start of the period (%)	Relative development to USA at the end of the period (%)	Time span of fast growth (years)	Yearly average convergence to USA (percentage points)
Hong Kong	1960	2011	5.2	22	106	51	3.2
Japan	1950	1995	5.8	18	85	45	3.6
Republic of Korea	1981	2007	6.9	18	59	26	4.8
Singapore	1986	2007	7.2	47	134	21	5.2
Taiwan	1969	1997	6.7	20	70	28	4.7
Average			6.4	25	91	34	4.3

Note: GDP per capita in PPP terms.
Source: Penn World Table 9.0.

According to *Rohwer* (*1995*), the rapid growth stemmed mainly from four factors in East Asian countries. The quantity of labour rose rapidly, driven by the labour flow from agriculture and long working hours, while the quality of labour force also improved through effective educational policies. During the early phases of development, East Asian economies were characterised by high investment rates due to the strong investment in physical capital – machinery and tools. Productivity has also been a key driver of growth over the past 60 years.

Although the data suggest exceptional growth among the above-mentioned economies, there is a debate about the East Asian growth miracle in the literature. The developer state school stresses the role of state measures as the basic pillar of growth, while the neoclassical school explains it with market liberalisation (free market pricing and limited state presence). State-led development policy was conducted in all of Asia's converging countries, albeit with country-specific differences.

Looking at the rate of economic growth, the length of the growth period and annual average convergence to the USA, China has made an excellent progress in the last decades. However, the country is classified as a middle-income economy, as its

GDP per capita only amounted to around 24 percent of USA. The main challenge for China is to maintain its high growth rate and continue the rapid convergence to advanced economies. As a result, the country may achieve high-income status in the future.

2.3. Growth slowdown and the middle-income trap

The recent slowdown in the growth rate of Chinese GDP may raise questions about the long-term convergence path. According to *IMF* (*2016*) and *OECD* (*2016b*), China is projected to grow at a rate of slightly over 6 percent in the coming years, which is considerably lower than the average growth rate of over 10 percent from 2001 to 2007. The slowdown can be linked to cyclical and structural factors as well, of which the latter may be linked to the phenomena of growth traps.

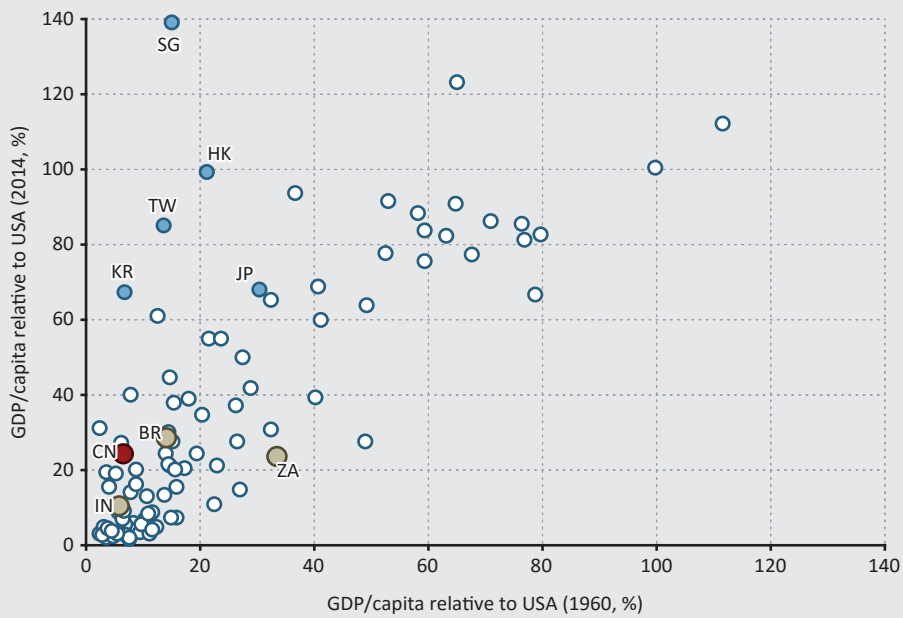
The substantial slowdown in economic growth prior to reaching high-income status can be referred to as the middle-income trap. Papers investigating the phenomena are usually descriptive and seek to identify the components contributing to the slowdown in convergence at a certain development level. Adverse demographic trends, unsustainably high investment rate and financial instabilities increase the probability of falling into the trap, while the accumulation of human capital and the share of high-value services decrease this probability (*Eichengreen et al. 2012, 2013*). *Aiyar et al.* (*2013*) and *Agenor – Canuto* (*2012*) highlight the importance of infrastructure and the institutional environment such as ownership, regulatory environment and labour market frictions.

