

## Growth, productivity and digitalisation in China

by David Nguyen<sup>1</sup>

Since a peak in 2007 China's real GDP growth rate has been declining steadily to around 6 per cent per year in 2019 (see figure 1). In addition, the country is facing the twin challenge from a global demand and supply shock in the wake of the COVID-19 crisis, and a rapidly ageing society. This box turns the focus onto China's digital economy and argues that a widespread adoption of digital technologies is key for raising the country's productivity levels and sustaining economic growth.

In early 2020, the pandemic led to China recording its first drop in quarterly GDP in almost 30 years. Nevertheless, the country is still expected to grow on an annual basis this year, in contrast to most other large economies. The August forecasts by NIESR projected global GDP to decrease by around 5 per cent this year, which dwarfs the financial crisis recessions (Naisbitt *et al.*, 2020). While China seems to have weathered the initial shock relatively well, this large global economic contraction will be challenging for a country that is so deeply integrated into global trade and production networks (Allen *et al.*, 2020). A sizeable drop in foreign demand for Chinese goods and services, and potential drying up of foreign direct investment could turn the focus towards raising domestic consumption as well as productivity to foster economic growth.

### Digital technologies as saviours of labour productivity?

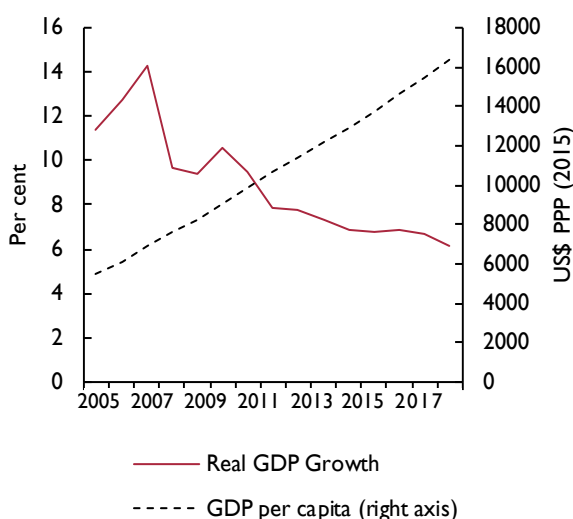
China performs well at developing and adopting digital technology and is home to some significant ICT technology companies. For example, in October 2020 the market capitalisation of Alibaba and Tencent (owner of WeChat) exceeded \$800 billion and \$650 billion (around 5.6 and 4.5 per cent of Chinese GDP in 2019), respectively. China also has the ambition to become a global leader in artificial intelligence (AI) and is generally considered to be second to the US but ahead of Europe in this field (Castro *et al.*, 2019).

However, the challenge China faces is to achieve a wide adoption and diffusion of digital technologies across large firms and SMEs. Analysts have estimated that in the first two months of 2020 alone almost 250,000 firms have declared bankruptcy (around 50% more than in a 'typical' two-month period), most of which were young SMEs.<sup>2</sup> Many were located in Guangdong in the Pearl River Delta, which is China's most dynamic economic region and manufacturing heartland.

As firms need to raise their levels of productivity, i.e. the amount of output they produce for a given set of inputs, they will have to embrace the use of cloud computing services, robotic process automation, artificial intelligence, 3D-printing and smart sensors connected via the 'internet of things'. There is some evidence that at least when it comes to industrial automation, China is lagging behind. As shown in figure 2, there are on average 187 industrial robots per 10,000 employees in China, which compares to 228 in the US, 346 in Germany, 364 in Japan and 855 in Korea. Nevertheless, in absolute terms China has been the largest market for industrial robots for a few years.

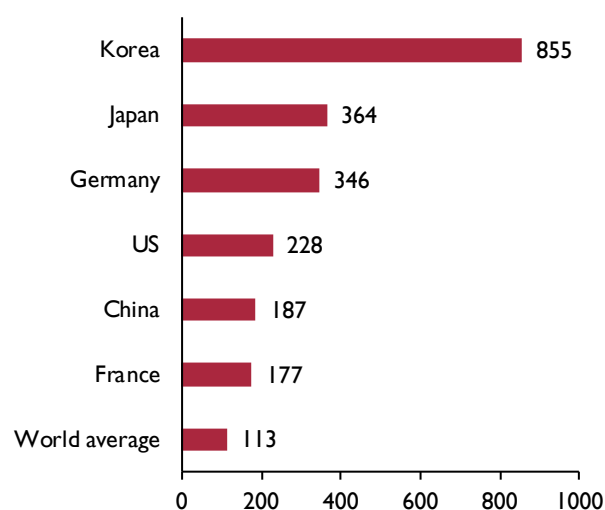
The Chinese e-commerce market is among the largest in the world, but online sales only account for around 16 per cent of its GDP as compared to 46 per cent in the US and 61 per cent in Japan (UNCTAD, 2019). More importantly, it is much more focussed on consumers rather than business-to-business (B2B) activity. For instance, in the US, Japan and Germany more than 90 per cent of e-commerce activity is B2B, but only around 50 per cent in China. This also hints at lower levels of digitalisation in the

Figure 1. Real GDP growth (per cent) and GDP per capita (US\$, 2015 PPP) in China, 2005–19



Source: IMF and OECD data.