The concept of the middle-income trap can also be linked to changes in economic structure. During the structural transformation process, less advanced economies first experience an increase in the share of industry to the detriment of agricultural production, followed by a shift towards service sector (*Kuznets 1966*). Although industrialisation entails significant growth potential in early stages of development, an increase in productivity is indispensable to achieve high-income status. Empirical evidence shows that countries which have established high value added production and service sectors raised their growth potential remarkably. Fostering domestic innovation also contributes to economic growth through the positive externalities stemming from knowledge networks. Highly qualified labour, well-developed institutions, and economic and economic policy stability are all prerequisites for economic development.

Fast growing East Asian economies represent a unique group based on their outstanding economic performance in the past decades. China has also significantly raised its GDP per capita since 1960 (*Figure 2*), although still lags behind the development level of advanced economies. The recent economic slowdown may be linked to growth traps, if structural factors (not balanced economic growth,

distortions in the financial system, political uncertainties) do not improve – despite the obvious impact of cyclical factors in line with the global crisis. To avoid a further slowdown in GDP growth rate, China needs to achieve strong economic performance, in parallel with structural reforms to boost productivity.

Figure 2
Changes in GDP per capita between 1960 and 2014



Note: SG=Singapore, HK=Hong Kong, TW=Taiwan, KR= Republic of Korea, JP=Japan, CN=China, BR=Brazil, IN=India, ZA=South Africa.
Source: Penn World Table 9.0.

While the main purpose of the middle-income trap theory is to explain sudden slowdowns in the rate of economic growth, critiques have also been showing up in the literature. The estimations of *Eichengreen et al.* (*2013*) have a high standard error of income threshold, and furthermore the vast majority of sudden slowdowns can be linked to economic crises such as the oil crises of the 1970s or the 1998 Asian crisis. *Pritchett and Summers* (*2014*) explain that estimations confirming the middle-income trap only found a tendency for mean reversion, i.e. periods of fast convergence are inevitably followed by growth slowdowns.

3. Challenges of sustainable convergence in China

Despite China's outstanding economic performance in past decades, GDP growth has slowed down significantly recently. Still, economists are optimistic that China can continue its rapid convergence, even though the rate of growth may be lower in the coming decades (*Lin 2011, Perkins – Rawski 2008*). China has surpassed the growth performance of its peers since 1991. The differential was almost 10 percentage points in the 1990s, and even in recent years it has still been around 5 percentage points (*WEF 2015*). The recent slowdown in the Chinese economy can be linked to cyclical factors stemming primarily from the global crisis – such as declining investments and weak trade – along with structural factors as well. This study mainly emphasises structural factors, addressing convergence theory and country-specific issues.

The rapid growth in recent decades has resulted in a remarkable economic convergence on the one hand, but on the other hand it has also generated significant imbalances. Regional disparities (coast-inland, urban-rural), not inclusive growth, over-dependence on external demand and an inflexible political system have all played a significant role in relation to increasing imbalances.

In 2014, Xi Jinping indicated that China is entering a 'new normal' (*Xuequan 2014*). The phrase has often been used by Western literature and media to emphasise the change in economic conditions after the outbreak of the global crisis. In the case of China, the 'new normal' refers to a more moderate, but sustainable growth path in the medium term compared to pre-crisis trends. Sustainable convergence can be defined as a long-term catch-up process without building up imbalances. This section examines the recent developments in economic structure, factors of production, productivity and competitiveness, and emphasises specific issues regarding existing imbalances.