Figure 2. Number of industrial robots per 10,000 employees, 2019



Source: International Federation of Robotics, 2020.

## Growth, productivity and digitalisation in China (continued)

Chinese business sector but also lower levels of household consumption.

### *Growing old before getting rich?*

The longer-term challenge stems from the fact that Chinese society is ageing rapidly and is expected to join the club of countries with declining populations in the coming years (see figure 3). Its current population of 1.43 billion is projected to decline by 2 per cent by 2050 and drop to just below 1.1 billion by 2100 (United Nations, 2019). Since life expectancy is also increasing generally, a direct consequence of this is an increasing dependency ratio as already experienced by many advanced economies. The crucial difference in the Chinese case is that, despite steady growth in GDP per capita (see figure C1), the country is still considerably poorer on average when compared to the US, Japan and most European countries. For example, its 2019 level of around US\$16,300 (constant, PPP) is 3.7 times lower than in the US, 3 times lower than Germany, and 2.7 times lower than the UK (OECD, 2019).

Furthermore, as a direct consequence of the projected secular decline of the labour force, growth in productivity will become the crucial element to maintain and raise incomes and living standards further. As businesses may increasingly struggle to find workers, they will need to embrace more automation technologies and diversify into higher value-added service sectors. This aspect is very much in line with the Japanese experience, where the absence of large-scale inward migration and effective policies to raise fertility rates has led to similar challenges.

### *Challenges for a 'Go Out' policy in the digital era?*

A slowing global economy will not only affect China by reduced demand for its exports, but also for overseas operations and sales of its multinational enterprises.<sup>3</sup> While adopting digital technologies will be important to raise domestic productivity, precisely the same providers of such digital services and ICT equipment have been met with increasing scrutiny and opposition as they are expanding outside of China. Some of the most high-profile cases include banning Huawei (and SMIC, China's largest microchips manufacturer) from selling ICT equipment in the US and UK, as well as the required sale of TikTok and effective ban on WeChat in the US.

Thus, although China has a competitive edge in digital economy, it has to face important challenges in order to achieve higher productivity levels based on wider adoption and diffusion of digital technologies with an ageing population in a post-pandemic world. Moreover, there is a downside risk to growth if China decides to respond to Western protectionism regarding its digital companies with further protectionist measures at home.

### NOTES

1 The author would like to thank Jagjit Chadha, Hande Küçük, Xuxin Mao and Barry Naisbitt for helpful comments and discussions.

2 Feng, J., 9 April 2020: <https://supchina.com/2020/04/09/more-than-240000-chinese-companies-declare-bankruptcy-in-the-first-two-months-of-2020/>.

3 Another side-effect of a shrinking population is that firms need to start selling increasingly to foreign consumers if they are to survive (Castro et al., 2019).

### REFERENCES

Allen, B., Chadha, J., Kara, A., Mao, X., Nguyen, D., Pabst, A., Turner, P. and Xu, L. (2020), 'China and the United Kingdom: economic relationships', NIESR Landscape Series No. 1, July 2020.

Castro, D., McLaughlin, M. and Chivot, E. (2019), 'Who is winning the AI race: China, the EU or the United States?', Center for Data Innovation, August 2019.

International Federation of Robotics (2020), *World Robotics Report 2020*, September 2020.

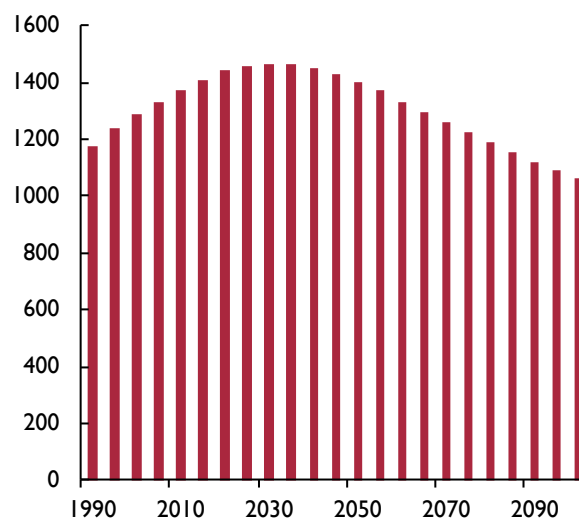
Naisbitt, B., Boshoff, J., Holland, D., Hurst, I., Kara, A., Liadze, I., Macchiarelli, C., Mao, X., Sanchez Juanino, P., Thamotheram, C. and Whyte, K. (2020), *The World Economy: Global Outlook Overview*, *National Institute Economic Review*, 253, F35-88, August.

OECD (2019), *OECD Compendium on Productivity Indicators 2019*, Paris: OECD.

UNCTAD (2019), *Digital Economy Report 2019*, New York: United Nations.

United Nations (2019), *World Population Prospects 2019*, New York: United Nations.

Figure 3. Total population in China (millions), 1985–2100



Source: United Nations (2019).