3.1. Recent rebalancing of the Chinese economy

3.1.1. Structure of the economy

From a historical perspective, the Chinese economy has experienced some key turning points since the decline of Imperial China. In 1949, Mao Zedong proclaimed the People's Republic of China, initiating a period characterised by collectivisation, planned economy, rapid industrialisation and stagnating living standards. The GDP share of industry increased from 8 percent to 30 percent between 1952 and 1978, while China was isolated from the booming world economy (*Maddison 2007*).

Economic reforms initiated by Deng Xiaoping from 1978 led to the increasing openness of China and its integration into the world economy – especially after joining the WTO in 2001. Decentralised trade decisions along with the massive

devaluation of the yuan boosted Chinese external trade and contributed to the remarkable GDP growth. According to *Maddison* (*2007*), the construction sector increased on average by over 11 percent between 1978 and 1995, compared to 7.2 percent in the Mao era. In line with the opening up of the economy, the performance of the service sector also started to increase significantly in the 1980s.

Impressive growth seen in the past – mainly driven by investments, low wages and urbanisation – has slowed down recently and the pre-crisis growth model has become less sustainable. Returns on investments have declined and weaker global growth has provided diminishing opportunities for exports. As the level of economic development increased notably in past decades, gains from technological convergence also started to diminish. Technological advances have become more costly through replacing imitation by domestic innovation.

Under the 'new normal', China has shown clear signs of economic rebalancing (*Huang 2012*). To maintain rapid economic convergence and to avoid the middle-income-trap, the Chinese economy needs to shift towards a more balanced economic structure. The pre-crisis growth model was primarily based on outstanding export performance driven by industrial production and the undervalued yuan.

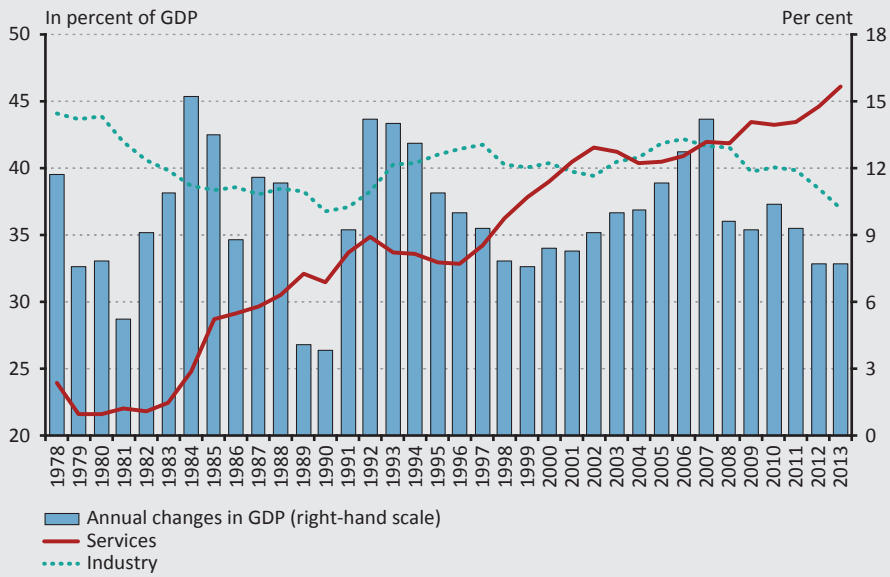
The massive surplus on the current account stemming from the exceptional trade dynamics started to fade in the past years. While gains from export-driven growth have been hampered by the sharp slowdown in external demand since the outbreak of the crisis, two main factors may be able to mitigate the impact of the external demand channel: a sophisticated export product structure and the low value added content of Chinese exports (*Dorrucci et al. 2013*).

High-tech exports account for a high share in the Chinese export structure. This share is considerably higher than that of Japan and EU and is primarily related to the IT sector and electrical machinery. China has climbed up the quality ladder rapidly in the last few decades, although the quality of exports is still below that of most advanced economies. The importance of high-tech products stems from imported technologies of multinational companies through global value chains, therefore the domestic value added of Chinese exports is relatively low (*Koopman et al. 2010*). On the one hand, this means that the value added creating capability of the export sector is low, but on the other hand, GDP is less affected by export volatility and fluctuations in external demand.

While cyclical factors (deteriorating external demand) have hampered Chinese economic performance recently, the subdued growth performance may be linked more intricately to structural factors. The growing importance of services instead of industrial production (*Figure 3*) points to the rebalancing economic structure.

The GDP share of services has doubled since the start of Open Door policy, while the relative importance of industry has decreased sharply since the outbreak of the crisis.

Figure 3
Economic transition of the Chinese economy



Source: China National Bureau of Statistics.

Shifting towards a more domestic-driven economy may provide a more sustainable – but slower – growth path by decreasing dependency of foreign demand and technology. To avoid falling into a growth trap, China should also increase the share of high value added services in its exports and boost domestic value added content mainly by increasing domestic innovation capacities and strengthening suppliers.

Rebalancing the economy may occur primarily through the promotion of private consumption and investments. Initiatives have been launched to raise household incomes and consumption, while also reducing precautionary savings. In line with the growing economic importance of the services sector, private consumption has been increasing recently. According to China National Bureau of Statistics, final consumption has risen continuously since 2010, accounting for 51.4 percent of GDP in 2014.

Huang et al. (*2013*) argues that Chinese consumption is grossly underestimated in official statistics due to underreported residential spending, consumption covered

by institutional spending and methodological issues as well. Averaging proxies for consumption (consumption-related, retail sales growth and service sales growth), a rapid increase can be identified in the estimated share of consumption since 2008. The underestimation of household consumption is also confirmed by *Li – Xu* (*2012*).

Despite the recent increase in household consumption and the issues of underestimation, its share is still low compared to advanced economies. The shift towards domestic consumption requires a remarkable increase in household incomes. To cover the cost of healthcare, education, and preparation for old age, households claim to focus on their savings. In addition, the migrant workforce cannot access the services in their new cities and is forced to save to cover those expenses. Along with savings trends and strict and inflexible regulation regarding migration, a real estate bubble is also a risk in parallel with the increased lending after the large-scale stimulus programme during the crisis (*Williams 2013*).

Growth model under the 'new normal' should rely more on household consumption, therefore policies supporting household income and access to basic public services are necessary to maintain sustainable and stable economic performance. Measures have already been taken regarding the expansion of the social safety net (pension, healthcare and education), and social housing and agricultural subsidies. Income inequality should also be addressed in addition to the reform of income tax, which would allow the widening of the tax base (*Dorrucci et al. 2013*).

In parallel with increasing private consumption, private investments should also be raised to guide the economy to a more balanced structure. To promote sustainable growth through domestic demand components, two major issues should be addressed under the 'new normal': the unsustainably high investment rate and the efficiency of allocation.

China has witnessed brisk investment activity in recent years, primarily supported by inflows of FDI and the policy stimulus of 2008–2010. The investment-to-GDP ratio has been exceeding 45 percent recently, which is remarkably high compared to investment rates in advanced economies. Maintaining high investment rate is necessary to reach middle-income status through the shift from labour-intensive to a more capital-intensive production. In the recent development phase of the country, there is still room to maintain a high investment rate and keep accumulating capital, even though an unsustainably high investment-to-GDP ratio may accelerate the build-up of imbalances and provide lower returns on capital. Persistently and unsustainably high investments rates may increase the possibility of falling into a growth trap (*Eichengreen et al. 2013*), therefore China should focus on issues such as the structure of investments and the efficiency of allocation.

To avoid the middle-income trap, the private sector needs to be more emphasised in terms of economic performance. The role of private companies – especially SMEs – must be increased and competition should be strengthened. According to *Cai* (*2015*), SOEs have been highly protected (government guarantees, risk-free soft budget constraints) and less dependent on competitive markets. In line with the more rigorous financial constraints of SMEs, the investment activity and productivity of private sector firms have been subdued. To increase the performance of private sector firms, China should promote innovation and let companies chose their own management methods and technological routes.

Private corporations have been allowed to compete in certain sectors since 1992 and their relevance in economic performance has been increasing. The role of state-owned enterprises and the private sector is analysed by *Brandt et al.* (*2016*), which emphasises the role of firm entry to unfold productivity differences. They found that the fast convergence of the private sector in the period from 1995 to 2004 is primarily linked to the reduction of entry barriers. Ease of doing business and the significance of private firms may play a crucial role in the coming years, contributing to the productivity growth needed to maintain economic growth under the 'new model'.

The efficient allocation of investments in China has been challenged by the literature, which can mainly be explained by the role of state-owned enterprises and the targets of government investment projects. *Dollar – Wei* (*2007*) found that the investments of SOEs provide lower marginal returns on capital compared to private companies. Dismantling obstacles faced by private sector firms would increase their investments and innovation capacities, and thus lift productivity and economic growth. The increasing activity of the private sector is important for maintaining a sustainable growth path in the future.

3.1.2. Factors of production

In parallel with the shift in economic structure, the utilisation of production inputs (labour, capital) is a key aspect for sustainable convergence. To avoid the middle-income trap, China must maintain sustainably high potential GDP growth supported by the required quantity and quality of labour and capital. Distortions in factor markets provide incentives to certain entities and obstruct decision-making based on supply and demand conditions. The appropriate quality and quantity of inputs, in addition to the matching of demand and supply, would be the foundation of a sustainable growth model.

Huang et al. (*2013*) highlights the importance of changes in factor markets – especially the labour market – as key factors driving the transition to a more balanced economic structure. The transformation of labour market in emerging countries is characterised by the flow of labour from agriculture to higher

productivity manufacturing in the early phases of development. As surplus rural labour narrows, the marginal products of labour in agricultural and manufacturing converge. Increasing wages in agriculture put upward pressure on manufacturing wages through the diminishing surplus of rural migrant labour. The reallocation of labour force – the transition from surplus to shortage – is often referred to as the Lewis turning point (*Ranis 2004*).

While labour market transition in emerging markets can usually be described through the Lewis turning point, it is highly controversial whether China has already reached it. On the one hand, *Zhang et al.* (*2010*) suggests that the turning point was already reached in 2003 or is now approaching (*Cai – Wang 2008*), while on the other hand *Minami – Ma* (*2009*) claim that Lewis turning point may still be far away. The labour market has shown signs of supply shortage in recent years, although empirical evidence suggests that China still has sufficient pool of rural labour (*Dorrucci et al. 2013*).

The implication of Lewis turning point is that on the one hand rising wages may dampen economic growth through the loss in profits, and on the other hand it shifts income redistribution from corporations to households (*Huang – Cai 2010*). The importance of consumption increased in line with growing household income, which could provide a more balanced structure for Chinese growth in the future. While labour market transition has contributed significantly to economic performance, further steps are needed to be able to address distortions.

The household registration system (hukou) limits labour mobility and makes it difficult to narrow regional disparities. Setting the prices of energy by the government along with direct controls on lending and offering discounted land-use fees to investors also depress input costs. Labour costs were typically low in China in recent decades, contributing to rapid economic convergence and a redistribution of income from households to corporations (*Huang et al. 2013*). Due to the decline in surplus rural labour and the easing of labour market restrictions, wage dynamics may accelerate, balancing household incomes and corporate profits.

The buoyant growth of the Chinese economy in past decades can be attributed to capital accumulation, primarily through the channel of the demographic dividend (*Fang – Yang 2013*). The increase in the working age population provided an adequate amount of labour supply, supporting the decline in the dependence ratio, which helped to maintain a high savings rate. High savings of economic actors are typically the condition of capital formation, while the surplus supply of labour prevented the return on capital from diminishing in China. As a result of the increase in the proportion of working age population to the total population (*Bloom and*

Williamson 1998, Williamson 1998), investments – especially in heavy industry – contributed remarkably to GDP growth in the past decades.

According to *Fang – Yang* (*2013*), the working age population peaked in 2010 and is expected to decrease in the coming years, limiting the outlook for potential GDP growth through the quantity of labour and the diminishing return on capital as well. The 'new normal' may bring lower GDP growth rates, although the rebalancing of the economy may help provide a sustainable convergence path via a more balanced allocation of labour and capital.

The outstanding inflow of foreign direct investments supported by the performance of some sectors – especially construction and heavy industry – led to a massive increase in capital formation in the previous decades. While China has traditionally overinvested in these sectors, the country's capital stock per capita still lags notably behind the level of the USA (*Batson – Zhang 2011*), which suggests that it still has room for capital accumulation. To increase the gains from capital accumulation, China has to increase the investment activity of the private sector – especially SMEs. More efficient allocation of capital and the increasing importance of private sector corporations may lead to a more balanced convergence path.

3.1.3. Productivity and competitiveness

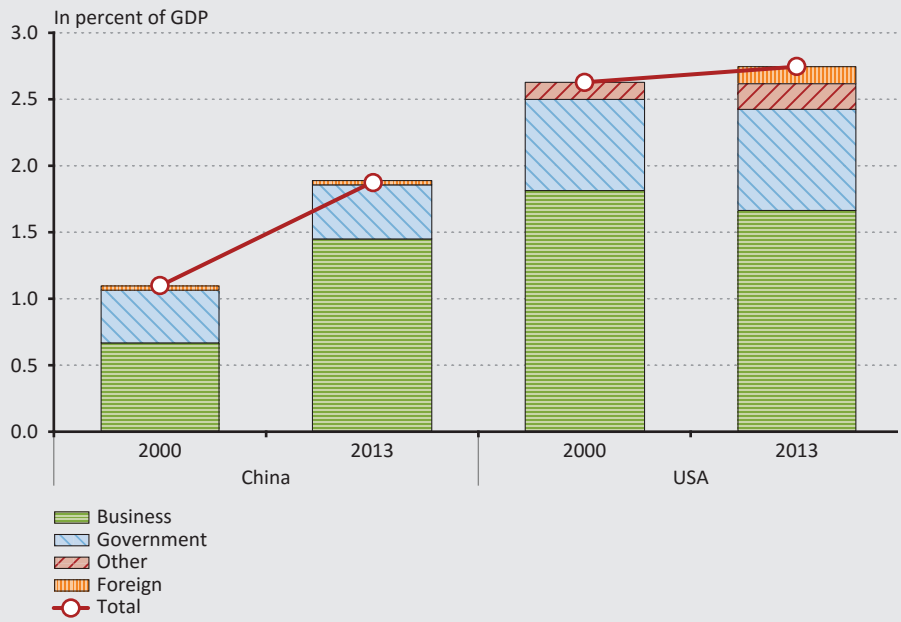
Reaching middle-income status may be driven by factor utilisation and characterised by the restructuring of economic sectors (*Agenor – Canuto 2012*). Rapid economic convergence during this phase of development is supported by cheap labour and the imitation of foreign technology (*Perez-Sebastian 2007*). Additional economic growth may peter out as real wage dynamics start picking up as surplus labour force shrinks. Entering high-income status and avoiding the middle-income trap is only feasible by increasing productivity.

The growth rate of Chinese potential GDP has been slowing since the global crisis, explained not only by the fading demographic dividend, but by subdued productivity growth as well (*OECD 2016a*). Both the level of productivity and its changes allow for conclusions about economic convergence (*OECD 2014).* The importance of high value added sectors is closely linked to the level of productivity, while its growth rate directly influences GDP. China must foster domestic innovation and move up the value chain to increase productivity growth.

Supporting R&D activities is necessary to increase the domestic innovation capacities of a country. China has remarkably increased its R&D expenditures in recent decades, approaching nearly 2 percent of its GDP in 2013 (*Figure 4*). Despite the outstanding growth in previous years, the country still lags behind the USA

and other advanced economies. Building up domestic innovation capacities and fostering research activities may increase productivity and stimulate economic performance through higher wages in the involved sectors and through the positive externalities stemming from knowledge networks. The strengthening of domestic innovation is typically explained by the R&D activities of the business sector and cooperation between corporations, universities and the government. R&D activities have increased in the Chinese business sector, lifting the productivity of the private sector.

Figure 4
R&D expenditure by source of funds



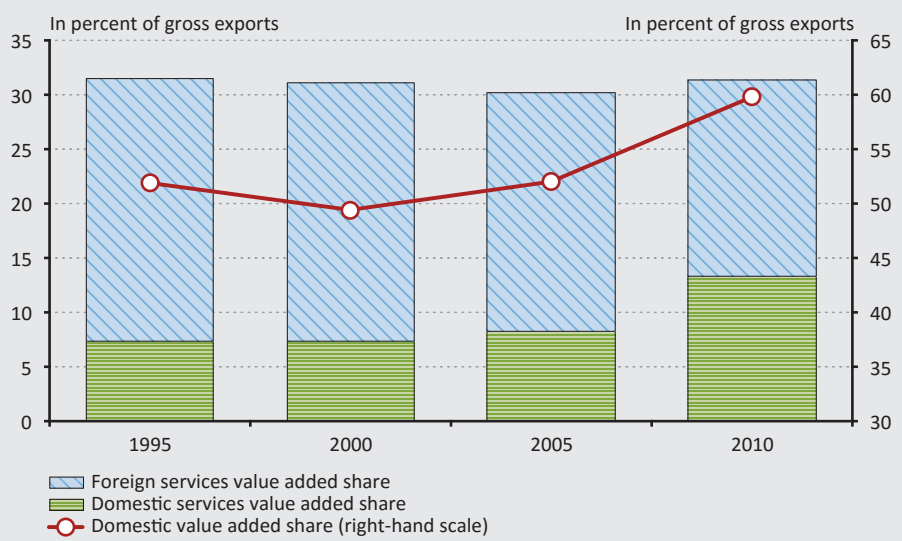
Source: OECD.

Achieving a more technology-intensive production structure, China must strengthen its digital infrastructure. Transformation towards a higher value added production is typically based on the penetration of communication networks and the extent of information and communication technologies of a country. The technological readiness of SMEs needs to be raised by increasing broadband internet coverage and the adaptation of developed corporation structures. In parallel with their progression, Chinese SMEs can participate to a larger extent in global value chains, lifting their productivity.

Shifting towards a higher value added production may be achievable by moving up the value chain (*Koopman et al. 2014*). The relationship of global value chains and value added can be described by a U-shaped curve (*Baldwin 2012*), with high value added activities presented in the beginning and the end of the curve. Value added creating capability is remarkably higher in the first phase of the value chain through R&D and design activities. In the middle of the curve, production and logistics are characterised by lower value added content and are usually guided by cost-effectiveness. At the end of the value chain, services linked to the final product or sales and marketing activities raise value added notably.

Advanced economies usually take part in the beginning and at the end of the value chain (*Ye et al. 2015*) typically through innovation, branding and high value added services. In addition to boosting innovation and R&D, China must increase the importance of its service sector to avoid the middle-income trap and to approach high value added production. China has been a global leader in high-tech exports, although the contribution to gross value added is marginal, linked to high import content of exports and production. The contribution of domestic capacities has increased in the last decades, although it explained only 59.8 percent of manufacturing exports in 2010 (*Figure 5*), lagging remarkably behind the over 80 percent shares of advanced economies such as the USA or Japan. The importance of the domestic services sector has also remained significantly low in China. Despite the near doubling of domestic services value added share in manufacturing exports from 1995 to 2010, its level of 13.3 percent is only the half of the USA and Japan.

Figure 5
Domestic and services value added share of manufacturing exports



Source: OECD-WTO.

While shifting to more services-based production is important to avoid the middle-income trap, 'premature deindustrialisation' may hinder growth potential in emerging countries in this phase of development (*Rodrik 2016*). The decreasing economic importance of industry can be linked to the imported deindustrialisation of advanced economies, weak advocacy and less competitive products of emerging economies in world trade. As a result, China must improve the competitiveness of its industrial sector in parallel with the growing importance of services.

China has recognised the needs and key development areas to improve the competitiveness of its production and announced the so-called 'Made in China 2025' initiative in 2015. The project's aim is to increase the quality of industrial production through innovation, network integration and sustainability. Transformation of production structure is intended to be achieved by the shift to innovative key industries such as robotics, new generation ICT and the space industry.

The ability to innovate and the shift in economic structure are fundamentally determined by the transformation of the labour market. In line with the increasing GDP share of services and rising R&D activities, the need for a skilled labour force also increases. Computer and mathematical skills will appreciate in parallel with the shift to higher value added production, while low-skilled labour will become increasingly automated. Education must respond to the shift in skills by the number of higher education graduates and the growing readiness in ICT and computing skills. To increase productivity through the accumulation of human capital, the quality and readiness of Chinese labour force has to emerge.

Despite the recent efforts of the government, future productivity gains may have to come through more market-oriented reforms (*WEF 2015*). China ranks 28th out of 140 economies in the Global Competitiveness Index, primarily lagging behind advanced economies in technological readiness, higher education and training, innovation and institutions. The report points to the structural weaknesses of the financial sector such as non-performing loans, the domination of large state-owned banks and the access to finance. In addition to access to finance, insufficient capacity to innovate, inefficient government bureaucracy and the inadequate supply of infrastructure also hinders doing business in China.

Shifting to a higher value added production may help avoiding the middle-income trap, although productivity and competitiveness must be raised in China primarily by supporting domestic innovation and higher education, while imbalances in the financial sector need to be remedied and the efficiency of government bureaucracy must be raised.

3.2. Existing imbalances

To sustain continuous economic convergence in the long run, the serious imbalances inherited from the earlier growth model need to be remedied. For instance, income inequality increased between rural and urban residents, workers and capital owners in the last decades (*Garnaut et al. 2013*). While the economic performance of Central and Western regions has been catching up recently, supported by increasing productivity through agricultural policy and rapid raises in agricultural prices (*Huang et al. 2013*), disparities between the different provinces are still remarkable. GDP per capita is considerably higher in Eastern provinces, highlighting the outstanding dependency on coastal regions.

In contrast to previous decades, inland regions have been growing faster than coastal areas. Despite the uncertainties regarding inequality measures, the Gini-coefficient is still high – although it has been decreasing since 2008 pointing to a reduction of imbalances. According to *Li* (*2013*), the development of agriculture was essential during the transformation period, impacting rural-urban disparities. China needs to make effort to tackle imbalances through reforms regarding land ownership and enhancing productivity.

Weaknesses have been highlighted regarding the Chinese financial sector. While abundant and cheap credit supported economic growth in previous decades, the financing of low-return investments and the misallocation of capital has resulted in serious imbalances. Distortions in the financial system can be linked to the interest rate ceiling and implicit guarantees, as the two most important factors regarding the inefficient allocation of capital (*Anzoategui et al. 2015*). While the deposit interest rate ceiling was officially removed in October 2015, further steps must be taken to remove the inequalities regarding the access to credit of SOEs and private sector firms. Implicit guarantees can be defined as certain borrowers enjoying privileged access to credit, therefore distorting lending decisions and preferring SOEs. Removing implicit guarantees would support the efficient allocation of capital and economic growth in line with the exit of low-productivity companies.

Hasan – Zhu (*2016*) emphasises the growing impacts from politics on the decision-making of companies. The speed of adjustment to the targeted capital structure may serve as a proxy for financial flexibility. Stronger political connection may lead to a higher speed of adjustment due to the lower cost of capital and possible bailout, while non-optimal decisions and state influence may lead to lower speed of adjustment. Financial stability and lending growth are also influenced by confidence in banks. According to *Fungáčová – Weill* (*2016*), the Chinese have one of the highest levels of trust in banks. They found that several sociodemographic factors may play an important role, but better access to information is not significant.

Rural location and membership in the Communist Party are negatively associated with trust in banks. Facilitating financial flexibility is indispensable to foster the performance of the private sector through the better access to capital and to lift productivity growth.

4. Conclusions

The People's Republic of China has been rapidly converging to advanced economies in recent decades supported by outstanding economic growth. While the increase in GDP per capita has been remarkable, serious imbalances have also built up, stemming primarily from unbalanced economic growth, distortions in the financial system, and inflexible regulation and government policies. Remedying these imbalances would be necessary to maintain sustainable economic growth in China, especially after the slowdown in growth after the outbreak of the global crisis. The 'new normal' may bring further challenges, but it is set to sustain convergence by shifting towards household consumption, boosting productivity and achieving higher value added production, in parallel with narrowing inequalities. Growth theory and empirical evidence show that supporting domestic innovation and higher education, promoting institutional environment, market liberalisation and facilitating financial flexibility are also conditions for avoiding the middle-income trap and sustaining economic convergence.

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